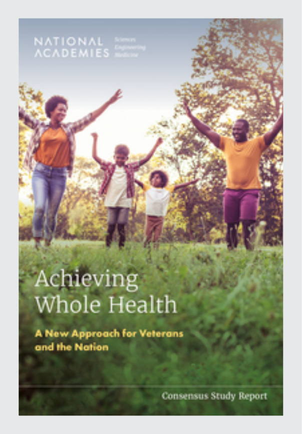

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Achieving Whole Health

A New Approach for Veterans and the Nation

Alex H. Krist, Jeannette South-Paul, and Marc Meisnere,
Editors

Committee on Transforming Health Care to Create
Whole Health: Strategies to Assess, Scale, and Spread
the Whole Person Approach to Health

Board on Health Care Services

Health and Medicine Division

Consensus Study Report

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COMMITTEE ON TRANSFORMING HEALTH CARE TO CREATE WHOLE HEALTH: STRATEGIES TO ASSESS, SCALE, AND SPREAD THE WHOLE PERSON APPROACH TO HEALTH[1]

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[1] NOTE: See Appendix B, Disclosure of Unavoidable Conflict of Interest.

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This Consensus Study Report was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies of Sciences, Engineering, and Medicine in making each published report as sound as possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their review of this report:

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Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations of this report, nor did they see the final draft before its release. The review of this report was overseen by **PATRICK H. DELEON,** Uniformed Services University, and **ERIC B. LARSON,** University of Washington. They were responsible for making certain that an independent examination of this report was carried out in accordance with the standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content rests entirely with the authoring committee and the National Academies.

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Preface

Health care in the United States is at a critical crossroads. Life expectancy has been decreasing for nearly a decade. Complications from multiple chronic conditions continue to rise. Mental health needs are at an all-time high. Unhealthy behaviors are prevalent. Despite remarkable breakthroughs and innovations in treating disease, the United States has worse health outcomes than most other developed countries and at a substantially higher cost. Adding fuel to the fire, the COVID-19 pandemic has killed millions of people worldwide; caused physical, mental, and social suffering; and exacerbated health and economic inequities.

The current systems of health care are failing us, largely due to four factors. The country has designed a health system to cure disease and not to promote health. The for-profit economics of health care have incentivized an environment of "haves" and "have nots" with inequities in access to care and inequities in the quality of care delivered to people and entire communities. The country has failed to adequately invest in addressing upstream factors that drive well-being; these known social determinants of health shape our daily lives and influence health more than health care delivery itself. The nation has focused on developing new cures to disease but has neglected to advance the science and systems of how we deliver care, which is essential to ensuring that the right people get the right care at the right time.

Veterans represent a particularly vulnerable group that is at greater risk for poor health outcomes. Recent U.S. military conflicts in Iraq and Afghanistan have spotlighted the trauma and stressors affecting the millions of U.S. service members who have been in active war zones since 2001.

Service members exposed to multiple combat deployments have been left with a variety of physical and behavioral consequences of these experiences. Throughout history, those who served our nation have experienced wartime injuries, exceptional emotional stressors, and environmental toxins during their military service. As a result, veterans have higher rates of chronic disease, cancer, and chronic pain. For many reasons, the transition to peacetime civilian life following separation from military service can be difficult, and veterans experience higher rates of unemployment, homelessness, post-traumatic stress, and substance use disorders compared with the general population.

Given their service to our nation, the United States has a moral obligation to ensure that our veterans receive the best care possible. The health care needs of veterans are the responsibility of the largest comprehensive health care system in the nation, the Veterans Health Administration (VHA). Over the past several decades the VHA has transformed itself, serving as a health system leader for numerous health care delivery innovations that span patient safety, informatics, care and payment design, learning, and research. Recognizing the breadth of veteran needs, VHA has developed a novel Whole Health System (WHS) to redefine what health means and how we help people achieve health and improve overall well-being. The whole health approach is an outgrowth of multiple other movements in health care, both in the United States and internationally. It recognizes that the health of people, families, and communities depends not only on the absence of disease, but also on all the factors that affect physical, emotional, social, and spiritual well-being. It views health not as a desired biomedical state of being, but as a resource that allows people to achieve their life goals and aspirations.

We believe that every health system's primary purpose should be to help the people that it serves achieve whole health. We recognize that this will take fundamental changes, starting with expanding the provision of care beyond just traditional health systems to include a holistic and coordinated approach from health care, public health, education, community programs, and social services to address the full spectrum of health and social needs that people have. For most people in the United States today, both veterans and civilians, any effort to comprehensively address all the factors that affect whole health is uncoordinated, siloed, complex, and generally inefficient. A whole health approach will add order and structure to this chaos and help to better meet the needs and priorities of people, families, and communities. The Department of Veterans Affairs (VA), which includes both the VHA and the Veterans Benefits Administration (VBA), is well positioned to start and test a whole health care transformation. The VHA provides health care, and the VBA addresses social needs. The VHA has a strong primary care workforce, adopted a people-centered approach, invested in informatics and telehealth, and has a safety, quality, and research mission and focus—all essential structures and processes to scale and spread whole health care. Additionally, the VA cares for a demographically diverse population that can benefit from whole health care.

The National Academies of Sciences, Engineering, and Medicine Committee on Transforming Health Care to Create Whole Health: Strategies to Assess, Scale, and Spread the Whole Person Approach to Health was tasked with examining the potential for improving health outcomes through whole health care and recommending future directions and priorities for the VA and other health systems interested in implementing a system of whole person care. The widespread implementation of this approach beyond the VA is critical because a substantial percentage of veterans receive some or all of their care outside of the VHA and because all people can benefit from whole health care. We acknowledge the complexity of creating a uniform approach to care as well as coordinating and harmonizing different systems of care, but a system of care that addresses what is most important to people rather than what is most convenient for those providing care is desirable for all citizens.

Movement toward whole health will require a radically different mindset and significant systems change in which stakeholders embrace the foundational elements, develop the structures and processes needed to support whole health, and achieve new levels of integration such that service delivery is coordinated across care settings and time. The shift from the current state to whole health care will require a transformation that incorporates individuals' health values, goals, and priorities while maintaining high-quality disease management. The comprehensive degree to which the current systems of care must change to achieve whole health, both within VA and beyond, demands a new way of thinking, leadership nationally and locally who believe in and will drive these changes, and a commitment to a learning system approach of continuous evaluation, adaptation, and a process of refinement.

As co-chairs, we are grateful for the expertise, commitment, and hard work of the committee members who shaped this report. The volunteer committee included 17 members with the breadth of backgrounds needed to understand the needs of veterans and the VA, the science of scale and spread of health system transformation, and the structures and processes needed to help people achieve whole health. The committee brought a broad perspective, informed by their experiences as medical, nursing, social work, and complementary and integrative health practitioners as well as economists, educators, researchers, and scholars. We are also indebted to Asaf Bitton, Denise Hynes, and Moira Stewart who provided the committee with comprehensive technical reports as well as to the VA and other early adopter health systems which shared their whole health journeys with the committee.

The committee wishes to acknowledge the leadership, guidance, and support that it received from the National Academies staff. Study director Marc Meisnere, senior board director Sharyl Nass, research associate Marjani Cephus, senior program assistant Tochi Ogbu-Mbadiugha, National Academy of Medicine fellow Alexander Melamed, and science writer Joe Alper were essential to defining our complex statement of task, assembling key stakeholders and thought leaders, understanding the current state of whole health care, developing our recommendations, and writing this report.

Alex H. Krist and Jeannette South-Paul, *Co-Chairs*
Committee of Transforming Health Care to Create Whole Health:
Strategies to Assess, Scale, and Spread the Whole Person Approach to Health

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Acronyms and Abbreviations

ACO	accountable care organization
AHRQ	Agency for Healthcare Research and Quality
CMS	Centers for Medicare & Medicaid Services
COVER	Creating Options for Veterans' Expedited Recovery
CPT	current procedural terminology
EHR	electronic health record
FQHC	federally qualified health center
GRACE	Geriatric Resources for Assessment and Care of Elders
HiAP	Health in All Policies
HIT	health information technology
HRSA	Health Resources and Services Administration
HSA	hospital or health service area
LHS	learning health system
MISSION Act	Maintaining Internal Systems and Strengthening Integrated Outside Networks Act of 2018

NASSS	Nonadoption, Abandonment, Scale-up, Spread, and Sustainability
NCA	National Cemetery Administration
NCGWG	North Carolina Governor's Working Group on Service Members, Veterans, and their Families
NICoE	National Intrepid Center of Excellence
PACE	Program for All-Inclusive Care for the Elderly
PACT	Patient-Aligned Care Team
PCBH	primary care behavioral health
PCED	Primary Care Equity Dashboard
PCMH	patient-centered medical home
PRAPARE	Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences
PTSD	post-traumatic stress disorder
SCF	Southcentral Foundation
TBI	traumatic brain injury
THRIVE	Transforming Health and Resilience through Integration of Values-Based Experience
VA	U.S. Department of Veterans Affairs
VBA	Veterans Benefits Administration
VHA	Veterans Health Administration
WH	whole health
WHO	World Health Organization
WHS	Whole Health System (VA)

Definitions

WHOLE HEALTH DEFINITIONS[1]

whole health—physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities.

whole health care—an interprofessional, team-based approach anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person's life mission, aspiration, and purpose.

whole health system—a collaborative health delivery system that encompasses conventional medical care, comprehensive and integrative health, community programs, social services, and public health. It addresses the five foundational elements of whole health (people-centered, holistic and comprehensive, upstream-focused, equitable and accountable, and team well-being). Whole Health System (WHS) (capitalized) refers to VA's WHS.

SYSTEMS INVOLVED IN WHOLE HEALTH

community programs—programs and services designed to address the needs and wants of a local population. Examples of community programs include spiritual and religious programs and health behavioral change programs.

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[1] These definitions are a combination of committee conceptualizations and definitions cited from the literature. Citations are included in the report body where definitions first appear.

health system—an organization or practice engaged in the delivery of health care services, including innovative models.

public health system—a broad range of federal, state, and local health agencies, laboratories, and hospitals as well as nongovernmental public and private agencies, voluntary organizations, and individuals working together or in parallel to promote and protect the health of given community.

social services—programs and services provided by government or local organizations that help individuals, families, and communities address unmet needs related to health, housing, employment, nutrition, and other social needs.

WHOLE HEALTH CONCEPTS

complementary and integrative health—practices and modalities that are not currently part of conventional medical care and often include acupuncture, massage, yoga, wellness coaching, and meditation. Also commonly known as complementary and integrative medicine.

conventional medical care—care that includes acute, chronic, preventive, reproductive, and mental health care, dental care, hearing care, vision care, and health behavior counseling.

scale—to expand, adapt, and sustain successful models within an organization, locality, or health system.

spread—to replicate a successful model elsewhere in other organizations, localities, or health systems.

people-centered care—an approach to care that focuses on values, priorities, and life-course needs of people, families, and communities.

upstream factors—the root causes of poor health, including health behaviors; social, economic, and education needs; and the natural and built environments in which people and communities reside.

Summary

If the measure of the performance of a country's health system is the ability to ensure that everyone has a fair and just opportunity to be as healthy as possible, then the United States is failing. Life expectancy at birth in the United States has consistently trailed most other countries in the Organisation for Economic Co-operation and Development, and the gap is widening. Life expectancy at birth differs by as much as 18 years, depending on race and ethnicity. Compared to other high-income countries, the United States spends far more on health care and achieves worse outcomes, and trust in health systems continues to erode. The country's current medical care infrastructure, and its focus on disease treatment and the dominant fee-for-service payment model, is not equipped to promote well-being and prevent the onset of disease. New goals and a systematic reorientation of resources and activities are necessary.

The 2001 Institute of Medicine report *Crossing the Quality Chasm: A New Health System for the 21st Century* identified patient-centered care as one of six pillars of quality care. Emphasizing patient-centered care shifts the traditional disease-focused model to one more focused on patient values and priorities. The World Health Organization further expanded the concept to people-centered care, which includes the life course of an individual plus care of the family and community. Going one step further, a whole health approach to care emphasizes that people-centered care should promote well-being as defined by the individuals, families, and communities themselves over the life course. Whole health care is intended to shift the focus from a reactive disease-oriented *medical* care system to one that promotes disease prevention, health, and well-being. It changes the conversation with people from identifying what is the matter with them to identifying what matters to them, and it puts the person, not their symptoms, at the center of care (Figure S-1).

While the concept of whole health is not new, there has been a recent surge of health systems implementing whole health care. The Department of Veterans Affairs (VA) has been a leader in this movement, initially implementing its Whole Health System (WHS) in 18 sites and focusing on people with chronic pain, mental health needs, and disabilities. VA has since extended this program across all VA medical centers and expanded the scope of services and conditions it addresses. It plans to expand WHS to the entire VA system by 2027. VA's people-centered, integrative, and transformative approach is designed to create and support health and well-being by incorporating individuals' goals and priorities into care decisions.

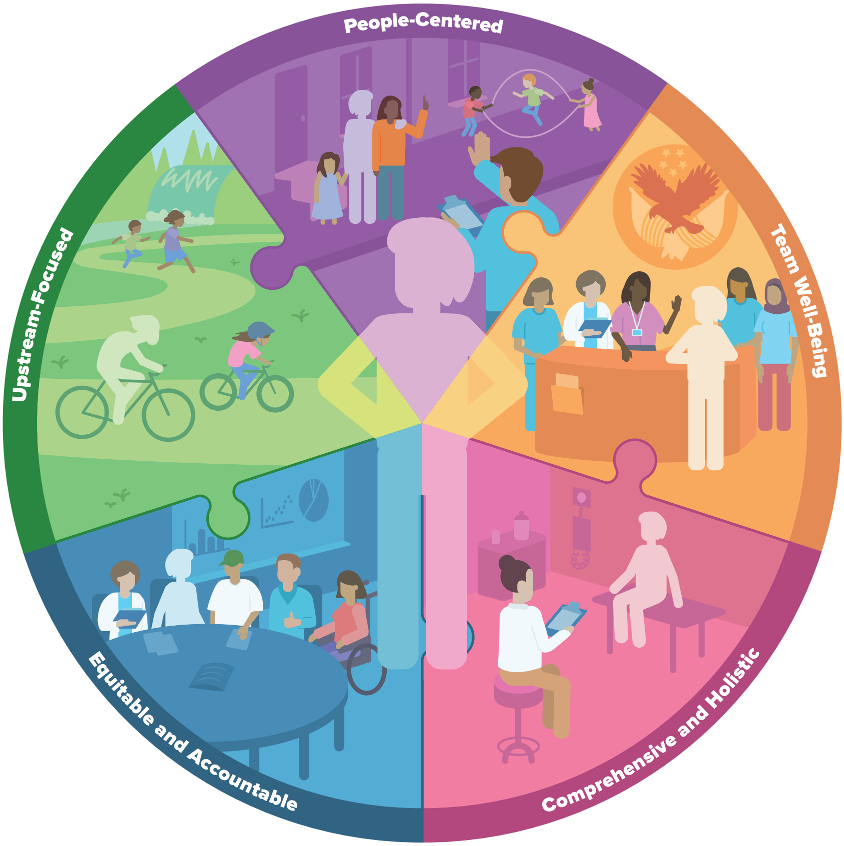

FIGURE S-1 The committee's five foundational elements of whole health.

It uses peer-led support, personalized health planning, coaching, and well-being courses, and it integrates evidence-based conventional medical care with complementary and integrative health, while also addressing the social determinants of health. The committee concluded that initial studies published by VA on the WHS are promising, demonstrating positive outcomes for pain management and opioid use and high patient satisfaction. This transformational approach to care could become a model for care across the country.

The unique financing and organization of VA makes it a logical setting in which to field and test whole health care. VA serves as both an insurer and care provider; provides health and social care services through the Veterans Health Administration and the Veterans Benefits Administration; and has data, resources, and a policy mandate to innovate and study whole health care. Most importantly, many veterans have service-related conditions that require new and innovative ways to address and deserve the support and care from VA to achieve their life goals.

Many health systems in the United States and abroad have also implemented some form of whole health care. While each of these exemplars has its own unique approach to whole health care, they are all built on a foundation of high-quality, well-supported primary care and are cross-sectoral, spanning conventional medical care, mental health, health behavior promotion, complementary and integrative health, public health, and social services. They have also demonstrated the positive benefits of a whole health approach, including improved patient experience and patient-reported outcomes; increased access to care; reduced emergency room use and hospitalizations; improved clinical quality metrics; improved outcomes for chronic pain, mental health, traumatic brain injury, and healthy aging; reduced maternal and infant mortality; improved health equity; the promotion of team well-being; and some reductions in health care expenditures. These early implementers can help translate the lessons of whole health care to the VA and the broader health care community.

STUDY CONTEXT AND CHARGE

In January 2019 a report from the Creating Options for Veterans' Expedited Recovery Commission, a federally established advisory committee, recommended that VA commission the National Academies of Sciences, Engineering, and Medicine (National Academies) to provide input on how to accelerate whole person care transformation by building on current efforts in mental health, primary care, and whole health care. Responding to that recommendation, VA commissioned the National Academies to provide guidance on how to fill gaps and create processes to accelerate this transformation for veterans both inside and outside the VA system.

As a result, the National Academies formed the Committee on Transforming Health Care to Create Whole Health: Strategies to Assess, Scale, and Spread the Whole Person Approach to Health. The committee's statement of task charged it with examining the potential for improving health outcomes through a whole health care model; identifying best practices and lessons learned from the flagship and design sites of VA's Whole Health Initiative, as well as from health systems in the United States and internationally; and considering ways to transform health care by scaling and disseminating whole health care to the entire U.S. population. The committee's charge was to consider the foundational elements of an integrated whole health model, but not to identify specific interventions that should be included in whole health models of care or defining specific evidentiary standards for making those decisions.

WHAT ARE WHOLE HEALTH AND WHOLE HEALTH CARE?

Having whole health is fundamentally different from being healthy in a biomedical model. Whole health is a resource for everyday life to enable people and communities to achieve their life aspirations and cope with change. Achieving whole health starts with understanding what matters to people and then builds the environment, resources, and support to help people and communities achieve their life goals. The committee believes that all people and all communities have a right to whole health. It is a common good and should be the desired goal of any effective health care system. The committee's first task was to define *whole health*, and it developed this definition:

> *Whole health is physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities. To achieve this, whole health care is an interprofessional, team-based approach anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person's life mission, aspiration, and purpose.*

The committee also identified five foundational elements of whole health that are necessary to have an effective *whole health care system*: (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) accountable and equitable, and (5) grounded in team well-being (Figure S-1).

Being *people-centered* is based on the idea that people, families, and communities should direct the goals of care, and it fosters self-empowerment through longitudinal, relationship-based care. Decades of research demonstrate that people-centered care most strongly influences patients' experience of care, less strongly influences patients' reported outcomes, and least strongly affects clinical or physiologic outcome measures.

Being *comprehensive and holistic* means that whole health care systems address all the domains of care that affect health and consider the entire person, their family, and their community. Robust evidence demonstrates that each component of comprehensive care (acute and chronic care, mental health care, oral care, vision care, hearing care, complementary and integrative health, spiritual care, social care, health behaviors, and additional upstream factors) improves peoples' well-being. Evidence also shows that providing all components of comprehensive care in one setting (e.g., high-quality primary care) further improves well-being.

Being *upstream-focused* requires a multisectoral, integrated, and coordinated approach to identifying and addressing the root causes of poor health. It addresses the conditions of daily life with the goal of making them more conducive to whole health. These root causes of poor health (health behaviors, social needs, environment), often referred to as the social determinants of health, have more impact and influence on health than conventional medical care. Addressing these needs through cross-sector collaborations can have a tremendous impact on health.

At their core, whole health systems must be *equitable and accountable* in providing care. The people not seeking care are often in greatest need of care. By being held responsible for people, families, and communities, whole health systems can transform care from being reactive to proactive and help meet needs before they develop into problems.

Delivering a whole health approach will not be easy and can only succeed if attention is paid to the *team well-being* of the entire interprofessional care team.[1] Burnout among health and social care professionals is at an all-time high. Caring for others requires a stable, healthy, resilient, and innovative team that can support the cultural transformations needed for whole health care.

SCALE AND SPREAD OF WHOLE HEALTH APPROACHES

Moving toward whole health will require a radically different mindset and significant systems change in which all participants embrace the committee's five foundational elements, develop the structures and processes needed to support whole health, and achieve new levels of integration across settings and services. As the committee's framework to scale and

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[1] An interprofessional care team includes a variety of clinical and nonclinical team members that collectively meet the whole health needs of a population or community. An interprofessional team will look different depending on available resources, and local needs, and should ideally reflect the diversity of its community.

FIGURE S-2 The committee's framework for scaling and spreading a whole health model of care

spread whole health (Figure S-2) indicates, developing and sustaining such systems will require both key contextual conditions (systems change and social movement, structures and processes for scale and spread, and integration of services) and alignment of critical foundational infrastructure (e.g., supportive health informatics; workforce training, education, and well-being programs; measurement systems for learning and accountability; and innovative health care financing). Or, to put it another way, without mutual reinforcement of systemic change, an embrace of whole health principles, development of structures and processes, integrated service delivery, and foundational infrastructure, the nation's ability to scale and spread whole health will be limited.

Scaling and spreading a whole health approach requires integration across sectors, some of which, especially those that address upstream factors, typically operate outside of most health care systems today. Although this report is primarily focused on how VA health care and other U.S. health care systems can scale and spread whole health, similar reports could be written from the perspective of social services, community programs, public health, or education systems and how they can better integrate and scale and spread whole health themselves.

COMMITTEE GOALS AND RECOMMENDATIONS

This report and recommendations apply to both VA systems of care and, more broadly, to systems of care throughout the United States and internationally. To ensure that every veteran and every person has access to and can receive the support they need to attain whole health, the committee's recommendations fall under six implementation goals. These goals describe a transformational journey in which health systems iterate goals as they learn to develop capacity for whole health care.

1. **COMMIT to the *shared purpose* of helping people achieve whole health.**
    - Engagement, support, buy-in, and prioritization from the bottom up and top down are needed to enable the necessary cultural and structural transformations.
2. **PREPARE for a *whole health* approach to care.**
    - Interprofessional teams, organizations, and systems need to understand where they are and what they need to change to deliver whole health care.
3. **INTEGRATE *across systems, services, and time* to support whole health care throughout the lifespan.**
    - Achieving whole health will require support in all settings throughout peoples' lifespan, and within and across the communities.
4. **DELIVER *all foundational elements* of whole health care across the lifespan**
    - Each foundational element of whole health care is essential and interdependent, and successful whole health systems need to attend to all five elements.
5. **EVALUATE to iteratively refine whole health care systems and *create generalizable knowledge*.**
    - The understanding of how to best deliver whole health care is evolving rapidly, so evaluating and adapting approaches and sharing learnings will be essential.

6. **DESIGN public- and private-sector *policies and payment* to support whole health as a common good and whole health care as a way of achieving whole health.**
    - Scaling and spreading whole health care will not be possible without realigning infrastructure, policies, and payment.

GOAL ONE: COMMIT TO THE SHARED PURPOSE OF HELPING PEOPLE ACHIEVE WHOLE HEALTH

Recommendation 1.1: To scale and spread whole health, the Department of Veterans Affairs, the Department of Health and Human Services, other federal agencies addressing health and social services, state and local governments, health systems, social services, community programs, and external environment actors (payers, corporations, educators, and others) should make whole health a core value.

Making whole health a core value means committing to the goal of whole health and the cultural, structural, and process changes needed to achieve it. This commitment starts with leadership across public and private sectors, including health care, community programs, social services, and public health organization, payers, educators, and informatics-oriented organizations or vendors, making meaningful actions that include

- Securing prioritization and buy-in at all levels of leadership.
- Naming the care delivery approach as a "whole health approach."
- Making a whole health approach part of the organization's core mission statement.
- Creating a vision and roadmap for delivering whole health.
- Including the people, families, and communities that will be served in the design of the whole health care system.
- Financially investing in the development of whole health approaches.
- Identifying champions at the local level and supporting their efforts to lead needed transformations.
- Incorporating whole health approaches in day-to-day culture for patients and care team members.

GOAL TWO: PREPARE FOR A WHOLE HEALTH APPROACH TO CARE

Recommendation 2.1: National, regional, and facility VA leaders should ensure that all sites are ready to offer the Whole Health System of Care to all veterans by ensuring that each site understands and adopts the

whole health mission and vision and has the resources and services it needs to transform its care delivery approach.

While VA has made tremendous advances in developing, implementing, and spreading its Whole Health System (WHS), not all VA sites have fully implemented it. All veterans should have easy access to whole health care in their community, which requires more fully scaling and spreading the WHS to all VA facilities. Additionally, not all VA sites will have the resources and interprofessional team members to fully implement the WHS, so veterans should be able to access WHS services either on site or through virtual platforms as well as through non-VA health care and community-based systems by taking advantage of community programs through the Maintaining Internal Systems and Strengthening Integrated Outside Networks Act of 2008 (MISSION Act) (Recommendation 6.1).

Recommendation 2.2: Health care systems, community programs, social services, and public health organizations committed to helping people achieve whole health should ensure that all sites are ready to offer whole health care to the people, families, and communities they serve.

VA and other health systems have made significant advances in implementing whole health approaches, and others are just beginning their whole health journeys. Whether an organization is just starting to implement a whole health approach or is scaling and spreading an existing approach to new sites, multiple actions are needed to prepare for care transformation, including

- Assessing organizational and interprofessional team member readiness.
- Identifying potential facilitators, barriers, and strategies for overcoming barriers.
- Defining the elements of the current care system that will need to change to transition from conventional to whole health care.
- Determining what resources are available and what resources are needed and pursuing those that are lacking.
- Identifying sites to serve as early adopters and designating champions to lead the redesign, innovation, and implementation.
- Creating a sense of urgency.
- Organizing interprofessional teams around the whole health needs of the people, families, and communities served.

- Developing processes for interprofessional teams to collaborate, share information, and coordinate resources.
- Establishing ongoing dynamic mechanisms for meaningful input from the people, families, and communities who will be co-creating whole health care.
- Developing the clinical, social services, and community cross-sector partnerships needed to fully address all five foundational elements of whole health.
- Ensuring that the whole health needs of the interprofessional workforce are also met.

GOAL THREE: INTEGRATE ACROSS SYSTEMS, SERVICES, AND TIME TO SUPPORT WHOLE HEALTH CARE THROUGHOUT THE LIFESPAN

Recommendation 3.1: The Department of Veterans Affairs should integrate the delivery of whole health services between the Veterans Benefits Administration (VBA) and the Veterans Health Administration (VHA).

Many of the benefits that VBA offers to eligible veterans address the issues that are relevant to upstream factors foundational to whole health. However, VBA and VHA are separate administrations under the Department of Veterans Affairs, with separate leadership, budgets, and reporting structures. Currently, their efforts are siloed and do not fulfill the characteristic of being holistic with components and team members seamlessly integrated and coordinated. Integrating key VHA and VBA efforts and team members has the potential to maximize the effectiveness and efficiency of VA's whole health efforts while also reducing health inequities among veterans.

Recommendation 3.2: Health care systems should create and strengthen the infrastructure needed to partner with community programs, social care, and public health systems.

This recommendation applies to both VA and non-VA systems committed to whole health. Even if VHA and VBA fully integrate their whole health services, a whole health approach will still require contributions from community programs, social services, and public health programs. Whole health systems will need infrastructure to support partnerships at the federal, state, and local levels and will need to include both the public and private sectors. To determine the specific partnerships necessary to build a whole health approach, health systems will need to identify the resource, service, and provider gaps in their current approaches to whole health care.

GOAL FOUR: DELIVER ALL FOUNDATIONAL ELEMENTS OF WHOLE HEALTH CARE ACROSS THE LIFESPAN

> **Recommendation 4.1: The Department of Veterans Affairs should fully incorporate all whole health foundational elements into its Whole Health System.**

VA has made tremendous efforts in developing and implementing its WHS. Future efforts should more fully develop all five foundational elements of whole health care with particular attention paid to ensuring that the care offered is comprehensive and holistic, to addressing upstream factors and team well-being, and to being accountable to all veterans, with particular attention paid to equity for disabled, socially vulnerable, racial and ethnic minority, women veterans, and others who may have difficulty accessing services due to geography or other factors. Additionally, VA will need to extend its whole health approach to older veterans, women's health, maternal health, family health, LGBTQ+ health, chronic disease management, and healthy aging.

> **Recommendation 4.2: Health care systems, community programs, social services, and public health organizations should model whole health approaches after the Department of Veterans Affairs and other early adopters.**

Systems that are committed to helping people achieve whole health should begin by building on what others have successfully done, although local tailoring will be necessary to address the specific needs of the people served, available resources of the local care systems, the local environment, and opportunities for collaboration. Whole health care should be the default way that health care is practiced and should be available for all people in every community across the lifespan.

> **Recommendation 4.3: Building on its existing health center program, the Health Resources and Services Administration (HRSA) should lead the scale and spread of whole health care in the community.**

HRSA is well positioned to serve as a federal leader in promoting whole health care adoption and implementation in non-VA settings. HRSA has established systems of accountability and addresses upstream factors as well as conventional health care. Particularly important has been HRSA's ability to scale and spread initiatives across the nation, including in some of its most vulnerable communities, in collaboration with state and community partners. HRSA's approach to promote uptake and delivery of whole health care services can serve as a model for commercial and federal payers as well as state and local health departments.

GOAL FIVE: EVALUATE TO ITERATIVELY REFINE WHOLE HEALTH SYSTEMS AND CREATE GENERALIZABLE KNOWLEDGE

Recommendation 5.1: Systems fielding a whole health approach should systematically and continuously evaluate and participate in external evaluations of the implementation and adaptations of the approach and disseminate the lessons learned.

Scaling and spreading effective whole health approaches so that whole health is accessible to all will take fundamental changes to the structures, processes, and goals of how the nation thinks about and cares for people. It is essential for public and private systems fielding a whole health approach to evaluate how to implement whole health care and its outcomes. Evaluations should be prospective, longitudinal, and multilevel; should use a mix of methods and include information on how to achieve whole health; and should not be overly burdensome on clinicians or people receiving care. Findings should be openly and transparently shared so that others can learn and adapt approaches based on the results. These evaluations should focus on learning and should be distinct from the evaluations used to ensure accountability and the quality of whole health care.

Recommendation 5.2: Building on its overall mission to study the care of people and the allocation of Patient-Centered Outcomes Research Trust funding to disseminate evidence to practice, the Agency for Healthcare Research and Quality (AHRQ) should fund research to evaluate whole health care as well as research that disseminates evidence on whole health practices. Additional research support will be needed from other national and international organizations, foundations, and private payers.

To accomplish Recommendation 5.1, systems will need research support and funding. And, given its mission, AHRQ is a logical lead for this type of research. The National Institutes of Health's dissemination and implementation portfolio and new Advanced Research Projects Agency for Health can also be applied to whole health care. Federal leadership from organizations such as the Office of the National Coordinator for Health Information Technology can create incentives for informatics vendors to develop and support the systems needed to deliver whole health care, integrate collection and measurement tools into the electronic care delivery workflow, and make data more easily accessible to care systems and health services researchers.

GOAL SIX: DESIGN PUBLIC- AND PRIVATE-SECTOR POLICIES AND PAYMENT TO SUPPORT WHOLE HEALTH AS A COMMON GOOD

Recommendation 6.1a: The Department of Veterans Affairs, federal policy makers, and regional third-party administrators should determine how the MISSION Act applies to delivering whole health services.

Recommendation 6.1b: Regional third-party administrators of the MISSION Act should streamline the process for enrolling community providers in community care networks and define and enforce standards for health record transfer between community care systems and VA as a condition for reimbursement.

While well intentioned, the current implementation of the MISSION Act is fraught with problems and, as currently put into practice, has significant limitations in access to care through community (non-VA) clinicians. VA and federal policy makers need to clarify which whole health services the current MISSION Act legislation and policy covers and to hold regional third-party administrators accountable for establishing the clinical capacity needed to ensure timely, high-quality care. VHA and VBA programs should engage with non-VA health systems and social support programs to promote the routine identification of patients/participants with past military service and create coordinated care systems across VA and community settings to promote whole health.

For the MISSION Act to succeed, it will also have to ensure that there are sufficient networks of community providers and services in areas with unmet veteran needs. While building larger networks of community providers will be challenging, regional third-party administrators can make the process of becoming an eligible community care provider more efficient to attract more participants. They can also ensure that both VA and community systems have a complete picture of each veteran's whole health status, needs, and preferences by facilitating reliable and consistent health record exchange between systems. Paying for care from community providers and adding whole health care should not undercut access to services at VA sites.

Recommendation 6.2: The Department of Veterans Affairs, in partnership with the Department of Health and Human Services (HHS), should create a national Center for Whole Health Innovation to design and advance the policies and payments for whole health care.

The magnitude of change needed to accomplish whole health care implementation is great, even among systems that are already on this path. New partnerships will need to be forged, policy and payment changes will be needed, and an unprecedented level of coordination will be needed at the local, state, and national levels. This is not a change that will be accomplished in the next few years, but rather will be a decades-long process. Moreover, no one organization currently has the authority or responsibility for envisioning and leading implementation of an effective whole health approach that spans health care, public health, community programs, education, and social services sectors. Given the magnitude of change needed, the current early stage of whole health implementation, and the need for a longer trajectory of iterative system design, research, and adaptation to implement and refine the whole health approach, the committee recommends creating and funding a national Center for Whole Health Innovation. The center would be charged with developing the needed policies, practices, and tools required to support scaling and spread of whole health both within VA and, more broadly, across health, community, and social systems nationally.

While the committee considered various entities to lead this effort, it concluded that, given the complexity and needs across sectors, only the federal government has the authority and resources to oversee the required changes. The committee is not aware of a single other public or private organization that could address whole health in this way. While a coalition of organizations (either a private or a public–private coalition) might be able to address whole health care, responsibility would be diluted, and the coordination of efforts would be overly complex and cumbersome. There is a critical role for nongovernmental stakeholders (health system leaders, researchers, technology vendors, and others) to provide needed input and collaboration into designing the policies and payments for whole health care, and the committee concluded this could best be achieved by including these stakeholders as partners in the Center for Whole Health Innovation.

VA and HHS should lead the creation and design of the Center for Whole Health Innovation. The center could be modeled after other national centers, such as the Center for Medicare & Medicaid Innovation. The Center for Whole Health Innovation will need investments in the range of what the CMS innovation center or the Cancer Moonshot initiative receive, which will likely require congressional support. It will also need multisector participation from other whole health stakeholder agencies and organizations in addition to the people and communities they serve.

This recommendation has many similarities to the recommendation to form the Secretary's Council on Primary Care in the National Academies' *Implementing High-Quality Primary Care* report. The proposed center and the proposed council have some overlap in terms of mission, charge, and design of whole health and primary care, respectively. However, whole health is more than high-quality primary care, and primary care has unique needs outside of whole health. The center and council will need to collaborate and build synergy with their efforts, but each will need to be independent parallel entities with unique charges.

The Center for Whole Health Innovation will need to address five specific tasks (as well as others not called out in the following list):

1. *Disseminate and advance the vision* of whole health for the nation and how to deliver whole health care effectively and efficiently. As whole health care scales and spreads further, the Center for Whole Health Innovation can aggregate, share, and disseminate lessons learned and best practices to help systems adopt their whole health approach.
2. *Define how to measure and hold systems accountable for success.* Measures are needed to assess the effectiveness of the delivery of whole health care and the attainment of whole health by individuals, families, and communities. These measures need to be distinctly different from current biomedical measures and should instead measure whether systems deliver whole health care's foundational elements. Short-term measures could assess the process and delivery of care while long-term measures could focus on health outcomes.
3. *Ensure structures, processes, and infrastructure development* to support whole health. Structures and processes that support whole health care will require experimentation with expanded interprofessional teams, new forms of inter- and intra-organizational relationships, and mechanisms for promoting their integration. The necessary infrastructure will include health information technology, workforce training and education, engagement of people and communities on whole health care, and measurement for learning to scale and spread and for accountability purposes.
4. *Adapt value-based payment models* aligned with delivering whole health care by both public and private payers. Payment models will need to be inclusive of the entire interprofessional team and scope of whole health care services. They also need to reinforce the delivery of all five foundational elements of whole health care.
5. *Consider equitable allocation of resources* to deliver whole health care. Because much of whole health occurs outside of conventional medical care delivery, there is a need to meaningfully invest in developing community programs and social services, especially in historically under-resourced settings with the most unmet need. National policies are needed to better allocate payment and resources across the broad spectrum of whole health services such as increased

funding to address upstream factors affecting health, allocating more health and social care resources to the people and places in need, training the workforce needed to deliver whole health care, and improved education for all.

CONCLUSIONS

Whole health is a common good that benefits people, families, and communities. Scaling and spreading whole health care so that all can have access to needed services is a tall task and will take seismic cultural, structural, and process transformations. These include but are not limited to how to think about what it means to be healthy, how to deliver health care, who is accountable for delivering health care, and even how to measure success. Throughout the transformation process, the people, families, and communities who receive whole health care will need to be engaged as equal partners in defining health goals and the preferred strategies to reach those goals. Multisector collaboration and investment on a national and local level are needed, as is a significant reallocation of resources to ensure effective, efficient, and equitable care.

The United States has made significant national investments to address diseases and conditions, which has resulted in tremendous medical advances and innovations. However, the nation has not made similar commitments to improving the effective, efficient, and equitable delivery of care. The recommendations and approaches outlined in this report provide a roadmap for improving health, social, and community systems of care. Recent innovations in VA and in other early adopter systems of whole health care have significantly advanced the field and demonstrated the value of a whole health systems approach. Building on these advancements will ensure future success leading to better health and well-being for veterans and the nation.

1

Introduction

The 2001 Institute of Medicine (IOM) report *Crossing the Quality Chasm: A New Health System for the 21st Century* (IOM, 2001) identified patient-centered care as one of the six pillars of quality care. The emphasis on patient-centered care shifts the approach from health care as a traditional disease-focused model to one that focuses more on patient values and priorities. In 2009 the IOM summary of the Summit on Integrative Medicine and the Health of the Public noted the importance of integrating the best conventional care, fully engaging informed people so they achieve better health, and including the full range of approaches to enhancing health and wellness as well as to preventing and addressing chronic disease (IOM, 2009). Since then the concept of patient-centered care has evolved to person-centered care, an approach that focuses more broadly on interrelationships over time and the life course of an individual in the context of their families and communities (NASEM, 2021; Starfield, 2011). The World Health Organization (WHO) expanded the concept even further to people-centered care, which is more of a public health approach that further considers the life-course needs of people, families, and communities (WHO, 2016, 2020).

The whole health approach to care includes the concept of people-centeredness but goes beyond it. As described in greater detail in Chapter 2, the committee identified five foundational elements on which whole health systems are based: (1) people-centered, (2) holistic and comprehensive, (3) upstream-focused, (4) equitable and accountable, and grounded in (5) team well-being. The approach aims to shift from a reactive disease-oriented *medical* care system to one that emphasizes health promotion and disease prevention and enables people and communities to achieve *whole health*. This approach is intended to understand people's life meanings, aspirations, and purposes—what matters most to them in the context of their families and communities—to form the foundation of health care delivery. The whole health approach changes the conversation with individuals from identifying what is the matter *with* them to identifying what matters *to* them, and it puts the individual, not their symptoms, at the center of all care decisions (Gaudet and Kligler, 2019).

The Department of Veterans Affairs (VA) Whole Health System (WHS) emphasizes that focus on what matters to people. Its people-centered, integrative, and transformative approach to health care is intended to create and enable health and well-being by incorporating individuals' goals and priorities into their health care decisions. The VA WHS care model includes peer-led support, personalized health planning, coaching, well-being courses, and integrated evidence-based conventional, complementary, behavioral, and integrative practices with the goal of addressing the social determinants of health. Other systems—in the United States and internationally—have adopted similar whole health approaches to care. If this transformational approach to care produces the hypothesized improvement in patient outcomes and satisfaction in a cost-effective manner, it could become a model for higher-value care across the country.

When implemented, a whole health approach ensures equitable access to care that addresses each of the above foundational elements. However, individual care preferences and goals will vary greatly, and many people may opt out of using some aspects of the approach. For example, individuals may only want care that meets their immediate medical needs, such as managing a chronic health condition, and not be interested in the broader approach to overall well-being. For people without complex needs, simply knowing that they can access care when needed may be all that they want at that point in their lives. One important aspect of the whole health approach is that it ensures each person knows about and can access all components of the full approach and that the health care system respects and honors an individual's choice whether or not they take advantage of specific offerings.

A systems-level transition to a whole health approach, however, will require a seismic shift from the current state of U.S. medical care. Today, most health systems operate under a disease- and problem-based fee-for service model that treats medical care services as commodities in the competitive marketplace (NASEM, 2021). This is simply incompatible with a whole-person approach to care that promotes holistic and comprehensive health, well-being, and prevention. The dominant fee-for-service model has fostered a fragmented, siloed system that provides fertile ground for inequitable and unnecessarily costly care, dominated by professional tribalism, hyper-specialization, and business interests. More foundationally, the current U.S. health, community, social, environmental, and education systems are not integrated or coordinated in their efforts, with each system having separate, competing, and unequal funding mechanisms. A systems-level transformation toward a whole health approach will have to address this status quo which is deeply ingrained in much of U.S. health and social care today.

The shift from this current state of medical care to a whole health approach will require a far-reaching transformation that refocuses the current medical care system by addressing all domains that affect health, including the root causes of poor health such as health behaviors, mental health, social determinants of health, and structural determinants of health, while incorporating patients' goals and priorities into their health care decisions. It also must be both accessible and accountable to people, families, and diverse communities (across all racial, ethnic, religious, socioeconomic, and other historically disadvantaged groups) and be built upon a healthy, high-performing interprofessional workforce. To achieve this, it must break down conceptual, administrative, and financial barriers that isolate clinical care from the assessment and coordinated management of these domains.

The VA operates in a mostly prospective financial environment, with salaried clinicians and other staff insulated from most of the pressures of a fee-for-service environment in which clinicians are reliant on providing billable, reimbursable services. This makes VA well positioned to lead the charge in shifting away from the predominant reactive, problem-based approach to care to one that is holistic, equitable, and focused on the needs, desires, and well-being of the whole person. Within this context, the VA has made various efforts to advance the concept of people-centered care and whole-person health care by adding features to standard medical care, such as comprehensive mental health care integrated into primary care, patient-centered primary care homes, complementary and integrative health,[1] and efforts to address social determinants of health. VA WHS, which the VA first implemented in 2018 at 18 pilot sites and is now promoting at all 171 of its medical centers, is perhaps the most advanced example of an effort to implement a new paradigm of care based on the premise of system transformation to support veterans' health, recovery, and well-being. According to the VA, preliminary data on the effectiveness of its WHS are promising, but there are many research needs that must be addressed to further evaluate these efforts (Bokhour et al., 2020) (see Chapter 5 for more detail).

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[1] Within the context of VA's WHS, complementary and integrative health "reaffirms the importance of the relationship between practitioner and patient; focuses on the whole person; is informed by evidence; and makes use of all appropriate therapeutic and lifestyle approaches, healthcare professionals, and disciplines to achieve optimal health and healing" (Tick and Nielsen, 2019, p. 1), and it includes acupuncture, biofeedback, clinical hypnosis, guided imagery, massage therapy, meditation, Tai Chi/Qi Gong, and yoga.

The efforts required to shift from medical care to a whole health approach may be significant for the VA and seismic for the United States as a whole, but the committee wishes to underscore the urgency of the problem that the whole health approach is attempting to address. If the measure of the performance of a country's health system is the ability to ensure all inhabitants have a fair and just opportunity to be as healthy as possible, then there is abundant evidence that the United States is failing. The United States spends more and achieves lower outcomes than other developed countries. In an analysis of dozens of performance measures across 5 domains among 11 high-income countries, the United States ranked last in equity, access to care, administrative efficiency, and health outcomes—and last overall in aggregate—despite spending far more of its gross domestic product on health care (Schneider et al., 2021). Life expectancy at birth in the United States has consistently trailed most other countries in the Organisation for Economic Co-operation and Development, and the gap is widening. Moreover, in 2021 life expectancy at birth in the United States declined for the second year in a row (CDC, 2022). Only about half of this decline was attributable to the COVID-19 pandemic. The same analysis showed differences of up to 18 years in life expectancy at birth among groups of different races and ethnicities.

Most of the widening gap in life expectancy between the United States and other countries is due to an increase in mid-life mortality caused by drug overdoses, alcohol abuse, suicides, and a diverse list of organ system diseases (Woolf and Schoomaker, 2019). The country's current medical care infrastructure has demonstrated that, with its current orientation toward disease- and problem-based treatment, it is incapable of treating people with these conditions in a fair and systematic way, let alone preventing the conditions.

Accompanying these decrements in life expectancy has been an erosion of trust in U.S. health care (Cope et al., 2022). Trusting relationships between patients, clinicians, and health care organizations affect health behaviors and outcomes and are key for system effectiveness. Yet before and during the COVID-19 pandemic, trust declined as frustration about racial injustice and polarization around issues of health, policy, science, and information increased (Hostetter and Klein, 2021; Kennedy et al., 2022).

Fundamentally, these issues demonstrate a misalignment in how the United States is investing limited resources and the services provided versus what people, families, and communities need to achieve whole health. Health care systems cannot do this alone—public health, community care, social services, environmental services, work environments, and educational systems are all needed. This report will explore the evidence assessing whether whole health systems—ones that are people-centered, comprehensive and holistic, upstream-focused, equitable and accountable, and grounded in team well-being—can address these challenges and promote whole health and, if so, what is required to create, scale, and spread them in the VA and throughout the United States.

PROJECT ORIGIN AND STATEMENT OF TASK

In January 2019 the Creating Options for Veterans' Expedited Recovery (COVER) Commission,[2] a federally established advisory committee, recommended that VA commission the National Academies of Sciences, Engineering, and Medicine (National Academies) to provide input on how to accelerate whole person care transformation by building on current efforts in mental health, primary care, and whole health care across the VA. In response to that recommendation, the VA commissioned the National Academies to provide guidance on how to fill gaps and create processes to accelerate this transformation for veterans who receive care both inside and outside the VA system.

With the support of the VA, the Samueli Foundation, and the Whole Health Institute, the National Academies launched this study in July 2021 and formed the Committee on Transforming Health Care to Create Whole Health: Strategies to Assess, Scale, and Spread the Whole Person Approach to Health. The committee's charge was to examine the potential for improving health outcomes through a whole health care model; identify best practices and lessons learned from the flagship and design sites of the VA's Whole Health Initiative as well as from health systems in the private sector; and consider ways to transform health care by scaling and disseminating whole person care to the entire U.S. population. The committee was asked to consider the foundational elements of an integrated whole health model, but it was not charged with identifying specific interventions that should be included in whole health models of care or defining specific evidentiary standards for making those decisions (see Box 1-1).

STUDY APPROACH

The Committee on Transforming Health Care to Create Whole Health: Strategies to Assess, Scale, and Spread the Whole Person Approach to Health comprised 18 members with a broad range of expertise, including people-centered clinical care, nursing, primary care, health care systems in general, the VA health care system in particular, health care disparities, health care policy, health services research, integrative medicine, behavioral health, social work, community wellness, psychiatry, pharmacy, and the social determinants of health. Appendix A presents brief biographies of the committee members, fellows, and staff.

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[2] https://www.va.gov/cover/

BOX 1-1
Study Statement of Task for the Committee on Transforming Health Care to Create Whole Health: Strategies to Assess, Scale, and Spread the Whole Person Approach to Health

An ad hoc committee of the National Academies of Sciences, Engineering, and Medicine will examine the potential for improving health outcomes through a whole health care model, which focuses on transformation to a whole person–centered integrative approach to health creation and well-being by incorporating patients' goals and priorities into their health care decisions while still providing high-quality disease management. The committee will identify best practices and lessons learned from the flagship and design sites of the VA Whole Health Initiative as well as from health systems in the private sector and consider ways to transform health care by scaling and disseminating whole person care to the entire population. The committee will consider the foundational elements of an integrated whole health model but will not be charged with identifying specific interventions that should be included in whole health models of care or defining specific evidentiary standards for making those decisions. The committee will identify research designs to study individual components of these delivery models as well as implementation science strategies for integrating these components into a single system of care. The committee will review results from health services research and observational studies as well as randomized study designs. In particular, the committee will consider the following:

1. **Where is whole health currently being implemented?** (Scoping the field for examples of this approach),
    - What care delivery models show promise for supporting whole person health care, including mental health and integrative primary care; and
    - What are common core elements of current whole person and whole health models?

2. **What does whole health accomplish?** (Assessing what is known, and what is yet to be learned, about the effects and costs of whole health care)
    - How can whole person care be used to more effectively address health equity and the social determinants of health as well as inequities driven by structural racism in health care;
    - What models with a focus on patient-identified goals and values (person-centered care) have produced measurable outcomes regarding both disease management and patient well-being; and

- What metrics and modeling could be used to assess and track the effectiveness of transformation to a whole person approach to care delivery?

3. **How can effective whole health strategies spread?** (Identifying barriers and facilitating conditions to scale and clinically integrate whole health care both within and outside the VA)
    - How can the VA accelerate clinical integration with community services to expand whole person care to veterans who receive their care outside the VA through the VA MISSION Act provisions;
    - How could the Veterans Equitable Resource Allocation system facilitate the transformation to whole health within the VA and also inform models in the private sector;
    - What payment and financing models for use in the private sector could enable clinical integration of value-based, whole person, population health beyond the VA; and
    - What strategies can be used to overcome barriers to scaling and implementing components of the whole health approach, such as integration of mental health, complementary and integrative health, health coaching, peer-to-peer approaches, and well-being programs?

4. **What other factors affect the performance of whole health?** (Identifying infrastructural needs and innovations to support effective whole health care)
    - What training and structural changes, including incentives, could enable clinical care providers to embrace and adopt whole person care;
    - What is the role of coaching techniques alone or in combination with care from clinically trained health care providers;
    - What is the role of clinician and staff self-care and well-being in successful implementation of transformational models of care; and
    - What lessons can be learned from how transformational models of care have adapted to delivering care during the COVID pandemic, and which adaptations may be useful to continue?

The committee will issue a report with findings and recommendations for future directions and priorities for the VA and other health systems caring for veterans in implementing a system of whole person, population health care.

The committee deliberated during six 2-day meetings and many conference calls between October 2021 and September 2022. At two of the meetings, the committee invited outside speakers to inform the committee's deliberations, and members of the public had the opportunity to offer questions, comments, and suggestions. The speakers provided valuable input on a broad range of topics, including integrative approaches for women veterans, spiritual care, health coaching, people-centered system design, the COVER report, the VA Whole Health Initiative, and the work of the Whole Health Institute. To further inform its work, the committee commissioned three papers on the following topics: evidence on patient-centeredness, patient-centered systems, and implementation and scaling of whole person health; whole health in VA health care, including insights on implementation, research, and future evaluations; and lessons for whole health from other health systems.[3]

With the help of National Academies staff, the committee also completed an extensive search of the peer-reviewed literature, ultimately considering more than 5,000 articles and targeting English-language articles published since 2001 on topics including where whole health is currently being implemented; what whole health accomplishes; what factors affect the performance of whole health; the VA Whole Health Initiative; and health system transformation. In addition, the committee reviewed the gray literature, including publications by private organizations, government, and international organizations, with a focus on outcomes and implementation strategies.

STUDY CONTEXT

This study takes place at a time when most people residing in the United States in need of care interact with what can best be described as a *medical care system* that largely provides reactionary, transactional, and disease- and problem-based treatment of medical problems as they arise. There are few resources in the current medical care system devoted to proactive prevention (Gmeinder et al., 2017), and in most settings the system is optimized around billable services rather than the creation of health among people, families, and communities.

As described in the recent National Academies report *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care* (NASEM, 2021), primary care is the bedrock of any well-functioning health system but has been systematically neglected for decades. Chapter 2 describes the important role of *high-quality* primary care in any whole health system. In the United States, however, primary care is currently

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[3] Commissioned papers are available at https://doi.org/10.17226/26854.

strained and under-resourced, accounting for 35 percent of all health care visits but only about 5 percent of health care expenditures. Nevertheless, it is an essential element to achieving the quadruple aim (enhancing the patient experience, improving population health, reducing costs, and improving the health care team experience) as well as reducing inequities that are commonplace in U.S. health care today (Bodenheimer and Sinsky, 2014; Christian et al., 2018; Macinko et al., 2003; Park et al., 2018; Phillips and Bazemore, 2010). In fact, primary care is the only part of the U.S. health care system that improves community health and promotes equity (NASEM, 2021).

While primary care's importance to any whole health system should not be understated and the definition of high-quality primary care is closely aligned (NASEM, 2021) with how this committee defines whole health (see Chapter 2), it would be misguided to view whole health simply as high-quality primary care with some additional features. Rather, the chassis upon which whole health must be built is fundamentally different from our current system. Whole health begins with the self-identified needs of an individual for well-being—often before the individual is a patient—and those practicing whole health must be able to organize actions and resources to respond to those needs across physical, behavioral, spiritual, and socioeconomic domains. While high-quality primary care plays a critical role in achieving this, adequately building new systems around a whole health approach will require redefining the very notion of health from a reactive, treatment-based approach, which is the norm today, to one that is more proactive and focused on the five foundational elements of whole-person health systems.

About the VA

The VA comprises three organizations: the Veterans Health Administration (VHA), which is the largest health care system in the United States; the Veterans Benefits Administration (VBA), which provides a variety of benefits to veterans, service members, and their families; and the National Cemetery Administration (NCA), which oversees burial services for veterans and eligible family members (VA, 2018). Of the three, VBA had the largest fiscal year (FY) 2022 budget, at $159 billion. VHA had a FY 2022 budget of $98 billion, and NCA's FY 2022 budget was $394 million (CRS, 2021). An undersecretary oversees each of the three organizations and reports directly to the Secretary of Veterans Affairs. In general, the three administrations within the VA operate separately, with their own leadership and reporting structures.

While VHA[4] is a primary focus of this report, many of the upstream factors that this committee identified as foundational elements of whole health fall within the purview of the VBA. For example, VBA manages veterans' compensation benefits, employment training programs, and education benefits and provides home loans and mortgage delinquency assistance, financial management assistance, an independent living program, and other benefits (VA, 2022b). As subsequent chapters of this report describe in greater detail, addressing these upstream, social determinants of health adequately through an integrated, whole health approach to health care has the potential to improve the nation's health overall and reduce health inequity (NASEM, 2019). Because these benefits and services are already present under the large VA umbrella, the organization overall is well positioned in theory to incorporate them into a single, whole health approach to care that spans the services already offered by VHA and VBA.

VA Health Care

Through VHA, the VA health care system is the largest integrated health care system in the United States, providing care for veterans of the U.S. armed forces discharged under other than dishonorable conditions through 18 veterans integrated service networks, which are regional systems of care working together to better meet local health care needs and provide greater access to care (VA News, 2022). In 1946, Gen. Omar Bradley and the VA's first medical director, Maj. General Paul Hawley, laid the groundwork for VA health care by creating the Department of Medicine and Surgery (VA, 2021) and instituting a number of changes and initiatives to accommodate the nearly 16 million new veterans who served during World War II and the changing nature of their health care needs. For the first time in its history, the U.S. military saw more casualties resulting from combat injuries than diseases, and improved battlefield medical care meant more service members returned home with wounds that were not previously survivable (VA, 2021).

Today, VA provides care at 171 VA medical centers, 1,287 community-based outpatient clinics, and 300 vet centers, of which more than 80 are mobile Vet Centers. As of July 2021 there were 19,542,000 living U.S. veterans, 10.4 percent of whom identified as female, with a demographic breakdown by race and ethnicity shown in Table 1-1.

Of the total veteran population, more than 9 million are enrolled in VA health care (VA, 2022b), with nearly 400,000 full-time VA employees, including some 450 VA suicide prevention coordinators, providing care (GAO, 2021). In addition, the VA has approximately 1,100 veteran peer specialists who provide culturally competent outreach, engagement, and

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[4] This report will generally refer to VA (rather than VHA) unless it is discussing the distinction between VHA and VBA as it is in this section.

TABLE 1-1 Race and Ethnicity of the U.S. Veteran Population

White, alone	Black or African American, alone	American Indian and Alaska Native, alone	Asian, alone	Native Hawaiian and other Pacific Islander, alone	Some other race, alone	Two or more races	Hispanic or Latino (of any race)	White alone, not Hispanic or Latino
79.7%	12.5%	0.8%	1.8%	0.2%	1.8%	3.2%	8.1%	74.5%

SOURCE: VA, 2022a.

service to veterans enrolled in mental health and primary care VA sites across the nation. In FY 2019, women accounted for 62.2 percent of the VHA workforce, an increase from 60.8 percent in 2015, while minority representation increased from 40.8 to 43.0 percent over the same time period. Among VA health care employees in FY 2019 the average age was 47.8 years, 30.2 percent were veterans, and 13.2 percent reported having one or more disabilities. The VA health care workforce is projected to grow at 3.0 percent per year through FY 2024. To maintain and grow its health care workforce, VA typically hires anywhere from 35,000 to 40,000 new employees each year, with a total loss rate of 9.4 percent in FY 2019 (VA, 2020).

Today's VA continues to meet veterans' changing medical, surgical, and quality-of-life needs. New programs provide treatment for traumatic brain injuries, post-traumatic stress disorder, suicide prevention, issues unique to women veterans, and more. While historically the quality of VA-delivered health care has been variable, VA enacted a series of reforms starting in 1995 which have significantly improved care delivery, quality of care, and outcomes (Kizer, 1995). For example, a 2004 study comparing a sample of VA patients to non-VA patients across 26 health conditions, inpatient services, and outpatient services found that VA patients received significantly better overall care, chronic care, and preventive care than non-VA patients (Asch et al., 2004). Another study published in 2003 found that VA's performance improved substantially between 1994—before the reforms—and 2000 and that by 2000 VA performed significantly better than Medicare on 12 of 13 quality indicators (Jha et al., 2003).

How COVID-19 Further Shaped the Whole Health Initiative

As was true for the entire U.S. health care system, the COVID-19 pandemic had a marked effect on the care delivered to veterans. It also highlighted the strengths of the VA: While members of the veteran population did have a greater likelihood of risk factors that could lead to severe

COVID-19 infection, they have fared slightly better than the general population during the pandemic. The overall excess mortality for veterans was 16.7 percent versus 20.8 percent among the general population (Feyman et al., 2022). This outcome highlights the importance of the VA system as a relatively reliable and accessible source of care in much of the country.

The isolation and stress that the pandemic caused demonstrates the need for a whole health approach now. Many people and families lost loved ones. Mental health and social needs grew alongside the pandemic (Panchal et al., 2021). Like many health systems nationally, VA was able to grow its telehealth capabilities rapidly, enabling its members to access many of its services when it was not possible to do so in person. The WHS was also able to pivot and deliver whole health care virtually during the pandemic—even expanding the number of services provided and the number of veterans it served. A series of qualitative interviews with 61 WHS leaders at 18 VA medical centers found that these centers intentionally embraced a whole health approach to providing care to both veterans and employees during the pandemic. According to the study investigators, who are conducting a multiyear study of the WHS transformation, efforts to support veterans and employees included patient wellness calls and promoting complementary and integrative health therapies, self-care, and whole health concepts to combat stress and support well-being (Dryden et al., 2021).

Rapid deployment of virtual technology enabled VA to continue delivering complementary and integrative therapies and to promote whole health activities. For example, the San Francisco VA adapted an in-person workshop series to a drop-in virtual series facilitated by a veteran peer-support specialist and clinicians (Seidel et al., 2021). Based on limited positive results, the San Francisco VA will use the virtual platform to expand and to serve veterans across Northern California.

Unique Health and Well-Being Challenges for Veterans and Their Families

A recent Pew Research Center survey of veterans found that many who served in combat reported that their experiences strengthened them personally but also made the transition to civilian life difficult (Parker et al., 2019). About one in five veterans have served on active duty since the terrorist attacks of September 11, 2001. These post-9/11 veterans are more likely to have been deployed and to have served in combat, subjecting them to a set of experiences, stressors, and exposures distinct from those of other veterans. Approximately half (47 percent) of post-9/11 veterans describe emotionally traumatic or distressing experiences related to their military service, compared with one-quarter of pre-9/11 veterans. About a third (35 percent) of post-9/11 veterans say they sought professional help to deal with those experiences, and a similar proportion—regardless of whether they have sought help—say that they think they have suffered from symptoms of post-traumatic stress disorder (PTSD) (Parker et al., 2019).

Families face serious challenges even while their service members are still in the military. A recent report presented findings from the 2021 Military Family Support Programming Survey with responses from 8,638 participants (L'Esperance et al., 2021). The largest group of respondents were spouses of active-duty members, at 44 percent, followed by active-duty members, at 14 percent. The survey indicated that military families are having a hard time making ends meet, which is affecting their overall well-being, loneliness, and both housing and food security (L'Esperance et al., 2021).

Service members and their families often struggle across multiple dimensions while still receiving military pay, housing supplements, and other benefits, and they are likely to face even more significant challenges following separation from service. More than one-third of veterans (35 percent) report financial distress after leaving the military, and roughly 3 in 10 (28 percent) have received unemployment compensation (Parker et al., 2019). In addition, 20 percent say they have struggled with alcohol or substance abuse. Veterans who report PTSD symptoms are more likely to report such problems (Parker et al., 2019). For many veterans, such problems combine with undereducation, underemployment, job instability, financial and food insecurity, marital stress, and difficulty parenting to result in family breakup, homelessness, and incarceration. At each stage of this in this steady downward social drift there are opportunities to stabilize and then regain ground *if* the right combination of clinical, benefits, and social services can be identified and engaged. This is the promise of whole health.

VA's national leadership in whole health is a natural outgrowth of its unique history, mission, and capabilities. However, VA's innovative campaign to transform itself into a fully integrated whole health system of care will not be easy, and the recent passage of the MISSION Act, which enables eligible VA-enrolled veterans to receive care in non-VA settings, creates new challenges (VHA, 2021). Nonetheless, it will be even more challenging to implement whole health transformation across the rest of U.S. health care because few existing systems have grappled with the realization that individuals, families, and communities cannot achieve and maintain health without a realignment of forces to assess and address upstream factors of health, including social determinants, as an integral feature of all health care. Similarly, fragmented payment systems, health information technology systems, workforce shortages, and unequal access to services further complicate the scale and spread of a national whole health system. The U.S. health care systems will have to overcome cultural inertia in order to establish new structures and processes capable of meeting the needs of individuals, families and communities in concert with their values and aspirations.

ORGANIZATION OF THE REPORT

The committee divided the report into eight chapters. The remainder of this report lays out the committee's analysis of VA's WHS as well as of similar efforts conducted by other health systems in the United States and internationally. Chapter 2 provides the committee's definition of a whole health approach, one that starts with VA's definition and describes in detail the five foundational elements that are essential to any whole health system. Chapter 3 reviews the evidence supporting the committee's five foundational elements. Chapter 4 describes VA's WHS design and philosophical approach as well as four other systems that have implemented a whole health system of their own. Chapter 5 further explores the evidence supporting these and other promising whole health models from around the world. Chapter 6 focuses on the theoretical basis of scaling and spreading whole health systems. Chapter 7 discusses necessary infrastructural changes, as well as some of the major barriers and facilitators for implementing a system of whole health within and outside of VA. Chapter 8 presents the committee's conclusions and recommendations to advance the scale and spread of whole health both within and outside of VA.

In addition to the core content, there are two appendixes. Appendix A presents the biographies of the committee members, fellows, and staff. Appendix B describes an unavoidable conflict of interest with one of the committee members.

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2

Defining Whole Health

In 1948 the World Health Organization (WHO) defined *health* as "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity" (WHO, 2020, p. 1). Some criticized this definition as being excessively broad, vague, and unmeasurable, and in subsequent years health care focused more on a biomedical reductionist model than on achieving that more holistic vision of health. In 1984 the WHO revisited and updated the definition of health, shifting it from a desirable state of being to a dynamic set of resources for living well—"the extent to which an individual or group is able to realize aspirations and satisfy needs to change or cope with the environment . . . health is a resource for everyday life, not the objective"—that emphasized the social and personal resources as well as physical capabilities that are a part of health (WHO, 1984, p. 34).

More recently, the term *whole health* has emerged. The concept of whole health is not novel, and it has been evolving for decades under a range of different names such as salutogenesis, patient-centered care, people-centered care, integrated care, and population health (Anastas et al., 2018; Bhattacharya et al., 2020; Nash et al., 2016; National Committee for Quality Assurance, 2018; Stewart, 2014; Thomas et al., 2018). Two recent reviews considered the history and evolution of the term whole health and identified several common themes (Jonas and Rosenbaum, 2021; Thomas et al., 2018). These common themes suggest that whole health systems require a multidimensional, integrated approach that recognizes the importance of the therapeutic relationship, acknowledges the clinician's humanity, recognizes the patient's individual personhood, and employs a range of treatment modalities using a holistic biopsychosocial approach that involves additional health care practitioners. Frameworks such as the Chronic Care Model, Patient-Centered Medical Home, accountable care organizations, Accountable Health Community, and Optimal Healing Environment Health have also described community systems that deliver and support whole health components (Alley et al., 2016; Jonas and Chez, 2004; Kuzel, 2009; Martin et al., 2004; McClellan et al., 2010; Primary Care Collaborative, 2022; Tipirneni et al., 2015; Wagner et al., 1996, 2001; Wiley and Matthews, 2017).

Driven by the unique needs of veterans returning from combat and suffering from long-term symptomatic mind–body consequences and functional injuries, the Department of Veterans Affairs (VA) and Samueli Institute have been leaders in advancing the whole health concept. In 2003 the Samueli Institute developed the Optimal Healing Environment framework to include the psychological, spiritual, physical, and behavioral components of health care (Jonas and Chez, 2004). It addressed people in relationships, their health-creating behaviors, and the surrounding physical environment as a pathway to well-being (Sakallaris et al., 2015). Several health care systems that adopted this approach realized improved patient experiences and demonstrated business case benefits. From this emerged the Total Force Fitness model that went beyond a medical environment to include physical, psychological, spiritual, social, and even economic aspects of human flourishing, integrated into a single framework for active-duty service members (Jonas and Rosenbaum, 2021). The VA implemented multiple offshoots of the program, including the Performance Triad, Operation LiveWell, and Holistic Health and Fitness Program (Jonas and Rosenbaum, 2021).

Today, the VA presents patients with the following definition to describe its Whole Health System (WHS):

> Whole Health is VA's cutting-edge approach to care that supports your health and well-being. Whole Health centers around what matters to you, not what is the matter with you. This means your health team will get to know you as a person, before working with you to develop a personalized health plan based on your values, needs, and goals. (VA, 2022a)

Another definition the VA has used that is geared more toward clinicians describes whole health as "an approach to care that empowers and equips a person to take charge of their health and well-being and live their life to the fullest" (Kligler, 2022, p. 1).

The VA's definition of whole health purposefully shifts the focus from a "disease" care system to a "health" care system by emphasizing the idea that people need to be enabled, empowered, and equipped to take charge of their health and well-being and to live life to the fullest (VA, 2021). As Figure 2-1 shows, the VA's WHS model is supported by three pillars:

FIGURE 2-1 The three pillars of the VA Whole Health System.
SOURCE: VA, 2022b.

1. The pathway—engaging veterans with fellow veterans (who are themselves trained peer facilitators) to discover their mission, aspiration, and purpose through personal health plans.
2. Well-being programs—encouraging self-empowerment, self-healing, self-care, and improvements in the social and structural determinants of health.
3. Whole health clinical care—a cultural transformation in care delivery to include prevention and treatment and conventional and complementary approaches. Together these elements aim to create a “circle of health.” (See Figure 4-1 in Chapter 4 for a more detailed discussion of the circle of health.)

The circle includes four elements: the person, self-care, professional care, and the community. The person is at the center and where whole health starts. As each person is unique, what matters to the individual person is what ultimately determines what whole health means. Each person has the power to affect their well-being through self-care, and whole health offers the skills and support needed to make the changes a person wants. A health team delivers professional care, including prevention and treatment of disease and illness. The community encircles the person virtually and in the real world as these are the people and groups that a person connects with, including the professional and personal elements of health and self-care.

To operationalize its approach to whole health, the VA made systemic and cultural shifts in its approach to care. Chapters 4 and 5 of this report detail how the VA operationalized these changes and the evidence on the impact it had on health outcomes and the care delivery experience for veterans and clinicians.

A UNIVERSAL DEFINITION OF WHOLE HEALTH

The statement of task for this study directed the committee to consider the following (see Chapter 1 for the complete statement of task): (1) Where is whole health currently being implemented, (2) what does whole health accomplish, (3) how can effective whole health strategies spread, and (4) what other factors affect the performance of whole health? To address this statement of task, the committee created a universal definition of whole health and the whole health approach. The committee needed this definition to identify and examine whole health implementations outside of the VA. To create the definition, the committee reviewed the existing definitions, foundational elements, best practices, and lessons learned from identified whole health and whole health–like approaches operating by different names. This included ideas about what it means for a person or community to achieve or have whole health as well as what is needed from health care systems to bring out, deliver, and support whole health.

From these fact-finding activities, the committee developed the following definition for whole health:

> *Whole health is physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities. To achieve this, whole health care is an interprofessional, team-based approach anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person's life mission, aspiration, and purpose.*

While the committee's definition is different from the VA's definition—it is more inclusive of other systems' approaches to whole health—it is highly aligned with and derived from the VA's work. It is an aspirational definition, as the committee found no systems that have fully implemented this definition of a whole health approach for the entire community to whom they are accountable (see Chapters 4 and 5). Nevertheless, this aspirational definition is essential to set goals for what the VA and other health systems need to do to help people, families, and communities achieve whole health.

The state of whole health envisioned by the committee is fundamentally different from how health care currently views health and well-being in three ways. First, whole health is not just about the conventional "medical" well-being that health care currently addresses, nor is it merely the absence, prevention, or control of disease. Instead, it is about a whole state of well-being that spans physical, behavioral, spiritual, and socioeconomic well-being. Whole health is the extent to which an individual or group can realize goals and satisfy needs to change or cope with the environment (IOM, 2009).

Second, the philosophy of person-, family-, and community-centeredness is essential to define what the "whole state of well-being" means. Individual people, families, and communities get to say what physical, behavioral, spiritual, and socioeconomic well-being means to them. To understand the needs and desires of those they serve, whole health providers and systems need to build trustworthy relationships. Third, an ideal state of whole health is not just about being healthy, but is about being supported to enable a person, family, and community to achieve what they want from life. It is a resource for everyday life and not an objective.

The systems that deliver whole health are also fundamentally different from the current systems that deliver health care. Whole health systems are cross-sectoral, spanning health care, mental health, health behavior promotion, public health, community care, social services, the built environment, education, religion, and the financial and economic sectors. This means whole health systems cannot just be located in hospitals and clinician offices but need to span community settings that include where people live, work, and play.

In addition, whole health systems are not merely the sum of their parts. There is seamless coordination and provision of services across sectors and interprofessional[1] care teams with a shared goal of helping people and communities achieve whole health. Moreover, whole health systems start by identifying how people, families, and communities define what health and well-being means for them and what they need to achieve it. This can be done through a range of approaches such as creating care plans or doing

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[1] An interprofessional care team includes a variety of clinical and nonclinical team members that collectively meet the whole health needs of a population or community. An interprofessional team will look different depending on available resources and local needs and should ideally reflect the diversity of its community.

needs assessments, but at its core, the delivery of whole health starts by listening to what people say they want and need.

FOUNDATIONAL ELEMENTS OF WHOLE HEALTH

From the review of whole health definitions and various program descriptions, the committee identified five interdependent and foundational elements of whole health systems: (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) accountable and equitable, and grounded in (5) team well-being (Table 2-1 and Figure 2-2).

People-Centered

Whole health requires a partnership with people to ensure that the health system respects, informs, engages, supports, and treats people, their families, and their communities with dignity and compassion (Epperly et al., 2015; Stewart, 2014). Whole health delivery occurs within the context of social and cultural environments and starts by understanding peoples' needs and goals and then directing tailored, effective care around those needs and goals (Cloninger et al., 2014). Thus, whole health is more than the absence

TABLE 2-1 Foundational Elements of Whole Health

People-centered	Achieving a sense of purpose through longitudinal, relationship-based care People/families/communities direct goals of care Care delivered in social and cultural context of people/family/community
Comprehensive and holistic	Address all domains that affect health—acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care Attend to the entirety of a person/family/community's state of being Components and team members are integrated and coordinated
Upstream-focused	Multisectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health Address the structures and conditions of daily life to make them more conducive to whole health
Equitable and accountable	Whole health systems need to be accountable for the health and well-being of the people, families, and communities they serve Care needs to be accessible to and high quality for all
Team well-being	The health of the care delivery team is supported

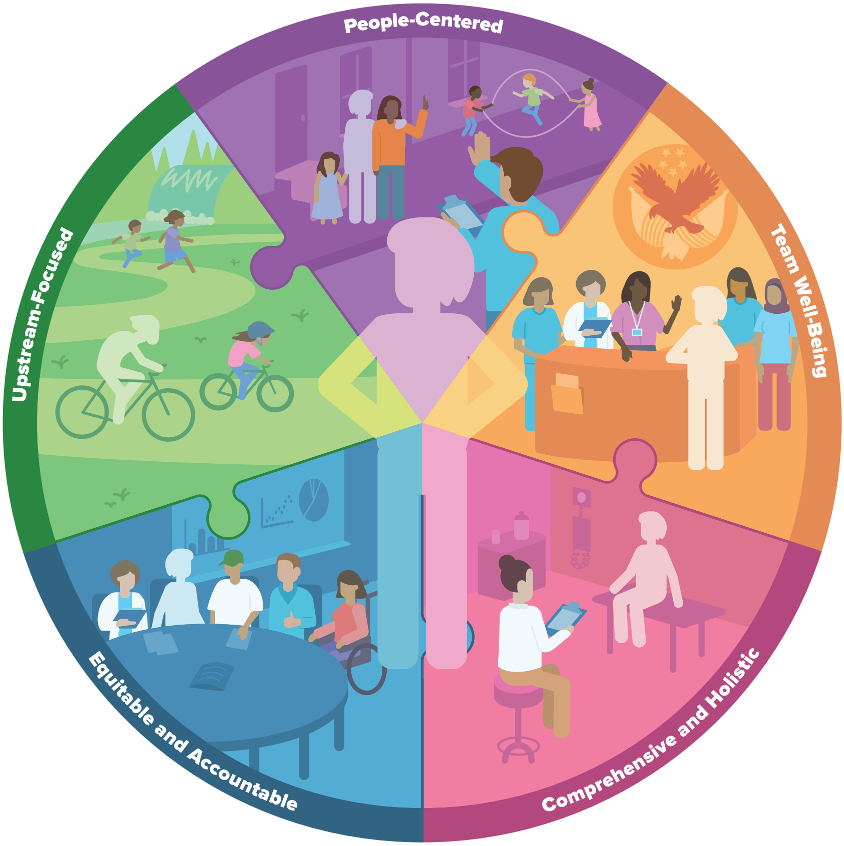

FIGURE 2-2 The foundational elements of whole health.

of disease, and it is also more than a state of wellness. Achieving person-centered whole health is a process grounded in longitudinal relationships with team members and organizations that build shared understanding and trust over time. This includes relationships among individual clinicians, care teams, and health systems and the people, families, and communities for whom they are accountable. It is in the context of these relationships that the whole health system supports people to articulate and achieve their missions, aspirations, and purposes and to continually learn from their work, such that aspirations and goals are redefined over time. Examples of processes to achieve purpose can include tasks such as goal setting, care planning, and group-level assessments (Bolton et al., 2019; Fix et al., 2017; Kilbourne et al., 2014; Seidel et al., 2021; Vaughn and Lohmueller, 2014).

Comprehensive and Holistic

Critical to whole health is attention to the entirety of the person's state of being, and the design of whole health systems needs to address this entirety. It recognizes that "the whole" is more than the sum of its parts for the people, communities, and the health systems that care for them. This diverges from how medicine often uses the term "holistic care" today as a code for therapeutics outside of conventional medicine. Therapeutics outside of conventional medicine is a component of whole health care, but merely adding it to conventional care does not make whole health care. Fundamentally, designing and developing whole health delivery systems cannot be done simply by creating and adding in each individual component of whole health to current systems. It requires the components and the care team members delivering the components to be collaboratively interwoven, coordinated, and comprehensive in their approach to addressing the goals and needs of the people, families, and communities they serve. This includes conventional medical care—acute, chronic, preventive, reproductive, and mental health care, dental, hearing, and vision care—plus the components of complementary and integrative health, spiritual care, and upstream factors such as health behaviors, education, and social needs.

Upstream-Focused

It is well known that socioecological factors and life-course events are the key drivers of health (McGinnis and Foege, 1993; Mokdad, 2004; IOM/NRC, 2013). Four unhealthy behaviors—tobacco use, unhealthy diet, physical inactivity, and risky alcohol use—account for nearly 40 percent of preventable deaths in the United States (Mokdad, 2004). The growing pandemic of unhealthy drug use, including opioids, further undermines health and well-being. Empowering people with the tools, resources, and the environment to more easily adopt healthy behaviors is an essential component of whole health care. Whole health systems also need to address the social and structural determinants of health—poverty, housing, food, finances, education, environment, equity, and racism—which represent both the cause of poor health (social determinants) and the cause of the causes of poor health (structural determinants) (Braveman and Gottlieb, 2014). Because factors and events vary from person to person and community to community, whole health systems need to seek to understand and address the specific root causes affecting the people, families, and communities they serve. A major challenge is that these socioecological and life-course events and structural determinants of health are often the most difficult things to change. They are engrained in our lives through our daily activities, the communities we live in, the places that we work, and family events reaching back generations. Root causes of poor health cannot be dealt with solely by health care but need to be addressed everywhere. In addition, a range of expertise is needed that extends beyond health care. Whole health systems require multisector collaborations, and whole health care teams should include interprofessional members.

Equitable and Accountable

Whole health systems should focus on providing high-quality, safe, and evidence-based care. This means providing the right care at the right time to the right people (Campbell, 2016). Because health inequities are such a key driver of poor health (AHRQ, 2019; Nelson et al., 2020), ensuring whole health means ensuring health equity. While whole health systems cannot solve all of society's ills, they need to address the root causes of inequity, including intrapersonal, interpersonal, institutional, and systemic mechanisms as well as the unequal distribution of power and resources (Weinstein et al., 2017). A key step in this process is accepting accountability for people, families, and communities. This allows whole health systems to be proactive in their care, using population health approaches that reach out to people and communities and do not wait for people to access care when they think they need it. It also means that some systems should be accountable for every person, family, and community—everyone needs a home and a system that will make sure that they do not fall through the cracks. Empanelment, the process of individuals within a given population declaring a source of primary care (or being assigned to one) is one method of helping ensure accountability within a system or geographic area (see Chapter 3 for more detail).

Whole health care should also create accessibility. People, families, and communities who need care should be able to access care through many avenues with a "no wrong door" type approach. Because achieving whole health needs to occur where people live, work, learn, and play—and not just in health care settings—the supports, resources, and surrounding environment should all provide access to and support for achieving whole health.

Team Well-Being

Interprofessional teams deliver whole health. The team is organized around the person, family, or community and includes, based on needs, conventional health care clinicians, integrative medicine providers, and professionals from non–health care sectors, such as social services and education, spiritual, and financial areas. Team members also include community and peer providers. Clinician stress and burnout are common in health care and can hamper the ability to provide high-quality care (Schwenk, 2018). In addition to assembling the right team for the right care, members of the care team and the team itself need to be healthy. Clinician stress and burnout hurt not only clinicians but also patients, communities, health care organizations, and learners. Ensuring and enhancing the health of those who care for and support communities creates an engaged and effective workforce, high-functioning care teams, and healing person–clinician relationships. While many health systems have implemented employee well-being programs, they tend to focus on individual-level interventions, such as providing benefits to employees to improve health and well-being (e.g., complementary integrative health such as yoga, acupuncture, and meditation). While some of these efforts are valuable, these approaches are less effective at preventing burnout and improving well-being than more systemic approaches that improve workflow efficiency, reduce administrative burden, improve technology usability, and reduce unreasonable work demands (NASEM, 2019b) (see Chapter 3 for more detail). Whole health care team members need to have the necessary systems to effectively and efficiently deliver whole health care, a supportive and positive work environment, and to experience whole health themselves.

Overlap of Whole Health with Other Care Delivery Models

The whole health approach overlaps with other concepts and care delivery models. To accomplish its statement of task, the committee reviewed and included major reports summarizing critical thinking about these concepts and models. In this section the committee identifies and describes these concepts and models, highlights how they are related to the concept and delivery of whole health, and discusses how they informed the committee's work.

Primary Care

The committee's definition of whole health aligns well with high-quality primary care. In 2021 the National Academies of Sciences, Engineering, and Medicine (National Academies) published the report *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care* (NASEM, 2021). The report defined high-quality primary care as

> the provision of whole-person, integrated, accessible and equitable health care by interprofessional teams who are accountable for addressing the majority of an individual's health and wellness needs across settings and through sustained relationships with patients, families, and communities. (p. 4)

Primary *health* care is a similar but broader concept than primary care. Primary health care includes primary care but also focuses on population health and health system strengthening and public health approaches (WHO, 2022). Whole health is built upon both concepts.

High-quality primary care is the foundation of health care in any high-functioning health system and is rooted in a generalist approach. Primary care clinicians start with a focus on the whole person, which considers a person's family and community context. Primary care clinicians build relationships with a person, understanding their preferences and priorities and working with the person to address concerns while keeping the whole in view (NASEM, 2021). In addition to the relationship between a person and his or her primary care clinician, there are a growing number of primary care practices in which clinicians work as part of an interprofessional team that may include behavioral health specialists, community health workers, health coaches, pharmacists, and others. These professionals work together to care for people in a manner that integrates physical, behavioral, and social and economic well-being. When a person requires specialist care, primary care clinicians and teams coordinate and connect the person to care. Primary care is a force for bringing the more fragmented parts of a person's health care together, which is also an essential element of whole health care.

Primary care in its ideal form—which is not what primary care is for most people in the United States today—is the foundation of effective whole health systems. Primary care clinicians are core members of the whole health interprofessional team, and primary care clinicians often have a trusted longitudinal relationship with patients. It is in the context of this relationship that primary care clinicians personalize and align a person's care with life mission, aspiration, and purpose. Primary care clinicians are also a conduit between the person and other professionals who help promote wellness in the fullest sense, and the primary care clinician and team add value by ensuring the parts of a person's health care are connected, not fragmented, and continue to align well with the view of the person as a whole. Whole health is an outcome of a high-quality comprehensive primary care system.

Given that a wide variety of environments and experiences influence an individual's well-being, the journey to achieving and maintaining whole health needs to involve professionals outside of primary care. The comprehensive and coordinated approach to the individual's well-being should be embedded in care provided by all medical and behavioral specialists as well as every professional on the health care team and the community.

The National Academies' recommendations for implementing high-quality primary care are also applicable to implementing whole health (NASEM, 2021). The five overarching objectives of the *Implementing High-Quality Primary Care* implementation plan include

1. Paying for primary care teams to care for people, not doctors to deliver services.
2. Ensuring that high-quality primary care is available to every individual and family in every community.
3. Training primary care teams where people live and work.
4. Designing information technology that serves the patient, family, and interprofessional care team.
5. Ensuring that high-quality primary care is implemented in the United States.

For each of these recommendations, the words "whole health" could replace "primary care," and this list would then identify the requirements for implementing whole health in the United States. While this committee's statement of task differed from that of the committee that authored *Implementing High-Quality Primary Care*, this committee recognizes that widespread implementation of those recommendations would align with and help facilitate the systematic scaling and spreading of a whole health system of care. However, the subsequent chapters and recommendations of this report will focus on the issues unique to whole health.

Health Centers

Health centers (also commonly known as community health centers) include federally qualified health centers (FQHCs), tribal health centers, urban Indian health centers, health care for people who are homeless, health centers for residents of public housing, school-based health clinics, and migrant health centers (NASEM, 2021). A defining feature of health centers is that they provide locally tailored, comprehensive primary care and preventive health (including dental, cancer screening, family planning, and immunizations) to underserved populations, regardless of insurance status (HRSA, 2021). Many health centers are certified patient-centered medical homes and also offer more holistic and comprehensive services, such as gynecologic, behavioral health, vision and eye care, and diagnostic and radiologic services. They may also provide various services that focus on upstream factors including case management, referrals to specialty care and social services (many of which address root causes of poor health), and transportation and translation services (National Association of Community Health Centers, 2022).

Health centers have several features that align closely with the equitable and accountable foundational element of whole health. They are financially accessible. They will provide services to individuals regardless of their insurance status or ability to pay (Schwartz, 2014). Overall, health centers are widely accessible geographically and are a regular source of care for people in underserved communities. As of 2021, they served 1 in 11 people in the United States (29 million people total), including 1 in 8 children and 1 in 7 racial and ethnic minorities. They served 376,000 veterans, 1.3 million people experiencing homelessness, over 5 million people living in public housing, 658,000 in school-based health centers, nearly 1 million agricultural workers, and almost 7 million best served in a language other than English (National Association of Community Health Centers, 2022).

Over 90 percent of people who use health centers are near or in poverty. The proportion of people they serve who are on Medicaid is much higher than in the general population (48 percent compared to 15 percent), as is the proportion of people they serve who are uninsured (23 percent compared to 9 percent). Nationally, 63 percent of people who seek care at health centers are members of a racial or ethnic minority, compared with 42 percent of the general population. Health centers are 35 percent more likely to have patients with chronic conditions than private practices (National Association of Community Health Centers, 2022).

FQHCs receive Health Resources and Services Administration Health Center Program federal grant funding to improve the health of underserved populations in the United States. (HRSA, 2022). Nearly 1,400 FQHCs operate in the United States today, a number that has held steady since 2015, at about 14,000 delivery sites. Despite the lack of growth, FQHCs have expanded the number of services they offer and outperform the national averages for many health outcomes despite serving a higher-risk population. For example, 58 percent of people whom health centers serve have their hypertension under control versus only 26 percent in the nation overall, while 64 percent of people whom health centers serve have their diabetes under control versus 19 percent in the nation overall. People who go to health centers are also less likely to have delays in medical care or dental care than those who seek care elsewhere (National Association of Community Health Centers, 2022). People who receive care at health centers also had 24 percent lower spending than those who received care from other medical facilities across all services provided (HRSA, 2022).

A key feature of health centers is that they are accountable to the communities they serve. They must have at least 51 percent of their governing boards of directors composed of people in the community who seek care at the health center (NASEM, 2021). Governing boards must also reflect the demographic characteristics of the overall populations that the health centers serve, although there is some evidence that this is not always the case (Wright, 2013, 2015). The purpose of this requirement is to ensure that the people served, who are often from underserved communities that are rarely included in organizational decision making, can have a voice in health center decisions regarding daily operations and how the health center delivers services.

Health centers are also required to annually assess the geographic catchment area of the people whom they serve (HRSA, 2018). They also need to complete a community needs assessment every 3 years, including a review of barriers to care, unmet health needs, health indexes for the population served, poverty level, and other demographic factors that affect the demand for services (such as percentage of population over the age of 65) and then adjust their services to better address the assessed needs. They are also required to make and maintain a reasonable effort to build partnerships with clinicians and services, including other hospitals and specialists, within their catchment areas to help facilitate coordination of services that the health center does not offer. Health centers often complete their needs assessments in coordination with nonprofit hospitals (which also should complete their own needs assessments to maintain their nonprofit status) and public health departments with the goal of coordinating their collective response to identified needs (NASEM, 2021).

Overall, the health center model shares many features of whole health and could be a logical platform to expand whole health throughout the U.S. health system. Some health centers, including Southcentral Foundation's Nuka System of Care and Mary's Center in Washington, D.C. (both of which are described in detail in Chapter 4), already align closely with the whole health approach.

Social and Structural Determinants of Health

Social and structural determinants of health (commonly referred to as "social determinants" or "social needs") are the true reasons for health inequities and a whole health approach is key to addressing them at the population and community levels. They include things like poverty and economic systems in communities, structural racism and oppression, gender bias, and other social and economic factors—physical, social, cultural, community, economic, legal, and structural factors—that affect health, such as access to healthy food and having a place to live (Benjamin, 2011; Lushniak et al., 2015). Everyone has social and economic factors that shape their health. Social determinants of health are "social risks" when they negatively affect a person's health. For example, not having access to reliable transportation might limit a person's ability to attend a medical visit (Grembowski et al., 2014; Loeb et al., 2015; Safford et al., 2007). The structural determinants of health are the structures and systems that cause social and health needs; they span a wide range of socioeconomic systems, physical environment, education, social support networks, employment, and even health care equity (Braveman and Gottlieb, 2014).

Public health leaders, including the National Academies, have recognized the potential negative effects of social risk on health and have recommended that health care organizations, including clinicians and teams in these organizations, systematically collect and document information about patients' social risks (NASEM, 2019a; Wyatt et al., 2016). The 2019 National Academies report *Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health* provides a comprehensive list of the social and structural determinants that affect peoples' health and summarizes the compelling and growing body of evidence that shows that these factors affect health directly (NASEM, 2019a). That report also recommended screening for these factors and identified five health system activities that strengthen social care integration:

- Awareness activities focus on individuals and identify the social risks and assets of individuals and communities.
- Adjustment activities focus on individuals and alter clinical care to accommodate identified social barriers.
- Assistance activities focus on the community and reduce social risk by providing assistance in connecting people with relevant social services.
- Alignment activities focus on community health systems, which undertake them to understand existing social care assets in the community, use them efficiently, and invest in and deploy them to improve health outcomes.
- Advocacy activities focus on both individuals and the community to promote policies that facilitate or strengthen efforts to improve social needs.

Achieving whole health depends in part on engaging in these five activities. In some cases, social risks will shape the extent to which patients are able to engage in whole health care. In other cases, social risks may be the root cause of poor health. In all cases systems that aim to deliver care that is holistic, optimally aligned with patients' preferences, and focused on the whole person will, at a minimum, need to collect information about patients' social and structural determinants of health and equip the interprofessional care team to help mitigate social risks and are necessarily relevant to whole health care at both a person and system level.

Addressing the social and structural determinants of health is not something that health care can or should do alone. Social services, community programs, educational systems, environmental planners, judicial systems, and employers are essential and, in many cases, primarily charged with addressing social and structural determinants of health.

Integrated Behavioral Health

The committee uses the term "integrated behavioral health" to describe when medical and behavioral health care is delivered together. The committee considered behavioral health to include both mental health and healthy behaviors, and adopted the following definition of the term:

> [Integrated behavioral health] results from a practice team of primary care and behavioral health clinicians, working together with patients and families, using a systematic and cost-effective approach to provide patient-centered care for a defined population. This care may address mental health and substance abuse conditions, health behaviors (including their contribution to chronic medical illnesses), life stressors and crises, stress-related physical symptoms, and ineffective patterns of health care utilization. (Peek and the National Integration Academy Council, 2013, p. 2)

There is a growing body of research that suggests that patient experience becomes better, health outcomes improve, and costs are contained when conventional medical and behavioral health needs are addressed together (Katon and Guico-Pabia, 2011; Reiss-Brennan et al., 2016; Unützer et al., 2013).

As with addressing social needs, integrated behavioral health is a critical part of the whole health care approach (Hodgkinson et al., 2017; Miller et al., 2014; Reiss-Brennan et al., 2016). Whole health is intended to attend to and care for the whole person, and integrated behavioral health reflects that by recognizing that health and well-being include wellness for the mind and the body as well as a daily pattern of healthy behaviors. Whole health care aims to deliver care that is integrated and coordinated, not siloed. The integrated behavioral health movement has found that care is best "integrated" when delivered from a single location by co-located interprofessional team members who create a seamless experience for patients (Asarnow et al., 2015; Bokhour et al., 2020; Reiss-Brennan et al., 2016). This concept will be important for whole health systems to consider, but it may be evolving with telehealth advancements that can create seamless experiences without co-location.

Community Health

The committee identified several key concepts concerning whole health and whole health systems when reviewing critical thinking on community health (Peek et al., 2021; Sturmberg et al., 2019; Sweeney et al., 2012; Weinstein et al., 2017). When examining the field of community health, the committee broadly considered the domains of community health, population health, and public health. Communities can be defined by physical location, shared interests, common characteristics, or other unifying factors. Veterans are a clear example of a community joined by a shared experience.

As part of the definition process, the committee decided that whole health systems are responsible for the collective health of the communities they serve, not just for individual people. When applying the whole health definition to communities, it would have the same characteristics and essential elements as applied to individual people. For example, "community whole health" is not just the absence of disease in a community but ensuring that the community thrives.

In a 1983 report, *Community-Oriented Primary Care: New Directions for Health Services Delivery* (IOM, 1983), the Institute of Medicine described how community context is critical when dealing with the complexities of delivering high-quality primary care. It described community-oriented primary care as

> an approach to medical practice that undertakes responsibility for the health of a defined population, by combining epidemiological study and social intervention with the clinical care of individuals, so that the primary care practice itself becomes a community medicine program. Both the individual and the community or population are the focus of the diagnosis, treatment, and ongoing surveillance. (p. 70)

This description highlights the need for a population health approach to care, which is also needed to provide whole health care. Community-oriented care starts with assuming responsibility for the health of a community and proceeds to consider population-level interventions for care. This requires identifying those who need care and proactively reaching out to ensure that they get care rather than waiting to react to community members seeking care. This process ensures that people do not fall through the cracks. It is also concerned with preventing people from getting sick so that they do not need care in the first place. Proactive population health is an essential tool for health equity.

Despite the biomedical-centric language in the description above which is reflective of the time, community-oriented care also addresses the social and cultural context of individuals and families. The *Implementing High-Quality Primary Care* report describes this feature of community-oriented health in detail (NASEM, 2021). Including the social and cultural context in care can improve outcomes across different populations and conditions (Black et al., 2017; Derose et al., 2019; Epstein et al., 2002; Izquierdo et al., 2018; Jones et al., 2018). However, incorporating community-oriented approaches into traditional biomedical fee-for-service models does come with challenges. For example, a 2018 study found that primary care clinicians had trouble incorporating or even seeing how it could be possible to incorporate evidence-based community, proactive, population-based programs for disease management and prevention because of health system and financial pressures to focus on diagnosis and treatment (Leppin et al., 2018).

The community is also a tool and source for the delivery of care. Being a member of a community can create a sense of belonging and purpose. It is a source of support and a resource to achieve one's aspirations, purposes, and mission, and connection to community can be a pathway to achieving whole health (Kitchen et al., 2012). The community can be a source for understanding and changing factors that influence health, such as the social and structural determinants of health or environmental factors (Woolf et al., 2016). In addition, many community health interventions require policy, environment, community organizational, and social/interpersonal actions that only community partners can achieve (Ackermann, 2013). Achieving whole health for people and communities requires understanding the community in which people live and partnership with public health and community organizations (Krist et al., 2013).

Learning Health Systems

In 2007 the Institute of Medicine held its first in a series of workshops on the learning health system that focused on issues related to improving the evidence being created and used to inform decision making in health care (IOM, 2007). The Institute of Medicine defined a learning health system as a system "in which knowledge generation is so embedded into the core of the practice of medicine that it is a natural outgrowth and product of the health care delivery process and leads to continual improvement in care" (IOM, 2007, p. 6). Learning health systems should emphasize continuous learning and have learning and knowledge translation inform patient care (Grumbach et al., 2014). Moreover, synergies should exist among the research, clinical, and educational missions of the learning health system.

Learning health systems need data they can access rapidly in order to make iterative changes. Multiple sources, such as a system's electronic health record or claims data sourced from an insurer or accountable care organization, can provide the necessary data (Etheredge, 2007). In addition, a learning health system requires methods for analyzing big data combined with system sciences, such as translational and implementation sciences, to understand the impacts of changes on person and system outcomes (Maddox et al., 2017; Mandl et al., 2014; Mullins et al., 2018). This learning health systems approach can guide the evidence for enabling a health system's transformation to delivering whole health.

FINDINGS AND CONCLUSIONS

To support the committee in identifying and studying whole health systems within the VA and more broadly in the United States and internationally, this chapter provides an updated universal definition of whole health, identifies the essential elements of whole health systems, and highlights lessons from other domains of critical thinking that can inform whole health system design. This information provides the framework for the findings presented in the subsequent chapters of this report. More importantly, this chapter provides a concrete description of the aspirational goals for systems interested in providing whole health, and the subsequent chapters provide a detailed roadmap with examples including successes and failures, challenges, and lessons learned from the whole health field.

The universal definition defines what whole health is—"physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities." The definition also defines what a whole health approach is—"an interprofessional, team-based approach anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person's life mission, aspiration, and purpose." The five foundational elements of whole health are broadly identified as (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) equitable and accountable, and grounded in (5) team well-being.

An important feature of whole health care is that it is tailored to the needs of the person, family, and community, which means that there will be considerable variation in how effective whole health systems look and function. For example, systems that care for communities with higher social needs will look different from those that care for communities with higher mental health needs. Another key feature is that whole health is grounded in equity. Inequity is a primary cause for poor health, and it is not possible for communities to achieve whole health without addressing inequity.

The VA has been a leader in creating a culture of whole health and is redesigning its system to deliver whole health care. It has successfully focused its design to address several pressing needs of veterans, specifically chronic pain, post-traumatic stress disorder, mental trauma, and disability. Expanding the whole health focus to address the full range of veteran needs across different communities and supporting veterans in different phases of their life will be necessary for all veterans to receive the benefits of whole health care. This will require the VA to expand is definition and support for whole health.

Many veterans receive care outside of the VA. Therefore, for all veterans to receive whole health benefits, they must be able to access whole health care in all settings, not just VA settings. Fortunately, the concept of whole health is gaining widespread acceptance as the aspirational goal of health care. Accordingly, many health systems beyond the VA have adopted a mission to promote whole health and are developing their approaches to whole health care delivery.

However, this field is very much in its infancy. Improving the understanding of what whole health means and the best way to help people, families, and communities achieve it is an enduring adaptive process. It is worth pursuing and should be a common health care goal. The committee's definition and the five foundational elements can help to inform the next phases of this national journey.

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3

Evidence Supporting Whole Health's Foundational Elements

In Chapter 2 the committee defined *whole health* as "physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities." This definition departs from more traditional and limiting conceptualizations that conflate *health care* with *medical care*—services determined and delivered by clinicians trained in medical sciences. When considered across the lifespan, inadequate medical care is a relatively small contributor to premature deaths compared with health behaviors, social factors, and genetic predisposition (Figure 3-1) (McGinnis et al., 2002). In the same way, addressing these determinants of health is essential to achieving whole health.

The committee also defined *whole health care* as "an interprofessional, team-based approach anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person's life mission, aspiration, and purpose." The committee further identified five foundational elements of a *whole health approach*, which includes being (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) equitable and accountable, and grounded in (5) team well-being. These foundational elements are not distinct services, but rather are characteristics embedded in the care delivery process. The elements overlap and are interwoven and synergistic. Every whole health system must address all five foundational elements in some manner, but the degree and manner may differ depending on local needs of the system and the people, families, and communities they serve.

In the United States, high-quality primary care most resembles elements of a whole health system. The National Academies of Sciences, Engineering,

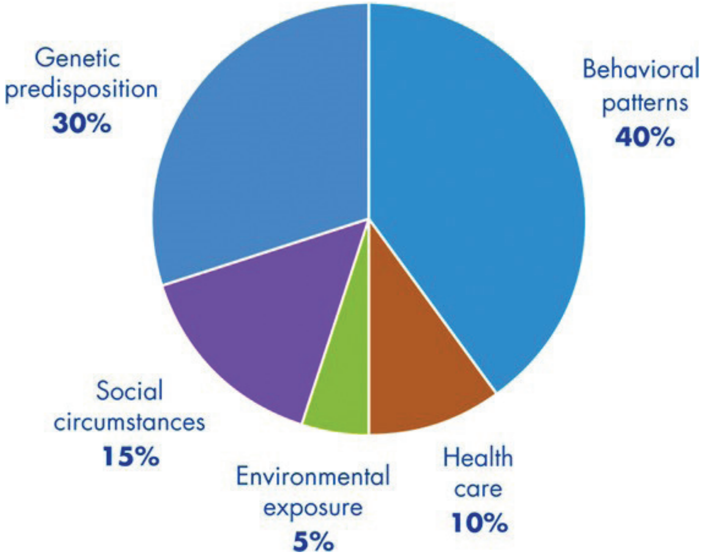

FIGURE 3-1 The determinants of health and their contribution to premature deaths.
SOURCE: Awosogba et al., 2013.

and Medicine (National Academies) report *Implementing High-Quality Primary Care* noted that primary care is the only part of the health care system in which an increased presence is associated with longer lifespans and improved health equity, attributes often associated with well-being (NASEM, 2021). High-quality primary care, as the recent National Academies report defined, includes several elements consistent with a whole health approach, including longitudinal, team-based care focused on individuals, their families, and their communities. A high-functioning whole health system would also likely rely upon the attributes of high-quality primary care that explain its salutary effects: being a point of *first contact*, *comprehensiveness*, *coordination*, and *continuity* for people (Starfield et al., 2005).

Nonetheless, achieving whole health cannot be accomplished just by expanding or strengthening primary care alone. Rather, it must begin with the self-identified needs of the person,[1] family, and community for well-being. Whole health systems must be able to organize actions and resources to respond to those needs across physical, behavioral, spiritual, and socio-economic domains. Since this exceeds the reach of primary care or even all

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[1] The committee is using person and people rather than patient, as whole health starts before a person becomes a patient.

of medical care, the committee speaks of reclaiming the notion of health from the medical sciences by focusing on the five foundational elements of whole health systems. As such, achieving the committee's definition of whole health depends upon *interprofessional teams* working in whole health systems including but not solely comprising health care clinicians. Whole health systems must be built on a foundation larger than a health care chassis. Social services, public health, community programs, education, environmental planning, judicial, and employer sectors likely need to be involved to some degree in an effective whole health approach. *Interprofessional teams* working with people, families, and communities produce whole health within *systems*, where a system is "an interconnected set of elements that is coherently organized in a way that achieves something" (Meadows, 2008). Not all systems need be within single organizations, such as the Department of Veterans Affairs (VA), but to be effective they must possess a considerable degree of organizational cohesion built around relationships and connections among the people in the system. They must also possess or develop and sustain a shared sense of values as well as defined inputs, interactions, and outputs (in this case, whole health). As Chapter 6 will discuss in further detail, for a system to have coherency and organization, it must have *boundedness*—a means for building and maintaining the system, including resources for design, assemblage, integration, oversight, and accountability.

In this chapter the committee reviews the evidence supporting the foundational elements of a whole health approach. To identify the evidence supporting each of the five elements, the chapter focuses on each separately, but the committee recognizes that all elements are interdependent and that there is significant overlap across the elements. As mentioned above, a whole health system is more than the sum of its parts. The committee examines the separate parts to provide an evidential foundation for building a whole system, while Chapter 5 addresses the evidence of whole health systems that integrate the elements into practice.

ELEMENT ONE: PEOPLE-CENTERED CARE

More than four decades of research have demonstrated the value of people-centered care, which is sometimes referred to as person-centered care, person-centeredness, and patient-centered care (Coulter, 2006). For the purposes of this report, the committee will refer to people-centered care throughout, but the committee is drawing from the evidence and experiences across each of these movements and their respective literature.

The term "patient-centered" was first used in the 1960s to describe care that understood "the patient as a unique human being" (Balint, 1969) and that went beyond the traditional diagnosis to a "deeper more holistic diagnosis" (Balint, 1955). This language grew out of the context of British general practitioners working with psychiatrists in the psychotherapeutic tradition. In 1972 researchers described the need to identify the patient's real reason for their visit. This view highlighted the need for the clinician to look beyond the presenting problem and its traditional diagnosis to look deeper and discern to what extent the presenting problem was a sign of the patient's limited tolerance for the discomfort or the anxiety regarding the presenting problem or even a signal of another problem altogether (McWhinney, 1972). Subsequent research on the broad range of issues that people experience demonstrated better patient-reported outcomes associated with a "holistic" approach—one in which clinicians respond not only to the presenting complaint but also to a broad range of problems including physical, emotional, functional, and life problems (Stewart et al., 1979). Early definitions of patient-centered care emphasized this broader way of thinking about clinical encounters, shifting from a clinician- or disease-centered approach (Levenstein et al., 1986) which later coalesced into a comprehensive definition in the 1995 book *Patient-Centered Medicine—Transforming the Clinical Method* which was updated in the book's second and third editions (Stewart, 2014).

Defining People-Centered Care

To inform its work, the committee commissioned a scoping review on people-centeredness and the related constructs noted above.[2] The review identifies seven approaches to people-centeredness described in five publications (IOM, 2001; Langberg et al., 2019; Mead and Bower, 2000; Morgan and Yoder, 2012; Sturgiss et al., 2022). Four interconnected components are present in all seven described approaches: (1) the person's experience, including illness, thoughts, and feelings; (2) appreciating the person in context, especially in the context of family; (3) mutual discussion of goals and preferences and having this discussion inform decisions; and (4) the relationship between the patient and clinician, including empathy, emotion, and sharing power. Three of the approaches also highlight the importance of the clinician as a person and how this influences care (Langberg et al., 2019; Mead and Bower, 2000; Sturgiss et al., 2022). Three others highlight the importance of coordinated and integrated care when it is necessary to engage the expertise of multiple professionals in a person's care. Using these findings, the committee sets forth six components that the delivery of people-centered care must emphasize:

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[2] Moira Stewart's commissioned paper is available at https://doi.org/10.17226/26854.

1. **Person's experience** (strengths, illness, thoughts, and feelings)
2. **Person in context** (social support, work, community, especially family)
3. **Discussion** of goals and preferences and using these to inform **shared decisions**
4. **Relationships,** including empathy, emotion, and sharing power
5. **Clinician as a person** (cues to affective relationship, professionalism, advocacy)
6. **Coordination** (accessibility, coordination, care pathways)

There is significant direct overlap with at least four of the above components of people-centered care and how the VA's Whole Health System (WHS) uses the people-centered concept, as shown in Table 3-1 (Krejci et al., 2014; Stewart, 2014). The "clinician as a person" and "coordination" domains of people-centered care are important elements of ensuring team well-being in the VA WHS.

Outcomes of People-Centered Care

To understand the effectiveness of people-centered care in a contemporary context, the commissioned scoping review identified all pragmatic, randomized controlled trials of people-centered care that had been conducted since 2010. The review included studies if the intervention addressed the patient–clinician clinical encounter or coordination of the health care system. Sixteen studies were identified from two systematic reviews (McMillan et al., 2013; Smith et al., 2021), and two papers published after these reviews were further identified for inclusion (Fortin et al., 2022; Stewart et al., 2021). All 16 studies focused on the *patient level*, 2 focused on the *person's experience*, 15 on *discussion* of goals, 1 on *relationship*, 7 on the *organizational level*, and 7 on *training*. Table 3-2 shows the types of outcome measures, number of different measures, and number of measures that showed statistically significant improvements as a result of the patient-centered intervention.

Patient-reported outcome measures, such as activities of daily living and quality of life, were more frequently measured than clinical measures; clinical status outcome measures (i.e., HbA1c, hypertension management) were used in only 2 of 16 studies (Ford et al., 2019; Lynch et al., 2014). Of four measures used, only one showed a significant improvement with the patient-centered intervention. Researchers who study patient-centered interventions prefer patient-reported outcomes, measuring what matters to patients, which aligns philosophically with a commitment to testing patient-centered innovations. Furthermore, a robust literature that directly connects

TABLE 3-1 Complementarity of the People-Centered Clinical Method and the VA Whole Health System

People-Centered Clinical Method Person at the Center	VA Whole Health System “Me” at the Center
Person’s Experience	
Exploring health, disease, and the illness Experience by following cues to - Symptoms, signs, laboratory and other results - Meaning of health to the patient and aspirations for life - Patient’s illness experience including feelings, ideas, function, and expectations	You are expert on your life - Aware of your thoughts and feelings
Person in Context	
Understanding the whole person in context - Patient as a person - An individual developmental trajectory and personality - Spiritual dimensions - A family, social support, and work - Community and culture	Surroundings—home, work, neighborhood, climate, and environment - Experiences that affect emotions - Personal development—ways you can grow - Family, friends, coworkers can affect emotions, mental and physical health - Reduce stress through relationships - Spirituality—what gives meaning to life
Discussion of Goals and Preferences	
Finding common ground - Mutual discussion between the patient and clinician on the nature of the problems, goals, and roles of each - Reaching mutual agreement	Your values, goals and priorities - Set your health and well-being goals - Moving the body - Food and drink - Recharge - Power of the mind—mind–body approaches
Relationship	
Enhancing the Patient–Clinician Relationship - Surfacing emotion - Compassion, caring, empathy, and trust - Power in the relationship - Continuity of the relationship and constancy - Engendering healing and hope - Clinician self-awareness - Transference and counter-transference	Reduce stress through relationships (including patient–clinician relationship) - Relationships can affect emotional health - Be aware of thoughts and feelings

TABLE 3-2 Outcome Measures: Type, Number of Measures, and Percent of Measures Significant

Type of Outcome Measure	Studies Using this Type of Outcome			Number of Measurements	
				# and % significant	
	#	% of 16	# used	#	%
Clinical status measures	2	12.5%	4	1	25
Patient-reported outcome measures (PROMs)	14	87.5%	49	21	43
Patient-reported experience measures (PREMs)	5	31.3%	13	10	77

self-rated health and mortality supports the importance of patient-reported outcomes (Idler and Benyamini, 1997).

Fourteen of the 16 trials used 49 patient-reported outcome measurements, of which 21 (43 percent) showed significant improvements from the patient-centered intervention. Similarly, patient-reported experience measures, such as rating of continuity, rating of care coordination, and patient perception of patient-centeredness, were reported frequently. Five of the 16 trials measured 13 patient-reported experience measures, of which 10 (77 percent) showed significant improvements from interventions. Collectively, these findings demonstrate a mechanism whereby patient-centered interventions affect outcomes. First, patients notice that care delivery is better (more patient-centered). Second, some patients may feel better as a result. And finally, for a few patients, feeling better translates into physiologic improvements.

The positive outcomes reported here may be understated. Across the 16 studies included in the commissioned scoping review, implementation failures resulted in some participating practices not implementing some crucial intervention components, reducing the potential benefit of the interventions (Stewart et al., 2021). Implementation failures can occur because of inadequate time for training the team (Fortin and Stewart, 2021; Ngangue et al., 2021), a stressful practice context (Mann et al., 2019; Salisbury et al., 2018), and inadequate staff support (Mann et al., 2019). The degree to which clinicians co-created and valued the intervention also seemed to affect implementation (Stewart et al., 2021). The study with the strongest associations with positive outcomes co-created the intervention together with clinicians, with a goal of strengthening the aspects of practice that the clinicians valued highly, including clinician time spent with the patient and increased continuity of care (Mercer et al., 2016).

Person Experience and Sense of Purpose

Having a sense of purpose refers to the extent to which a person views his or her life as having goals, direction, and meaning. It is recognized as a major component of well-being and for the committee's purposes can be considered part of the person's experience (George and Park, 2017; Heintzelman and King, 2014; Ryff, 2014). Purpose or meaning in life is thought to be shaped by social structural factors and life experiences. Having a higher sense of purpose is associated with lower all-cause mortality (Alimujiang et al., 2019), reduced risk of specific diseases (e.g., cardiovascular disease, cognitive impairment) (Cohen et al., 2016; Lewis et al., 2017), better health behaviors (e.g., increased physical activity, better sleep) (Kim et al., 2020; Turner et al., 2017), greater use of preventive health care services, and fewer nights spent in the hospital (Kim et al., 2014). Research has shown that the associations between a lower sense of purpose and adverse outcomes are independent of medical conditions or other experiential or psychological factors (Alimujiang et al., 2019; Boyle et al., 2012). A recent study examining the association between purpose in life and socioeconomic status found that people with the highest level of life purpose consistently had lower mortality risk across levels of socioeconomic status than those with the lowest level of life purpose (Shiba et al., 2021).

The positive health effects associated with a sense of purpose have increased interest in interventions that might enhance this protective characteristic. Indeed, the evidence of a robust relationship between life purpose and all-cause mortality from the Health and Retirement Study led to a call for research on life purpose interventions (Weston et al., 2021), and, as a result, there are now reviews of interventions focused on increasing sense of purpose or "meaning in life." One review of these therapies noted that some were beneficial, though the review also pointed to the low quality of the small number of existing studies, most of which were focused on specific populations such as those facing serious physical illness (Vos et al., 2014). This review also noted that these interventions can be conducted in groups. A meta-analysis of 33 randomized controlled trials of interventions designed to increase "meaning in life" among people who had experienced adversity or disease reported moderate evidence for improved measures related to meaning in life or purpose in these populations. This review also noted that some of the interventions were relatively brief and did not require licensed professional leaders (Manco and Hamby, 2021). The interventions showing the best evidence of effects compared with active controls were narrative programs, where individuals reviewed and wrote about their lives with the goal of achieving empowerment or a sense of peace. Mindfulness interventions, followed by psychotherapy and psychoeducational interventions, showed positive effects compared with waitlist or passive controls.

Longitudinal Relationship-Based Care

People-centered care must be grounded in longitudinal or continuous relationships that build a shared understanding and trust over time, for which there is strong supporting evidence of benefit. One investigator suggested that these relationships frame the personal nature of medical care and contrasted this with the dehumanizing nature of disjointed care (Peabody, 1927); more recently another researcher demonstrated that longitudinal relationships are one of the fundamental features of primary care and showed how this feature was essential to primary care's positive impact on health equity, cost, and quality of care (Starfield, 2011). The Institute of Medicine labeled continuity of care a defining characteristic of effective health systems and a foundational component of effective primary health care (IOM, 1996). Forty years of evidence reveals the value of long-term, interpersonal caring relationships on critical outcomes including patient satisfaction, costs, and care quality and also how these relationships are associated with the avoidance of undesirable health care utilization (Saultz, 2003; Saultz and Lochner, 2005).

ELEMENT TWO: COMPREHENSIVE AND HOLISTIC CARE

The committee determined that the achievement of whole health requires delivery systems that offer both comprehensive and holistic care. Comprehensive describes *what care* is being provided, and holistic describes *how care* is provided. Comprehensive care means that care addresses all domains of conventional medical care as well as addressing upstream factors influencing health (see below). Holistic means that care is provided to address the person, family, and community as a whole by a coordinated, integrated interprofessional team.

Comprehensive Care

Whole health needs to be comprehensive to address all the needs of a person, family, and community. Comprehensive care includes all of the individual components of conventional medical care—acute, chronic, preventive, reproductive, and mental health care, dental, hearing, and vision care—plus the components of complementary and integrative health, spiritual care, and upstream factors such as health behaviors, social needs and education.

Acute Care and Chronic Care

Ample evidence demonstrates the benefits to health and well-being of making each of these domains of care available as components of comprehensive care delivery. Acute care, the active treatment of short-term health issues, has long been the central model of delivering care, and it is something the U.S. health care system does well. However, 60 percent of the U.S. population has at least one chronic health condition, and over 40 percent has more than one (Buttorff et al., 2017). As a result, some health systems over the past two decades have implemented a chronic care model, an integrated, team-based framework that transforms care for patients from being reactive to an immediate health issue to one that is proactive and planned. Evidence from multiple studies shows that team-based chronic care improves outcomes for multiple chronic conditions (Coleman et al., 2009).

Specialty Care

Specialty care refers to care for a patient who has a health problem or illness that requires special knowledge in one particular medical area. Specialty care can be ongoing or preventive for a specific system of the body. Specialists—such as, for example, cardiologists, surgeons, and physical therapists—have knowledge or skill related to a specific disease or organ system of the body. In the United States the balance of primary care (generalist) and specialist physicians has changed dramatically over the past 80 years. In 1940 approximately three-quarters of U.S. physicians were generalists (Jauhar, 2014). Today, approximately 65 percent of all physicians in the U.S. provide specialty care, compared with 30 percent in other high-income countries (Lazris et al., 2018). This is important because a growing body of evidence shows that health care systems with robust primary care have better outcomes and lower costs than those that rely more on specialists (NASEM, 2021; Phillips and Bazemore, 2010; Shi, 2012; Starfield, 1998). Whole health systems need to coordinate and integrate generalist and specialist care in a way that minimizes fragmentation and reduces harm from overuse (Morgan et al., 2018).

Preventive Care

Evidence shows that preventive care, which focuses on preventing or detecting problems before they cause major health issues, reduces the risk for multiple diseases, disabilities, and death; improves health care quality; and reduces use and expenditures (Musich et al., 2016; Truman et al., 2000). All people across all phases of life benefit from preventive care, which includes primary preventive services, which are aimed at preventing conditions from developing; secondary preventive services, which find conditions early before they cause problems and are manageable; and tertiary preventive services, which are designed to prevent complications arising from existing conditions. Preventive services generally include screening tests, health behavior counseling, preventive medications, and immunizations (CDC, 2013). Despite having hundreds of recommended preventive services (USPSTF, 2022), each with ample evidence to demonstrate that their delivery results in improved length and quality of life, Americans receive only about half of recommended preventive care services (McGlynn et al., 2003).

Reproductive Care

For many individuals reproductive care is an entry point into the health care system, and for some it is their usual source of medical care and health information (HHS, 2022). Reproductive care includes contraceptive services, pregnancy testing and counseling, fertility and preconception care, and screening and care for sexually transmitted infections, breast cancer, and cervical cancer. Reproductive care services are an essential component of comprehensive care. Access to family planning services, especially effective contraception, is essential for preventing undesired pregnancies (Harper et al., 2015; Secura et al., 2014). In 2011, 45 percent of all pregnancies were unintended, with higher rates among socioeconomically disadvantaged, Black, and Hispanic women (Finer and Zolna, 2016). Undesired pregnancies are associated with negative economic, psychosocial, and clinical outcomes for mothers, infants, and families (IOM, 1995). The negative impact of undesired pregnancies on the whole health of children and families is likely to increase following the United States Supreme Court's 2022 decision in *Dobbs v. Jackson Women's Health Organization* (Hajdu and Hajdu, 2021; Lin and Pantano, 2015).

Mental Health Care

The need to provide mental health care in any systematic approach to achieving whole health is well supported by years of research showing that mental illnesses and psychosocial distresses reduce quality of life and contribute to uncontrolled chronic conditions (Conversano and Di Giuseppe, 2021). In addition, people who feel depressed, anxious, and stressed are less likely to seek medical care, adhere to care plans, or maintain healthy behaviors (DiMatteo et al., 2000) and are more likely to report lower physical and social functional status, less favorable mental well-being and health perceptions, and greater pain (IsHak et al., 2018). Screening for, counseling on, and treating mental health conditions improves health (Coulehan et al., 1997). In addition, there is growing evidence that current systems of care do not adequately address co-occurring chronic mental disorders and substance use disorders (NASEM, 2020).

Oral, Vision, and Hearing Care

The importance of addressing oral health in a whole health approach is supported by a growing body of evidence linking oral health, particularly periodontal disease, to an increased risk and progression of chronic diseases, including diabetes, heart disease, and stroke, as well as low birth weight and premature birth in pregnant women (Bensley et al., 2011; Elani et al., 2018). Regular eye exams can reveal serious health problems, such as diabetes, high blood pressure, high cholesterol, and heart disease, as well as eye diseases such as cataracts and glaucoma. Vision loss can affect an individual's quality of life, independence, and mobility, and it is linked to falls, injury, and adverse effects on mental health, cognition, and social function (NASEM, 2016). Similarly, research has linked even mild hearing loss to declines in cognitive function, depression, memory problems, dementia, and social isolation (Irace et al., 2022; Shukla et al., 2020).

Complementary and Integrative Health

Research has shown that complementary and integrative health (CIH), which includes acupuncture, massage, yoga, wellness coaching, and meditation, can improve health outcomes for a number of health conditions (Armstrong et al., 2018; Gannotta et al., 2018; Scherwitz et al., 2003). CIH is particularly effective in treating chronic pain, one of the most common reasons for medical visits in the United States (Clarke et al., 2016). CIH approaches are increasingly used as part of cancer care (Armstrong et al., 2018), as reflected in the new field of integrative oncology (Greenlee et al., 2014). Similarly, research has shown that spiritual care is effective in helping individuals deal with pain (Brady et al., 1999), speeding recovery from illness and surgery (Casar Harris et al., 1995), improving end-of-life care (Lo et al., 1999), increasing patient satisfaction (Astrow et al., 2018; Williams et al., 2011), improving mental health (Dein et al., 2010; Koenig, 2015; Koenig et al., 2012; Pour Ashouri et al., 2016), and providing better overall health (Hall et al., 2019; Koenig, 2012).

Religion, Spirituality, and Health

There is ample evidence to demonstrate the value of attending to religious and spiritual needs on mental health and well-being (Dein et al., 2010; Koenig, 2015; Koening et al., 2012; Pour Ashouri et al., 2016). Studies have shown, for example, that persons with higher levels of religiosity and spirituality have lower levels or faster remission of depression and fewer suicide attempts and completed suicides. Interventions that attend to an individual's religious or spiritual needs produce better treatment outcomes for depression than standard interventions to reduce anxiety, substance abuse, and cigarette smoking. Studies have also observed better physical health outcomes associated with higher levels of spirituality and religiosity. One study, for example, found a correlation between higher levels of spirituality and religiosity and lower odds of developing high blood pressure, while another study found similar associations between higher levels of spirituality and religiosity and lower levels of disability (Idler and Kasl, 1997). Individuals with higher levels of spirituality and religiosity also engage in healthier behaviors and practices (Bożek et al., 2020) and are better able to cope with chronic pain (Dedeli and Kaptan, 2013) and cancer (Lee, 2019). A review of 91 prospective observational cohort studies examining the relationship between religiosity and spirituality and physical health revealed an association with reduced mortality for 69 of the studies (Chida et al., 2009). The protective effect in the studies with initially health populations was independent of social support, negative mood, socioeconomic status, and health behaviors such as alcohol consumption, exercise, and smoking. This review also indicated that "organizational activity," such as attending church, was associated with greater survival in the prospective studies among healthy populations. A recent study extended the relationship between spiritual coping and survival to persons infected with HIV/AIDS (Ironson et al., 2016). This 17-year prospective observational cohort study tested the use of spiritual practices, positive spiritual reframing, and empowerment as a coping strategy for living with HIV and showed a two- to fourfold survival advantage.

Holistic Care

Holistic care refers to the way in which the components of care are delivered as well as considering the person, family, and community as a whole. This means not caring for a person's heart to the neglect of the kidneys or in a way that is contrary to the person's personal values, preferences, and goals. Holistic also refers to the interprofessional team being coordinated and integrated so that the whole care experience is more than the sum of its parts.

One recent National Academies report noted that Americans live shorter lives and experience poorer health than people in other high-income countries, which it attributed, in part, to an extensive fragmentation of service delivery which creates "inefficiencies and coordination problems that may be less prevalent" in peer nations (IOM/NRC, 2013, p. 107). Experts have also commented on the barriers that U.S. citizens face in receiving desired health services, with one study noting that most Americans receive only half of all recommended health care services (McGlynn et al., 2003) and another finding that only 8 percent of U.S. adults over age 35 received all recommended high-priority clinical preventive services (Borsky et al., 2018).

Delivery design that promotes comprehensive integration at the population and personal levels is one proposed solution to fragmentation and insufficiencies in accessing needed care. A comparison of health systems at the national and regional levels found that systems with higher degrees of "comprehensiveness of primary care"—the extent to which primary care practitioners provided a broader range of services rather than making referrals to specialists for those services—and with a family orientation in which services all family members received care from the same practitioner produced better outcomes across a range of population health indicators, including mortality, mental health, and low birthweight (Starfield, 1998; Starfield et al., 2005). Additional demonstrated benefits from a comprehensive approach to care delivery include higher patient satisfaction, lower health system costs, fewer hospitalizations, and lower rates of clinician burnout (Bazemore et al., 2015; Weidner et al., 2018). Research has also shown that comprehensiveness at the individual clinician level leads to higher scores on outcome measures in a manner that could transition to the health system level (Bazemore et al., 2015; O'Malley and Rich, 2015; O'Malley et al., 2019b).

Two conceptual approaches provide evidence on the value of delivering holistic care: (1) the biopsychosocial model (Borrell-Carrió et al., 2004; Engel, 1977; Kusnanto et al., 2018) and (2) the model of integrated behavioral health in primary care (Cubillos et al., 2021; Hunter et al., 2018).

The Biopsychosocial Model

The biopsychosocial model highlights the value of attending to the person–family–community as a whole. It proposes that illness and health result from interactions among biological, psychological, and social factors and that these interactions are nonlinear and so complex that one cannot know and control all of the contributions and influences that lead to illness and health (Bolton and Gillett, 2019; Engel, 1977; Stacey, 2001). This model emphasizes that changes in lifestyle can prevent the leading causes of death, such as heart disease, stroke, and chronic obstructive pulmonary diseases (GBD 2015 Risk Factors Collaborators, 2016). The model has evolved to include seven pillars of care: self-awareness, active cultivation of trust, an emotional style characterized by empathic curiosity, self-calibration to reduce bias, educating the emotions to assist with diagnosis and forming therapeutic relationships, using informed intuition, and communicating clinical evidence to foster dialogue (Borrell-Carrió et al., 2004). The biopsychosocial model provides important elements concerning how to approach therapeutic relationships and decision making by recognizing that there are too many factors at play for rigid treatment protocols and that any two individuals with the same diagnosis will have very different physical, social, and psychological factors underlying their condition.

A variety of studies have shown that empirical applications of the biopsychosocial model that involve interdisciplinary teams that include clinical psychologists, dietitians, physiotherapists, and primary care physicians improve outcomes for a number of clinical conditions. These include chronic pain (George, 2008; van Erp et al., 2019), fibromyalgia (Turk and Adams, 2016), diabetes (Segal et al., 2013), chronic obstructive pulmonary disease (Kaptein et al., 2014), asthma (Stempel et al., 2019), irritable bowel syndrome (Tanaka et al., 2011), and post-concussion headaches (Register-Mihalik et al., 2020). Interdisciplinary team-based care focusing on common presenting problems, such as pain prevention and treatment, diabetes management, cardiovascular disease prevention and management, or cancer care and survivorship, are common at major health centers.

Primary Care Behavioral Health Model

Evidence also supports the seamless integration of behavioral health into primary care as important to whole health. Primary care behavioral health (PCBH) refers to a "team-based primary care approach to managing behavioral health problems and biopsychosocially influenced health conditions" (Reiter et al., 2018, p. 112). The evidence for the effectiveness of integrated behavioral health is growing, particularly for addressing depression, and anxiety (Archer et al., 2012; Balasubramanian et al., 2017; Bruce and Sirey, 2018), and for alcohol and substance use treatment (Cubillos et al., 2021; Hunter et al., 2018; NASEM, 2020). One study found that "brief behavioral health interventions delivered in integrated primary care target specific patient concerns (rather than provide only generic support) and improve patient functioning" even across a brief time period of only two to three sessions (Bridges et al., 2015, p. 19). Integrated behavioral health services have demonstrated effectiveness in improving outcomes among racially and ethnically diverse populations, including Latinos (Bridges et al., 2014; Dwight-Johnson et al., 2010; Flynn et al., 2020) and African Americans (Berge et al., 2017).

Integrating behavioral health into primary care also improves the experience people have when receiving care. A randomized controlled trial demonstrated that compared with usual care, patients receiving PCBH services reported greater use of coping strategies, greater adherence to relapse prevention plans, and greater use of antidepressant medication, with retention and satisfaction highest among patients who received PCBH services (Robinson et al., 2020). One qualitative study, for example, found that individuals felt cared for when their care addressed the full spectrum of their needs, including physical, emotional, and social needs (Davis et al., 2018). In addition, this study found that individuals perceived personal, interpersonal, and organizational benefits from integrated care and that their interactions with members of the integrated care team helped them develop and improve their coping skills. Other benefits that the individuals in this study received included personal growth, improved quality care, and better access to care. Another study combining quantitative and qualitative methods demonstrated that integrating behavioral health into primary care reduced depression severity, enhanced individuals' experiences of care and their interactions with behavioral health clinicians and helped them acquire new skills to cope with difficult situations at work and home (Balasubramanian et al., 2017).

Research has also demonstrated the benefits of co-locating behavioral health and primary care and of warm handoffs.[3] One study on the use of integrated and co-located behavioral health in a pediatric setting, for example, found that integrated care that included warm handoffs increased the likelihood that the individual would receive a depression diagnosis. Co-located care, in which the individual received a scheduled behavioral health visit at the same clinic, was more likely to produce diagnoses of disruptive behavior, trauma/adjustment, and attention-deficit/hyperactivity disorder (Hoff et al., 2020). Warm handoffs in a pediatric setting have also been associated with improved pediatric patient engagement compared with "referral as usual processes" used in co-located service models (Young et al., 2020). Another study in a rural setting found that over 90 percent of individuals initially referred for behavioral health care via a warm handoff had a subsequent behavioral health visit, compared with 50 percent of

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[3] A warm handoff is a transfer of care between two members of a health care team while the individual receiving care (and their family if applicable) is physically present. The process provides an opportunity for the individual seeking care to hear what is communicated between the health care team members, ask questions, and clarify details.

individuals without the in-person introduction by their primary care provider to the mental health professional (Mitchell et al., 2022).

Cost savings can also result from integrating behavioral health into primary care. A study of claims data from individuals with Blue Cross Blue Shield of Kansas City insurance found that "integrating behavioral health services into the practice was associated with $860.16 per member per year savings, or a 10.8 percent savings in costs" (Ross et al., 2019, p. 59).

ELEMENT THREE: UPSTREAM-FOCUSED

Research has shown that the root causes of poor health extend well beyond health care and that individual behavior, social, structural, economic, and environmental factors are the primary determinants of health and well-being (McGinnis, 1993). Many of these factors influence an individual's health and well-being long before a problem manifests or before they encounter the health system at all. The committee refers to these collectively as upstream factors since the effects of their neglect occur later, or "downstream," in the health care system. Compared with other high-income countries, the United States has much higher rates of chronic disease, reduced quality of life, and greater rates of premature death directly caused by these upstream factors (IOM/NRC, 2013; Woolf and Schoomaker, 2019; Woolf et al., 2013). The United States also spends proportionally more on conventional medical care and less on these upstream factors than other developed countries. With multisector and community partnerships, health systems can address these upstream factors and improve health and well-being, making this capacity foundational for whole health systems.

Health Behaviors

A whole health approach should address unhealthy behaviors, which are a demonstrably significant contributor to poor health. Historically, four unhealthy behaviors—tobacco use, unhealthy diet, physical inactivity, and risky alcohol use—have accounted for nearly 40 percent of preventable deaths in the United States (Mokdad et al., 2004). Today, unhealthy drug use—and specifically opioid and fentanyl use—is also a major contributor of poor health and premature death (SAMHSA, 2019).

Tobacco Use

Despite several decades of reduced use, tobacco remains the leading cause of preventable disease, disability, and death in the United States, with an estimated 480,000 deaths annually (HHS, 2014). In 2019 an estimated 50.6 million U.S. adults, 20.8 percent of the adult population, used tobacco, with 14 percent using combustable cigarettes and 4.5 percent using electronic cigarettes (Cornelius et al., 2020). Research has shown that clinical interventions that include screening, counseling, and pharmacotherapy help people quit smoking, which in turn prevents smoking-related disease (Fiore et al., 2008; Krist et al., 2021; Rigotti et al., 2022). Any team member can deliver these interventions in any setting. Effective interventions as brief as several minutes can increase the likelihood that a person will quit smoking, and more intensive interventions have greater impact (Fiore et al., 2008). Research has also shown that community-based and policy interventions help reduce tobacco use (Rosen and Ben Noach, 2010). These include smoke-free policies (Community Guide, 2012b), mass-reach health communications (Community Guide, 2013), restricting access to tobacco for adolescents (Community Guide, 2001), developing tobacco control programs (Community Guide, 2014), increasing the unit price for tobacco products (Community Guide, 2012a), and increasing access to treatment programs.

Unhealthy Diet and Physical Inactivity

In the United States more than 35 percent of men and 40 percent of women are obese, a number that has been rising for decades (Hales et al., 2020). Unhealthy diet and sedentary lifestyles are major drivers of obesity, which is a leading cause of premature death and can lead to chronic diseases such as coronary heart disease, type 2 diabetes, cancer, and disability. As described later in the chapter, however, scarce availability of affordable, healthy foods and limited access to safe recreation are major environmental contributors to these negative outcomes (Ferrer et al., 2016; Townshend and Lake, 2017). During the COVID-19 pandemic, obese people were more likely to be hospitalized and die from COVID-19 than non-obese people (Gardiner et al., 2021; Tartof et al., 2020). Obesity is also a major driver of health care costs, particularly as people age (Kim and Basu, 2016). Intensive, multicomponent behavioral interventions can improve diet and exercise and help people lose weight; improve intermediate outcomes such as blood pressure, cholesterol, and blood sugars, which in turn prevents chronic conditions such as diabetes and cardiovascular disease and improves the quality of life (Curry et al., 2018; USPSTF et al., 2017). These interventions are effective for children, adolescents, and adults. However, a major challenge is that changing these foundational elements of peoples' lives requires intensive support over a prolonged period from a multidisciplinary team, often taking 30 or more hours over 6 or more months.

Ample evidence has also shown that community-based interventions improve diet and physical activity for people (Khan et al., 2009). Examples include offering diabetes prevention programs in local YMCAs (Adams et al., 2016; Rehm et al., 2017), multicomponent interventions to increase healthier foods and beverages in schools (Community Guide, 2016), community-based digital and telephone interventions (Community Guide, 2020), and workplace programs to promote healthy diet, exercise, and weight loss (Community Guide, 2007).

Unhealthy Alcohol and Drug Use

Unhealthy alcohol use is the fourth leading cause of preventable death in the United States, with more than 87,000 yearly alcohol-attributable deaths from accidents and chronic disease (Stahre et al., 2014). Alcohol misuse not only has health consequences but also causes social and economic problems. Between 2001 and 2013 the prevalence of alcohol use disorder in the United States increased from 8.5 to 12.7 percent (Grant et al., 2017), and the COVID-19 pandemic may have made alcohol use and misuse more common (Clay and Parker, 2020). Similar to the situation with tobacco use, research has shown that brief screening and behavioral counseling interventions routinely delivered by clinicians can reduce risky drinking and support prolonged abstinence in those with alcohol use disorder, which in turn leads directly to moderately improved health as well as social and economic benefits (USPSTF et al., 2018).

According to one study, fully 12 percent of U.S. residents 18 years or older reported current unhealthy drug use, and 8 million persons annually meet criteria for drug dependence or abuse (SAMHSA, 2019). Between May 2020 and April 2021, drug overdose deaths exceeded 100,000 (National Center for Health Statistics, 2021). In addition to health effects, unhealthy drug use is associated with impaired school and work performance, interpersonal dysfunction, and other social and legal problems. Fortunately, counseling and treatment have been shown to reduce unhealthy drug use and increase the likelihood of abstinence, prevent relapse, and improve quality of life, well-being, and life satisfaction (USPSTF et al., 2020). Treatment includes counseling, pharmacotherapy, harm reduction interventions, testing for blood-borne pathogens, assessment of misuse or abuse of or dependence on alcohol or tobacco, assessment of potentially coexisting mental health disorders, and pain management for patients with pain who are abusing opioids (USPSTF et al., 2020).

Social Needs

Social needs—defined here as housing, food, transportation, finances, employment, education, and safety—constitute a key upstream factor that contributes to poor health and therefore must be addressed in any whole health approach. Having a social need causes health inequities, higher health care costs, overuse of health services, reduced quality of life, morbidity, and mortality (Commission on Social Determinants of Health and World Health Organization, 2008; Hämmig and Bauer, 2013; Krieger et al., 2014; Marmot et al., 2008). Addressing social needs has the potential to save more lives than conventional medical advances (Woolf et al., 2007). For example, there is evidence of a strong association between years of educational attainment and decreased mortality (Hayward et al., 2015). To address social needs, the National Academies, the World Health Organization, and many others have called for integrating conventional medical care and social care (IOM, 2016; Landon et al., 2012; Marmot et al., 2008).

While social needs are a major driver of health and well-being, the role of health care systems in addressing social needs is evolving (Krist et al., 2019; Maani and Galea, 2020). Addressing social needs is complex, as a broad range of underlying factors that are difficult to address often influence individual social and economic conditions. Other sectors may be better equipped to handle social needs than health care, such as social services, community organizations, education, public health, and policy makers. Action is needed at the local, state, and national levels from public and private sectors, synergistically and over an extended period time.

While health care cannot address social needs alone, it does have a key role to play with other sectors. Understanding the needs of a person, family, and community is an important part of people-centered, comprehensive, holistic care. It is an essential step for understanding who a person is, what factors may shape his or her life, and what the person may want help in addressing. Even if the health care system cannot help to fulfill a person's social need, knowing about the need may change how care is provided (Tong et al., 2018).

In theory, a trusted clinician in a relationship with a patient may be well positioned to screen for and identify social needs. Once these have been identified, the clinician and care team can help connect a patient with services to address those needs. As a result, many health care systems increasingly incorporate programs to address patients' social needs, but evaluations of these programs to date have focused primarily on process and some social outcomes (Reyes et al., 2021). The National Academies' 2019 report *Integrating Social Needs Care into the Delivery of Health Care to Improve the Nation's Health* (NASEM, 2019a) examined how health systems could integrate social care into health care and recommended eight steps (see Box 3-1). These eight recommendations align well with what is needed, in terms of social care, to develop and implement whole health systems of care.

BOX 3-1

Recommendations from *Integrating Social Needs Care into the Delivery of Health Care to Improve the Nation's Health*

Health care organizations should take steps to integrate social care into health care. Specific steps should include:

(1) Make and communicate an organizational commitment to addressing health-related social needs and health disparities at the community and individual levels.
(2) Recognize that comprehensive health care should include understanding an individual's social context. Evidence is rapidly accumulating concerning the most effective strategies for screening and assessing for social risk factors and social needs. Such strategies should include standardized and validated questions, as available, and should use interoperable data systems to document results.
(3) Use patient-centered care models to more routinely incorporate social risk data into care decisions.
(4) Design and implement integrated care systems using approaches that engage patients, community partners, frontline staff, social care workers, and clinicians in the planning and evaluation and incorporating the preferences of patients and communities.
(5) Include social care workers as being integral to a team-based approach to designing and delivering health care.
(6) Establish linkages and communication pathways between health care and social service providers. This is important for personal care aides, home care aides, and others who provide care and support for seriously ill and disabled patients and who have extensive knowledge of patients' social needs.
(7) Develop and finance referral relationships with selected social care providers when feasible, supported by operational integration such as co-location or patient information systems. Social care providers and health care providers should establish a formal understanding and accountability within their contracting and referral relationships.
(8) Support the development of those infrastructure components needed to meet the goal of care integration, including the redesign and refinement of workflows, technical assistance and support, staff with the ability to support the redesign, champions of the redesign, information on best practices, health information technology to enhance integration, and support for community partners and their infrastructure needs.

SOURCE: NASEM, 2019a.

The Role of Racism

The committee recognizes that systemic racism is a primary driver for many of the social determinants of health and thus a critical upstream factor that any whole health approach must address. Allostatic load, the cumulative burden of chronic stress when persistent life challenges become unmanageable or overwhelming over time, illustrates how systemic racism can negatively affect a variety of health outcomes. A recent systematic review showed that allostatic load was associated with racial and ethnic discrimination and poor health outcomes (Guidi et al., 2021). National quality measures demonstrate that compared with white people, Black people received worse care on 76 out of 190 (40 percent) measures and Hispanic people on 58 out of 167 (35 percent) measures (Doubeni et al., 2021). Black, Hispanic, and Asian people are less likely to receive recommended preventive care and more likely to suffer worse outcomes from preventable conditions (Doubeni et al., 2021). In response, many health care systems have issued statements commiting to addressing racism in health care.

To date, most health system interventions to address racism have focused on addressing implicit bias among health care providers, cultural tailoring of information and interventions, and achieving workforce race and ethnicity compositions that are reflective of the communities being served. Research has shown that these actions have some benefit with respect to access to care and the delivery of evidence-based care (Lin et al., 2021; Williams et al., 2019). However, these interventions fall short of addressing the systemic disparities in access to care, quality of care, and timeliness of care that health care systems must address to eliminate their contribution to racial disparities in health outcomes (IOM, 2003). Whole health systems need to commit to addressing these shortcomings head on and address the underlying structural causes contributing to inequities. Emerging methods, such as community-based system dynamics (CBSD), may offer a way forward (Gullett et al., 2022). CBSD requires longitudinal investment in community-driven solutions and the development of trusting relationships and among community members. Based on this foundation, an experienced faciliator catalyzes community members to visualize the complex factors that produce systemic racism, and identify the levers to improve racial equity and whole health for the population. The causal loop diagrams that the community creates become the framework for action and evaluation. CBSD could also be applied to addressing systemic sexism, which we discuss in the next section.

The Role of Sexism

Sexism has historically referred to discrimination on the basis of gender—most commonly affecting women—which harms the discriminated-against individuals with respect to their health and personal well-being and also hinders their progression as leaders (Ceci and Williams, 2011). The committee recognizes the prominent role sexism plays in society and in the uniformed services. Sexism can be perpetrated against any gender and takes many forms—sexual objectification, demeaning or derogatory treatment, stereotypic expectations of gender roles at home or in the workplace, and gender-based violence, which includes intimate partner violence, female genital mutilation, and sexual harrassment and assault. Military sexual trauma has had lasting negative mental and physical consequences which can persist well beyond separation from active-duty service while veterans receive care at VA or in other settings.

There are now approximately 1.8 million female U.S. veterans and 200,000 on active duty. Unfortunately, women veterans frequently report sexual and gender harrassment while seeking care at VA facilitites. Depite a 2017 social marketing and training campaign aimed at staff and veterans to reduce the harassment of women veterans at VA facilities, a follow-up survey in 2018 revealed that the problem persisted with no significant improvement (Fenwick et al., 2021). The VA has implemented additional services to more comprehensively provide women's health care, but the American College of Obstetricians and Gynecologists has noted the need for improved integration of these services into the VA health care infrastructure, which must include access to preventive health care services such as reliable, effective contraception (McCauley and Ramos, 2020). To promote whole health, steps must be taken in society at large, in the VA, and in the uniformed forces to address disparities in childbearing, fertility, depression, and post-traumatic stress disorder (PTSD). More action is needed to continue to provide adequate child care as well as paying attention to the specific physical and emotional traumas experienced by women both in and out of uniform (Disabled American Veterans, 2018).

Women in the military have a higher unintended pregnancy rate than the general population, and these rates are higher among less educated, nonwhite, and single women (Grindlay and Grossman, 2015; Heitmann et al., 2016). Thus there is an intersection between race and gender (e.g., identifying as black and female) which heightens the structural health inequities that people experience.

The Role of Homophobia and Transphobia

Homophobia refers to negative attitudes or discrimination toward individuals who identify as homosexual. Transphobia is a similar concept and refers to negative attitudes or discrimination toward individuals who identify as transgender. Lesbian, gay, bisexual, transgender, queer, and other individuals of minoritized identities (LGBTQ+) experience significant disparities across a variety of physical and mental health outcomes (IOM, 2013; Morris et al., 2019) due in part to implicit and explicit biases of health care professionals during health care encounters (Burke et al., 2015; Sabin et al., 2015). Compared to heterosexual individuals, LGBTQ+ individuals are also more likely to experience a variety of upstream stressors across the lifespan, including child abuse, sexual assault, and other violent assaults (Valentine et al., 2022). Other stressors that affect LGBTQ+ individuals include structural discrimination at the local, state, and federal levels across nearly every sector of society including education, housing, health care, employment, and religion. For example, 27 states have no protections against the discrimination of individuals based on sexual or gender identity (Freedom for All Americans, 2022). This structural discrimination was also the norm in the U.S. military until recently—openly lesbian, gay, and bisexual individuals have been allowed to serve in the armed forces only since 2011. Openly transgender individuals have been allowed to serve since 2021.

Relatedly, LGBTQ+ individuals are about 10 times more likely than the general population to develop PTSD (Valentine et al., 2022). This is highly relevant to VA as PTSD is a condition that is already associated with military combat trauma. An estimated 11 to 20 percent of veterans from Operation Iraqi Freedom and Operation Enduring Freedom have PTSD each year (VA, 2022a). LGBTQ+ veterans have even higher levels of PTSD than heterosexual and cisgender veterans yet a study of women LGBTQ+ veterans found that compared to heterosexual and cisgender women, they face additional barriers to care, such as experiencing more harassment and feeling unwelcome or unsafe when seeking care at VA facilities. One consequence of this is that women LGBTQ+ veterans are more likely to delay needed care to avoid negative interactions at VA facilities (Shipherd et al., 2018).

To help address some of these structural barriers, VA employs an LGBTQ+ care coordinator at every VA facility (VA, 2022b). Whole health is also included in the list of services available to LGBTQ+ veterans; however, the committee was unable to find any specifics regarding whole health services that are designed specifically for LGBTQ+ veterans (VA, 2022b). Whole health care, by definition, is care that recognizes the whole person, and any system addressing it (VA or otherwise) must do its best to mitigate structural inequities and the interconnections among inequities related to race and ethnicity, sex, sexual orientation, and gender identity.

Environment

The environments in which people and communities reside, work, learn, and rest are dominant factors contributing to human health. During the 20th century, infectious disease–related death in the United States declined by a factor of more than 20 (Armstrong, 1999). Overcrowding and poor sanitation, which accompanied industrialization in the 19th century, facilitated the spread of communicable diseases such as cholera, typhoid fever, tuberculosis, yellow fever, and malaria. The reshaping of these environments by public water supplies, sewage disposal, organized solid waste removal, vector control, and housing reforms were no less central to these gains than the development of effective antimicrobial therapies in reducing mortality related to infectious diseases (CDC, 1999). The COVID-19 pandemic demonstrated that environmental factors that facilitate the transmission of communicable disease remain important upstream determinants of health (Blocken et al., 2021; Emeruwa et al., 2020). Environmental factors are also central in shaping the vulnerability of communities to noncommunicable diseases. Heart disease, cancer, accidents, chronic respiratory diseases, and diabetes are leading causes of mortality in the United States, with well-characterized and modifiable environmental determinants.

Air pollution is a leading cause of global disease burden. Studies have linked outdoor pollution in the form of ozone and fine particles ($PM_{2.5}$) to ischemic heart disease, cerebrovascular disease, chronic obstructive pulmonary disease, lower respiratory infection, and lung cancer (Cohen et al., 2017). Exposure to these pollutants, which industrial processes and combustion of fossil fuels emit, differs according to the racial and socioeconomic composition of neighborhoods (Colmer et al., 2020). Indoor air quality that has been degraded by fossil fuel combustion for heating and cooking (carbon monoxide, fine particles), indoor smoking, substances that penetrate the structure (radon), products employed for cleaning and maintenance (volatile organic compounds), mold, and inadequate ventilation is an important exacerbator of respiratory illness (Bernstein et al., 2008; Blocken et al., 2021; EPA, 2003; IOM, 2004).

The development of public water supplies and treatment centers has led a tremendous improvement in water quality in the United States, but these gains have not been distributed equitably across communities. Some regional water systems in the United States have been found to have recurrent violations of health standards, characterized by contamination of drinking water with pathogenic bacteria, nitrates, arsenic, lead, and other contaminants (Allaire, 2018). The 2014 water crisis in Flint, Michigan, stands as a painful reminder of the need for vigilance to ensure a supply of clean drinking water, particularly in historically marginalized communities (Abbasi, 2021).

Climate change is an increasingly important influence on the environmental factors that shape human health. The U.S. Fourth National Climate Assessment, published in 2018, concluded that changes in weather and climate attributable to human greenhouse gas emissions have degraded air and water quality and increased transmission of infectious diseases through food, water, and insect vectors (NCA, 2017).

Recent research has also highlighted the importance of the foodscape, built environment, and neighborhood safety (Janssen, 2014) as important environmental determinants of health outcomes. Proximity, favorable pricing, and selective marketing of calorie-dense, nutrient-low, processed foods may contribute to the prevalence of diets that contribute to obesity in so-called food deserts (Brown and Perrin, 2018). The effect of toxic food environments may be exacerbated by insufficient access to spaces for recreational activity or the perception, common in low-resource neighborhoods, that the safety-related risks of time spent out-of-doors outweigh the benefits of physical activity. These and other factors may contribute to an obesogenic environment for children and adults, and the factors may have long-term consequences on metabolic and cardiovascular health (Townshend and Lake, 2017). These environmental factors may limit the capability to effect behavior change (Ferrer et al., 2016).

Health care systems that promote whole health may seek to build healthy communities by affecting the environmental determinants of disease most salient to the people and communities in which they operate. Approaches could include developing resources that enable people and communities to identify and mitigate the environmental causes of disease in homes, workplaces, and neighborhoods. Health systems may not always be the best equipped organizations for addressing the environmental needs of communities, and they may benefit from partnerships with community organizers, philanthropic organizations, and academia (Center for Justice, 2004). Such partnerships have shown promise in generating policy change to address the disproportionate burden of pollution and other environmental hazards borne by communities of color and low-income communities in the United States.

Requiring a Multisectoral, Integrated, and Coordinated Approach

Addressing upstream factors—individual behaviors, social needs, racism, and the environment—will promote whole health, but doing so will require collaborations across sectors of care that go well beyond physical, mental, and behavioral health. For example, whole health requires housing, safety, and access to food, transportation, education, and other services. Collaboration requires helping assemble and participate in a network that is effective in both reaching out and connecting the people residing in communities with their local social services and health care systems and, where needed, providing support to optimize success. Community health workers and peer health coaches (see Chapter 6) can provide important bridges to link clinical systems with community needs (Fiori et al., 2020). Similarly, workplaces and schools also provide potential access points to services and programs that can address the whole health needs of communities (CDC, 2016, 2019). Ultimately the structural factors that cause the upstream causes of poor health will need to be addressed with multisector collaborations.

ELEMENT FOUR: EQUITABLE AND ACCOUNTABLE

One working definition of health equity is a state “where everyone has the fair and just opportunity to be as healthy as possible” (Braveman et al., 2017, p. 2). In the context of whole health, equity is a commitment by an interprofessional team and system to equitable access and treatment of the people and communities they serve. While there is limited direct evidence that health care systems with a health equity focus increase population lifespan, there is considerable evidence that *societies* with more social equity (smaller disparities in household income, assets, and educational status) have better health and longer lifespans (Marmot, 2020; Marmot et al., 2008). For this reason, the health equity definition cited above goes on to state that health equity “requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care” (Braveman et al., 2017, p. 2).

A commitment to equity makes a difference in the health of populations. There is considerable evidence that practices and health systems that are committed to care for underserved and vulnerable populations (i.e., those that are explicitly committed to equity) improve health outcomes for the people and families they serve and for the communities in which they are embedded. Decades of evidence on community health centers (CHCs), which broadly include a range of practices that care for underserved and vulnerable populations (e.g., free clinics, federally qualified health centers, safety net practices, public health clinics, etc.), have been shown to increase the number of uninsured people who have a usual source of care and have regular contact with a clinician (Carlson et al., 2001; Starfield and Shi, 2004), improve processes of care (Porterfield and Kinsinger, 2002; Ulmer et al., 2000), increase delivery of recommended preventive care and counseling (Klein et al., 2001), reduce hospitalizations (Epstein, 2001; Falik et al., 2001), and even increase employment and wages (Hunt, 2005). Studies have demonstrated that CHCs provide care to people with chronic conditions that is at least equivalent in quality to that delivered by conventional private practices, and the outcomes are significantly better than in cases where people received no medical care. For example, patients with diabetes mellitus who used CHCs saved payers and individuals approximately $1,656 in ambulatory care costs compared with non-users of CHCs (Richard et al., 2015). Furthermore, increasing funding for CHCs has been shown to allow practices to care for more people, which in turn reduces emergency room visits for non-emergent primary care—treatable conditions (Myong et al., 2020).

For a system to be equitable, however, it must have not only a commitment to equity but also adequate resources or inputs. The Medicaid Expansion provisions of the Affordable Care Act (ACA) in 2014 provide a valuable natural experiment on the impact of a more equitable approach to health care resources. Under the expansion, Medicaid eligibility was extended to adults up to age 64 with incomes up to 138 percent of the federal poverty level, whereas pre-ACA, Medicaid was generally never available to non-disabled adults under age 65 unless they had minor children. The ACA called for Medicaid expansion nationwide, but a Supreme Court ruling determined that states could not be forced to expand their Medicaid programs, so participation was ultimately left up to each state. As of 2022, Medicaid had been expanded in 38 states and the District of Columbia, and 21 million Medicaid enrollees gained eligibility because of Medicaid expansion (Health Insurance, 2022). A U.S. Government Accountability Office report found that in 2016 low-income adults in expansion states were less likely to report having any unmet medical needs than those in non-expansion states (GAO, 2018). Other studies have shown that Medicaid expansion is associated with sustained increases in recommended clinical preventive services among lower-income people (Song and Kucik, 2022), an increased use of outpatient primary care services with a corresponding reduction in acute emergency room use (Holderness et al., 2019), reductions in delayed receipt of medical care due to cost, and reduced out-of-pocket spending and medical debt for low-income people (Selden et al., 2017).

Addressing health equity is an important moral obligation. More work is needed to define the health system's role and the value proposition of adopting a health equity lens (Frick et al., 2007). However, more whole health will be produced if health systems deploy their resources with a commitment to equity, particularly focusing on upstream factors as discussed in the previous section, as part of a larger systems approach in the communities they serve that provides sufficient input resources.

Accountability

In Chapter 2 the committee asserts that whole health systems need to be accountable for the health and well-being of a defined population to the people, families, and communities they serve and to their funding entities. Accountability is a key pathway to ensuring the quality, safety, and the equity of care. It includes three components: who is being held accountable, whom are they accountable for, and for what are they accountable. The committee envisions that once whole health care is fully realized, whole health systems and their interprofessional teams and team members will be accountable for the whole health of defined populations of veterans, people, families, and communities.

There is considerable evidence that holding individual clinicians and groups of clinicians accountable for the quality of care they render can improve that quality. In medicine this accountability has been achieved traditionally through the practice of professionalism—groups of clinicians self-defining standards for training, practice maintenance of licensure, and enforcement (ABMS, 2020). A system of legal torts also polices outlier behavior.

Beginning in the 1980s this standard of internal accountability was augmented by external accountability. As research and data aggregation and sharing capacity improved, the ability to define best clinical practices—in terms of desired outcomes and the structures and processes that facilitate those outcomes—and then to measure adherence to them (Donabedian, 2005) also improved. Health care quality measurement, using instruments such as the Consumer Assessment of Healthcare Providers and Systems (LaVela and Gallan, 2014), has since evolved to encompass measures of patient satisfaction and well-being and the quality of care rendered to entire populations for which a health care practice (O'Malley et al., 2019a) or system, such as an accountable care organization (Fisher and Shortell, 2010), is being held accountable (Etz et al., 2019; Zyzanski et al., 2021).

Evidence demonstrates that you cannot improve what you cannot measure. Twenty years after the hallmark Institute of Medicine report on patient safety *To Err is Human: Building a Safer Health System* (IOM, 2000) documented the harm caused by medical errors, a review article concluded that the risk of preventable errors remained high (Bates and Singh, 2018). While the report identified a critical problem, process and outcomes measures are needed for change. Defining and measuring a simple process to promote patient safety—hand washing—has shown improvements in both process (increased hand washing) and outcomes (reduced acquired infections by over 50 percent) (Hermann et al., 2020). Similarly, the Center for Medicare and Medicaid Innovation has documented how measuring and providing feedback to health care systems has improved their performance on specific clinical quality measures (Crook et al., 2021). The national increase in colorectal cancer screening from 40 to 60 percent of people eligible for screening between 2004 and 2014 further highlights how defining, tracking, and holding clinicians accountable for an action can improve quality (Davidson et al., 2021; Dougherty et al., 2018). Now it is standard practice to measure, hold accountable, and even pay clinicians for specific measures to improve care (IOM, 2011; Kromm, 2011).

This is not to say that merely defining and measuring care will improve outcomes. Even in organized systems of care, such as Great Britain's National Health Service, systematic efforts to improve the quality performance of the overall system have proven to have only mixed impact (Dixon-Woods, 2019). Identifying the right measures, developing feasible and meaningful actions for improvement, and holding teams accountable for change are all necessary for success—and all will be necessary for whole health to succeed.

Empanelment

The concept of empanelment illustrates how a specific form of accountability can facilitate equity within a given population. Empanelment is the process of assigning everyone in a given population to an interprofessional care team or team member that is responsible and accountable for their care. Empanelment can occur by geography (some countries empanel their entire population based on where they live) or by health system (some systems, such as Southcentral Foundation's Nuka System of Care, empanels their user populations). Currently in the United States, health systems and clinicians are held accountable for the people who seek their care, and insurers are held accountable for all their beneficiaries. This process runs the risk of reverse targeting, with those who are in greatest need also being those who do not seek care and who are not insured (Woolhandler, 1988).

A specific strategy to promote equity through empanelment is to first empanel high-social-risk and high-clinical-risk populations, ensuring that they have a consistent and reliable source of care. This can help build trusting, continuous relationships between an interprofessional team or team member and an individual seeking care, providing the individual with easy access to services when needed (Bodenheimer et al., 2014). It also shifts care from being reactive to proactive by holding a system accountable for the individuals' outcomes regardless of whether they have sought care.

Evidence from a number of health systems supports the effectiveness of empanelment (Bearden et al., 2019) as a contributor to whole health (College of Family Physicians of Canada, 2012; Ostbye and Hunskaar, 1997). To contribute to whole health, empanelment needs to be people-centered rather than taking a traditional provider-centric approach which often treats people as nothing more than a set of diseases and conditions (Bearden et al., 2019). The hallmark of a people-centered approach to empanelment would be for all members of a population to make a facilitated declaration of a usual source of care, such as at the time of enrollment in an insurance scheme or annually. However, there are both practical and cultural barriers to the universal declaration of a usual source of care, including the perceived limitation of clinician choice and not aligning empanelment and capacity. Furthermore, merely designating a usual source of care does not create true accountability.

While it is logical to assume that larger panels are associated with worse patient outcomes, worse patient experiences, and clinician burnout, a recent systematic review on the topic revealed that the evidence substantiating these assumptions is limited (Paige et al., 2020).

Costa Rica's community-oriented primary health care model provides a good example of how universal empanelment can help facilitate health equity. The model is built upon fully integrated community-based interprofessional primary care teams, integration with the national public health system, a universal health information technology system, a robust measurement and quality improvement system, and geographic empanelment for every citizen in the country (Bitton et al., 2019; VanderZanden et al., 2021). Interprofessional teams are responsible for specific geographic areas and for caring for the residents who reside within them. Team members, often community health workers, proactively move throughout their assigned catchment, visiting each household at least once a year. These home visits provide opportunities for teams to deliver more traditional health care services and to address many upstream factors that contribute to health, as described earlier in the chapter. To address health equity, the national empanelment effort began by focusing on the most underserved populations, which reside mostly in the more remote, rural regions of the country. In 2019 more than 94 percent of the overall population was empaneled, with ongoing efforts to target resources to underserved populations (nearly one-third of the budget is directed at the poorest 20 percent of the population). While it is difficult to attribute equity outcomes solely to empanelment, between 1980 and 2000 there were greater declines in premature mortality among the lowest-income quintile (48 percent) than among the wealthiest quintile (39 percent). An analysis of infant mortality in 2009 also found equity across all regions, with no geographic differences (VanderZanden et al., 2021). This model could inform a process whereby whole health systems could improve equity through accountability.

ELEMENT FIVE: TEAM WELL-BEING

In addition to the main focus of the whole health approach on improving the overall well-being of patients, team well-being is also a foundational element of any whole health approach, with benefits both for the interprofessional team and the people to whom they are providing services.[4] The committee considered team well-being as care team members experiencing whole health themselves. Whole health systems can enable their team members to experience whole health by providing the necessary systems to effectively and efficiently deliver whole health care in a supportive and positive work environment.

There is substantial evidence that high-functioning teams—a key component of whole health care—can play an important role in fostering clinician well-being and reducing burnout, though the evidence is focused largely on addressing and preventing burnout rather than on actively promoting well-being (Budge et al., 2003; Chang et al., 2019; Day et al., 2009; Dehn et al., 2015; So et al., 2011; Sutinen et al., 2005; Welp et al., 2016; Willard-Grace et al., 2014). As a discussion paper from the National Academy of Medicine (NAM) Action Collaborative on Clinician Well-Being and Resilience concludes, "Studies indicate that optimizing team-based care is one potential lever to help solve the complex problem of decreased clinician well-being" (Smith et al., 2018, p. 4). Research has shown, in fact, that teamwork quality is inversely related to the level of staff burnout experiences (Bowers et al., 2011). Features of burnout—one consequence of not attending to well-being—include emotional exhaustion, feelings of cynicism and detachment from the job, and a lack of motivation and feelings of accomplishment (NASEM, 2019b).

Consistent with the findings above, the authors of the NAM discussion paper also concluded that the converse is true, stating that "ineffective teamwork may be demanding for its members, leading to a higher workload and decreasing well-being." Research bears this out, too, as it shows that units with poor teamwork tend to have staff with higher levels of fatigue (Bowers et al., 2011) as well as of emotional exhaustion and depersonalization, both of which are key features of clinician burnout (Wang et al., 2022). Research has also shown that emotional exhaustion appears to have a feedback effect that leaves clinicians less able to engage in positive teamwork (Welp et al., 2016).

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[4] Most of the research regarding health care team well-being focuses on clinicians and not the broader health care workforce, and within this literature, the vast majority of studies focus on physicians. The studies included in this section reflect this imbalance.

Burnout

Burnout is a workplace syndrome characterized by high emotional exhaustion, high depersonalization (i.e., cynicism), and a low sense of personal accomplishment from work (NASEM, 2019b). Among clinicians, burnout is linked to poor quality of care and suboptimal patient outcomes (Linzer, 2018) as well as to increased odds of suicidal ideation and depression (Menon et al., 2020). A systematic review found a relationship between high levels of burnout and reductions in patient safety (Garcia et al., 2019). There is also evidence that patient experience is better with physicians who are less burned out (McKee et al., 2020). It also affects productivity: a longitudinal cohort study of nearly 27,000 nonphysician health workers found that those who experienced burnout reduced their work effort over the next 24 months (Dyrbye et al., 2021). On the other hand, clinician well-being supports improved patient–clinician relationships, a high-functioning care team, and an engaged and effective workforce (NASEM, 2019b).

While most burnout and well-being research is focused only on clinicians, a large study of over 10,000 individuals that included nonclinical office staff as well as physicians and advanced practice clinicians across 1,380 primary care practices found that 20.4 percent of the respondents reported that they experienced burnout; the percentages were 20.6 percent for the clinical staff and 18.0 percent for nonclinical staff. The odds of burnout were higher among non-solo practices than among solo practices and were higher in hospital, health system, or federally qualified health center settings than in physician or advanced practice clinician-owned settings (Edwards et al., 2018b).

A 2019 National Academies consensus study identified seven potentially modifiable factors contributing to burnout and professional well-being, the first five of which high-quality teams can address with the support of effective systems-level interventions and design (NASEM, 2019b):

- Job demands that require sustained physical or psychological effort or skills, including excessive workload, unmanageable schedules, and inadequate staffing
- Excessive administrative burden
- Workflow, interruptions, and distractions
- Time pressure and encroachment on personal time
- Inadequate technology usability
- Moral distress
- Patient factors

That report also listed job resources that can ameliorate the detrimental effects of these factors on well-being:

- Professional relationships and social support
- Job control, flexibility, and autonomy
- Meaning and purpose in work
- Organizational culture
- Alignment of values and expectations
- Rewards
- Work—life integration

While Chapter 5 describes that there is scant evidence linking whole health approaches to improved team well-being, it is logical to see how a whole health approach could potentially enhance several of the above job resources. For example, whole health could enhance meaning and purpose in work among the interprofessional team by facilitating a deep connection between the team and the individuals they are holistically and comprehensively caring for. Additionally, the fact that whole health is inherently a team-based approach should foster a positive work environment based on strong professional relationships and social support, assuming that teams have the resources and staff coverage they need to fulfil their duties. On the other hand, if teams are stretched thin and job demands, workload, and pressure exceed the available resources, the well-being of a whole health team may suffer.

Organization-Level Interventions

According to a systematic review and meta-analyses on interventions designed to prevent or reduce physician burnout (Panagioti et al., 2017), organization-directed interventions are more likely to reduce the incidence of burnout than individual-directed interventions, such as mindfulness-based stress reduction training. For example, the VA's Civility, Respect, and Engagement in the Workplace (CREW) intervention places participants in workgroups, each led by a trained facilitator, to set goals and discuss ways to improve how they work together (Osatuke et al., 2009). Two studies have found that nurses participating in CREW reported improved job satisfaction and significant reductions in the depersonalization/cynicism dimension of burnout (Laschinger et al., 2012; Leiter et al., 2011). While not designed to target burnout specifically, the authors suggest that improving work relationships may have helped reduce burnout. Supporting this idea, research shows that team dynamics play an important role in minimizing the negative personal and professional consequences that staff experience when preventable harm to a patient occurs (Seys et al., 2013).

Another systematic review of some 50 studies concluded that strategies that promoted team-based care and incorporated medical assistants or scribes to complete electronic health record (EHR) documentation and other administrative tasks were strongly linked to reducing clinician burnout and stress, as measured by the Maslach Burnout Inventory, the Physician Job Satisfaction Scale, and the Epworth Sleepiness Scale, among other measures (DeChant et al., 2019). Other aspects of teamwork that reduced burnout included improved communication among physicians and expanded team member responsibilities that allowed team members to work at the top of their skills and better allocate clinical workload. According to the authors, "High-quality evidence provided the value of teamwork to improve clinic workflow efficiency, such as timely and accurate medical record completion" (p. 404), while two low-quality studies found productivity increases resulting from team-based care led to fewer hours spent on EHR documentation outside of work. One study from the VA found that physician burnout was more prevalent when other team members did not share tasks and responsibilities (Kim et al., 2018).

A study of 715 small- to medium-sized primary care practices participating in an Agency for Healthcare Research and Quality initiative to implement evidence-based cardiovascular preventive care was intended to identify the characteristics of the 30 percent of practices that reported zero burnout as compared with practices that reported high levels of burnout. Several system-level practices and organizational interventions were associated with the zero-burnout practices. These included implementation of quality improvement strategies and high levels of facilitative leadership that prioritized fostering relationships, enhancing communication, attending to social influence and power imbalances, ensuring psychological safety, and cultivating teamwork rather than hierarchical leadership that relies on a command-and-control mechanism. Higher patient volume and a high proportion of Medicaid patients had no effect on levels of burnout, nor did EHR features or EHR satisfaction (Edwards et al., 2021).

Job Demands

When resources are not sufficient to meet a job's demands, workers can become overloaded and frustrated and may fail to meet personal or organizational goals (Caplan, 1987). In fact, excessive workload and perceptions of inadequate staffing are associated with increased worker stress, decreased job performance, and an increase in errors, which are predictors of burnout (Van Bogaert et al., 2017; Xu et al., 2017). The COVID-19 pandemic demonstrated this clearly, when inadequate staffing and increased workload led to higher rates of fatigue and burnout in health care settings (Lasater et al., 2021; Miller et al., 2021; Sikaras et al., 2022).

Proper staffing, which reduces job demands, is an essential component of team-based care that benefits well-being. One study of VA's team-based model, the Patient-Aligned Care Team (PACT), found that many teams were understaffed (Helfrich et al., 2014). However, clinicians on adequately staffed PACT teams and those who reported that their teams used participatory decision making had significantly lower odds of emotional exhaustion. In a second study, PACT team members (including primary care physicians, nurse practitioners, physician assistants, nurse care managers, clinical associates, and administrative clerks) reported insufficient staffing, lack of training, poor scheduling practices, new responsibilities without promised resources, less time with veterans, and team dysfunction when a PACT team included a weak team member (Ladebue et al., 2016). Numerous studies have shown that extra hours of work resulting from insufficient staffing increase the odds of burnout, with one analysis finding that every hour of extra work increases the odds of physician burnout symptoms by some 2 percent (Dyrbye et al., 2013). Similarly, a study of more than 50,000 nurses found that those who had already left or were planning to leave their jobs because of burnout reported that a stressful work environment and inadequate staffing were the top reasons for doing so (Shah et al., 2021). These findings align with several reports that have associated increased nurse burnout with inadequate, inappropriate, or short staffing (Edwards et al., 2018a; Garrett, 2008; Simpson et al., 2016).

However, team-based care delivery can help alleviate excessive job demands by better allocating job responsibilities (Leape et al., 1999) and allowing team members to work at the top of their skills (Helfrich et al., 2014), which together increase efficiency (Wright and Katz, 2018) and can reduce burnout (Helfrich et al., 2014). One study of a patient-centered medical home, for example, found that team-based care reduced stress, anxiety, and burnout among clinicians, in part by better allocating staff resources to reduce clinician workload (Reid et al., 2010). Teamwork became essential for at least partially reducing work overload and burnout among clinicians during the COVID-19 pandemic (Ehrlich et al., 2020; Kerrissey and Singer, 2020; Sangal et al., 2020), and anecdotal reports suggest that institutions that organized their staff into teams were able to reduce fatigue without negatively affecting patient care (Habib and Zinn, 2020; Holthof and Luedi, 2021).

FINDINGS AND CONCLUSIONS

This chapter summarizes the evidence supporting the committee's five foundational elements of whole health: (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) equitable and accountable, and (5) team well-being. Whole health systems must address all five foundational elements to some degree, though implementation and program design will differ depending on local resources and the needs of the people, families, and communities they serve. The foundational elements are overlapping, synergistic, and, in the case of whole health, should be embedded in the care delivery process rather than delivered as individual, separate components.

The committee found that not only do the five foundational elements make conceptual and logical sense as being essential building blocks for whole health care, but there are also decades of robust evidence supporting their benefit to help people, families, and communities achieve whole health. Evidence demonstrates that people-centered care improves the experience of receiving care, which in turn helps people to feel subjectively better and improves some physiologic measures. It also helps to create a sense of purpose and engage people as partners in their care, allowing improved self-management. Comprehensive and holistic care further improves patient satisfaction, lowers health care costs, reduces hospitalizations, and lowers clinician and team burnout. Upstream factors are well-known drivers of poor health outcomes, contributing more to health than does health care itself. There is evidence that health systems can improve many upstream factors such as health behaviors and mental health, and there is a growing body of evidence that shows that health systems can even improve social determinants, environment, and systemic racism and sexism. To address these complex issues, partnerships and collaboration are needed among health systems, community programs, social services, and public health agencies. More evidence is needed to understand the role of health care systems and how health care systems can be part of broader whole health systems to partner with other sectors to address these complex issues. The adverse effects of racism and sexism require implicit bias education, cultural tailoring of information and interventions, and training a racially and ethnically diverse workforce that reflects the composition of the communities being served.

To improve the quality of care, health systems must provide the right care at the right time to the right people. Because health inequities are such a key driver of poor health, evidence shows that equity and accountability are essential for ensuring whole health. There is compelling evidence that societies with high levels of social equity live longer and healthier lives. Similarly, practices and systems focused on caring for vulnerable and underserved people have been shown to increase access to care and the receipt of recommended services and to reduce acute care such as emergency room visits and hospitalizations. Evidence further demonstrates that assuming accountability for people, family, and communities is an essential pathway to equity, ensuring that all have access to care and shifting processes of care from being reactive (waiting for people to access care) to being proactive (reaching out to delivery care when it is needed). Evidence shows that a “no wrong door” type approach, allowing people to access care through many avenues and embedding whole health supports, resources, and care where people live, work, learn, and play, further improves access and quality of care. While whole health systems cannot solve all of society's ills, they need to address the root causes of inequity, including intrapersonal, interpersonal, institutional, and systemic mechanisms as well as the unequal distribution of power and resources. Finally, there is strong evidence supporting the importance of team well-being. Evidence shows this reduces team member burnout, which improves patient outcomes and quality of care. Some team-based models of care show promise in improving team functioning and mitigating risk factors that can cause burnout. Interventions directed at the system and organization level, such as those dedicated to improving workflow, technology usability, and effective staffing and delegation, are more effective than those focused on individuals at preventing burnout and promoting well-being.

This chapter shows the evidence supporting each foundational element as a singular characteristic—an essential first step for understanding the value of whole health care. Chapter 4 demonstrates how five whole health systems address the foundational elements, and Chapter 5 assesses the evidence of whole health systems that have operationalized all five foundational elements, further reinforcing the benefits shown in this chapter.

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4

Whole Health in Practice

The committee identified several care delivery models whose program design and philosophical approach are well aligned with the committee's five foundation elements of whole health. These five foundational elements are (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) equitable and accountable,[1] and (5) team well-being (see Chapters 2 and 3 for more detail on the five foundational elements). This chapter will describe in depth five delivery models that show promise in supporting whole health by addressing these five foundational elements. The models featured include the Department of Veterans Affairs (VA) Whole Health System (WHS), the Nuka-Southcentral Foundation system (an Alaska Native–owned system based in Anchorage, Alaska), Mary's Center (a community health center based in metropolitan Washington, D.C.), the National Intrepid Center of Excellence (NICoE) (a Department of Defense program for active-duty service members with traumatic brain injury), and the Program for All-Inclusive Care for the Elderly (PACE) (a care model for nursing-home-eligible older adults with locations in 31 states). The committee chose to highlight these systems because descriptions and details of the implementation of their models are available, their program designs mostly align with the committee's five foundational elements of whole health, and,

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[1] As described in greater detail in Chapter 2, one aspect of equitable and accountable care is that it is accessible to all. The committee reviewed the systems highlighted in this chapter with the understanding that they each have specific catchment areas or populations that they serve, some with unique eligibility criteria. In the committee's assessments, eligibility and catchment area were the baseline for accessibility.

taken together, they target geographically and demographically diverse populations. This selection does not intend to be inclusive of all models that meet these criteria, and this chapter does not evaluate the outcomes of these programs. For a more detailed look at the evidence that these systems and others address the five foundational elements, see Chapter 5.

DEPARTMENT OF VETERANS AFFAIRS WHOLE HEALTH SYSTEM

VA has led numerous transformations in health care delivery in the United States. These include (1) implementing one of the first integrated electronic medical records in the country; (2) becoming an industry leader in patient safety research and practices; (3) developing and implementing telehealth practices (Ginsberg et al., 2013; IOM, 2012; VA, 2021); (4) developing innovative primary care and preventive practices; and (5) championing patient-centered approaches to care (Yano et al., 2014), among many others.

In 2014, VA began refining an enhanced version of patient-centered care (Bokhour et al., 2020a). Termed "whole health" (WH), this approach has the potential to radically transform the way VA delivers health care to the approximately 9 million veterans who receive VA care annually (Marchand et al., 2020; VA, 2022a). Efforts to deploy the WH approach within VA began in 2015–2016 when 25 design sites were selected at different VA medical centers, each receiving special-purpose funding to consider evidence-based practices and to operationalize specific aspects of the WH approach (Bokhour et al., 2020a). Passage of the Comprehensive Addiction and Recovery Act[2] in 2016 to address the country's opioid epidemic further advanced the effort. The bill required VA to address the complex challenges of pain management in the veteran population, to conduct research on the implementation and impact of alternative approaches on veteran health and well-being, and to include complementary and integrative health (CIH) modalities among its care options (Bokhour et al., 2022).

The VA Office of Patient Centered Care and Cultural Transformation responded to Congress's mandate by formalizing a new approach to care, the WHS, which is built around patient goals and priorities, peer-led support, personalized health planning, and CIH alongside traditional medical treatment and prevention activities (Haun et al., 2021c). At its core, WHS focuses on individual well-being, life mission, aspirations, and purpose as well as physical, mental, behavioral, and spiritual health. During fiscal year 2018, VA designated 18 medical centers as WHS flagship sites—one in each of the 18 Veterans Integrated Service Networks (VISNs)—and funded a

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[2] Public Law No. 114-198.

3-year pilot implementation of WHS (Bokhour et al., 2020a). In 2019 an additional 37 VA sites implemented WHS, and the Veterans Health Administration (VHA) plans to implement WHS system-wide between 2024 and 2027 (Kligler et al., 2022).

Below is a description of WHS as it relates to the committee's five foundational elements of whole health. The elements mapped below reflect VA's description of and intent for WHS; however, it should not imply that each VA medical center has implemented and made available all five elements or that all sites implementing WHS are doing so with full fidelity to the model.

People-Centered

VA defines WH as an "approach to health care that empowers and equips people to take charge of their health and wellbeing and live their life to the fullest" (Reddy et al., 2021, p. 2). The goal is to "transform the organization and culture of care to a system which starts with understanding the veteran's life mission, aspiration, and purpose (i.e., what matters most to the veteran) and provide care to improve veterans' overall health and wellbeing" (Bokhour et al., 2022, p. 2). Person-centeredness is central to WHS, and the entire approach centers around what matters most to each individual. It is not diagnosis/disease focused, but rather it emphasizes the whole person and prioritizes their goals and aspirations. Person-centeredness moves beyond the traditional physician-directed approach to one of partnership with the care team that puts veterans in control of their care, focuses on self-care and support, and represents an individualized, lifelong plan that is more proactive than reactive (Marzolf, 2021). Taken together, people-centeredness provides an integrative approach that includes peer-led exploration of an individual's mission, aspiration, and purpose; well-being classes and WH coaches; and allopathic, complementary, and integrative clinical care focusing on the veterans' priorities and goals (Bokhour et al., 2022). This approach closely aligns with the committee's description of people-centered, as presented in Chapter 2.

Comprehensive and Holistic

WHS provides a coordinated, integrated approach to care that is designed to address all domains that affect a person's health and well-being. This approach aligns closely with the committee's next foundational element, "comprehensive and holistic." All WHS services, including traditional health and disease management, are designed to occur with this in mind. As described in Chapter 2, WHS comprises three major components or "pillars" (Haun et al., 2021a):

1. **The Pathway** introduces veterans to the concepts of whole health. Ideally, veteran peers lead this component to facilitate identifying personal health and aspirational life goals and to develop a personal health plan with veteran participants.
2. **Well-Being Programs** include CIH services, health coaching, and skill-building and self-care groups, all designed to equip veterans with skills to manage their health. Currently, VA mandates that all VA medical centers offer nine CIH modalities: acupuncture, chiropractic, meditation, massage therapy, biofeedback, clinical hypnosis, guided imagery, yoga, and tai chi.
3. **Whole Health Clinical Care** is based on the whole health approach for providing care in both CIH and allopathic settings. Providers are trained to provide whole health and focus on veterans' personal health plan and goals that are aligned with their mission, aspiration, and purpose as a foundation for treatment recommendations.

Veterans participating in WHS initially complete a self-assessment, called a Personal Health Inventory, with assistance as needed from VA staff or veteran peers. This tool assists veterans in identifying areas to work on and in creating a personal health plan. Veteran preferences are integral to the plan creation and execution, and they drive individual choices regarding well-being programs and clinical treatments. The Transforming Health and Resiliency through Integration of Values-Based Experiences (THRIVE) process is one element within WHS that illustrates how it is holistic and comprehensive. THRIVE is a 14-week, evidence-based group medical appointment process during which an interdisciplinary clinical team facilitates discussions in which groups of 10–15 veterans learn about the different components of wellness (Haun et al., 2020, 2021b). An evaluation of THRIVE found that it improves the veteran's health care experience, including access, and enhances multidisciplinary care coordination. The curriculum, originally developed for female veterans and later expanded for use with male veterans, combines positive psychology, acceptance and commitment therapy, and integrative medicine to improve physical, psychological, and emotional pain thresholds for veterans (Haun et al., 2020).

Upstream-Focused

WHS addresses this foundational element through use of a "Circle of Health" model that comprises four parts:

1. Me, referring to the veteran who is at the center of care, has a unique history, and is focused on what matters to them

2. Self Care, referring to the fact that every individual has the ability to affect their own health and well-being, with WH providing education, skills, and support for changes that are important to the veteran
3. Professional Care, referring to the health team that assists with both prevention and treatment of disease and illness
4. Community, referring to the people and groups important to the veteran and with whom they connect.

The Circle of Health model (see Figure 4-1) depicts the important connections between health and other aspects of a veteran's life. As with the overall WHS approach, the model helps veterans explore connections and facilitate discussion about what is important in their lives and their own health and well-being. It supports people-centeredness by acknowledging the uniqueness of each individual, allowing veterans to identify what matters most to them, and facilitating veteran engagement with their care teams to develop a personal health plan. The model intends to show that improving in one element can influence other elements and improve one's overall health physically, emotionally, and mentally. In that regard, the model acknowledges the interconnectedness of multiple elements essential to achieving whole health, including

- Mindful awareness
- Physical and emotional surroundings
- Personal development in work and personal life
- Nourishing and fueling through food and drink
- Sleeping and refreshing to recharge
- Relationships with family, friends, and coworkers
- Growing and connecting spirit and soul
- Relaxing and healing power of the mind
- Energy and flexibility and moving the body.

Nearly all of the domains of this model target upstream factors that address the root causes of poor health as well as factors of daily life that can facilitate WH. Operationally, peers lead the Circle of Health model and introduce it to veterans through a 2-hour introduction to WH in general followed by an 8-week Circle of Health course (Gaudet and Kligler, 2019). It is unclear, however, how effective the Circle of Health course is addressing these domains for WHS participants.

As discussed in greater detail in Chapter 6, the Veterans Benefits Administration (VBA) has a variety of robust programs and services that target upstream factors for eligible veterans. For example, VBA manages the GI Bill benefits (which helps pay for higher education and training) and offers

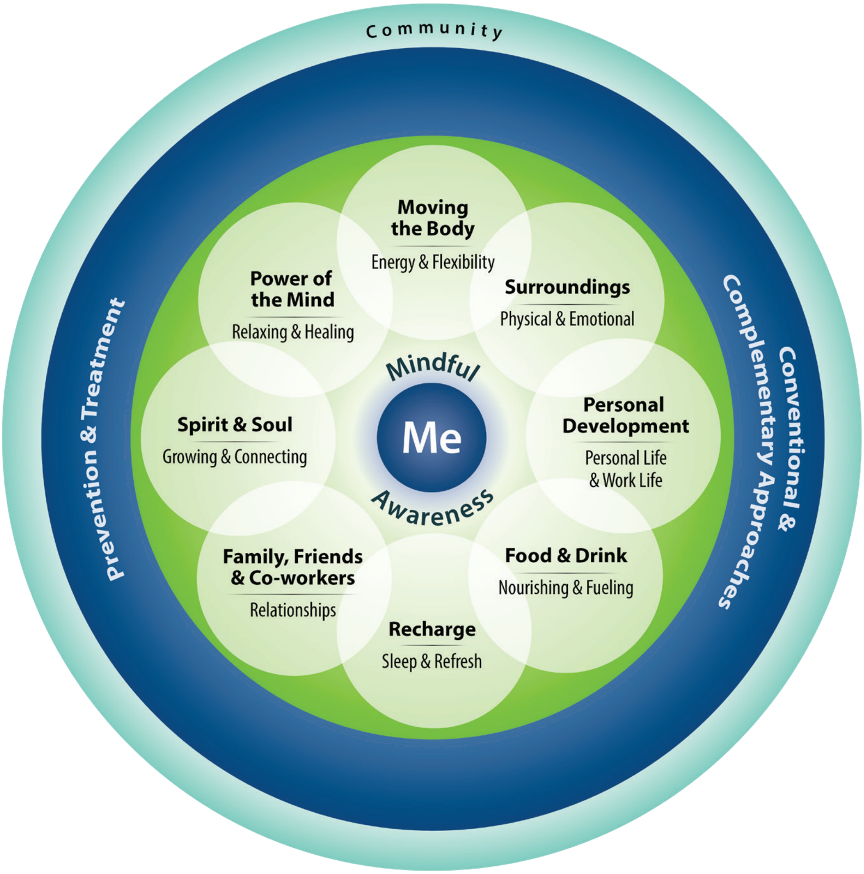

FIGURE 4-1 WHS "Circle of Health" model.
SOURCE: VA, 2022b.

a variety of other programs and benefits related to housing security, home loans, personal finance counseling, employment, civilian transition, and others (VA, 2022c). However, VBA and the VHA—which oversees VA health care programs, including WHS—mostly operate separately from each other, with different leadership, system organization, and reporting structures. While VHA's WHS has program components (most notably the Circle of Health program described above) designed to deliberately target, to some degree, many of these same factors in its own way, it does not have the dedicated resources and infrastructure to address them comprehensively, nor would it make sense for the VHA to duplicate VBA's efforts (even if it was able to do so). It is the committee's view that there is potentially a great benefit to veterans if VBA and VHA were able to integrate benefits into a single, whole health system of care that would enable a WHS to comprehensively address the upstream factors that affect health and well-being in a more coordinated fashion. For a more detailed discussion on the potential integration of VBA and VHA services, as well as an example of successful collaboration across the two administrations, see Chapter 6.

Equitable and Accountable

Viewed through an equity lens, while all veterans receiving care at VA are technically eligible to receive WHS, there are variations in access to the services throughout the system. While the committee is not aware of demographic information regarding who does and who does not use WHS services, in February 2020, WHS published a progress report, *Whole Health System of Care Evaluation—A Progress Report on Outcomes of the WHS Pilot at 18 Flagship Sites* (Bokhour et al., 2020b). This evaluation demonstrates that VA appears committed to continuously learning about and refining WHS as it learns more about its effectiveness (Chapter 5 examines the results in detail). Results showed that all 18 flagship sites made some progress toward implementation. However, the analysis found significant variability in implementation stages, components, veteran usage and impact, and employee impact, suggesting that WHS services are not fully accessible even within the 18 sites. At the same time, the evaluation noted a threefold reduction in opioid use among veterans with chronic pain who used WHS services compared with those who did not (Bokhour et al., 2020b). The report also discusses key implementation facilitators and barriers. In summary, some success was evident in VA's efforts to move toward a WHS approach to care at the 18 flagship sites. However, the report noted that further efforts are needed to affect a cultural change necessary to fundamentally alter care delivery throughout VA.

In another study in 2022, researchers published results of a partnered evaluation of patient outcome findings from the 18 WHS pilot sites (Bokhour et al., 2022). Data sources included electronic health records (EHRs) of 1,368,413 patients and a longitudinal survey of veterans (baseline and at 6 months). The evaluation focused on the impact WH services had on veteran opioid use, care experiences and engagement, and well-being. The researchers also compared outcomes in veterans using WH services with veterans who were not, according to EHRs. Findings included a 23 percent decrease in opioid use among WH users compared with an 11 percent decrease in veterans receiving conventional care. In addition, when compared with conventional care, veteran users of WH services reported greater improvements in perceptions of care (standardized mean difference [SMD] = 0.138), engagement in health care (SMD = 0.118), and self-care (SMD

= 0.1); life meaning and purpose (SMD = 0.152); pain (SMD = 0.025); and perceived stress (SMD = 0.191). Findings of this study (see Chapter 5 for more details) contributed to policy changes aimed at expanding WHS via integration into primary care and mental health across the VA system (Bokhour et al., 2022).

While evidence is growing to support the benefits of the WHS, reliably providing high-quality, equitable whole health care to all veteran users of the VA is a monumental task, one that will require extensive policy and resource support. Nevertheless, VA appears committed to ensuring that, as the WHS grows within the VA system, it does so with a commitment to health equity and accountability (Kligler, 2022). Toward that end, the VA has held cyberseminars focused on promoting health equity in veterans with a Whole Health approach. In May 2022, for example, a cyberseminar addressed the unique barriers that Black, Hispanic, and Latino/a veterans face regarding diabetes self-management and highlighted a quality-improvement project that used the VA's Primary Care Equity Dashboard (PCED)[3] to improve diabetes self-care among those individuals. The PCED is a tool that VA clinicians can use to easily identify disparities in health across populations. While laudable, these efforts do not sufficiently address equity issues across the many subpopulations the VA serves across the country. The committee is not aware of additional efforts that operationalize or target issues of equity within the VA WHS.

Team Well-Being

The VHA WHS acknowledges the importance of employee and team health in promoting veteran whole health. As the COVID-19 pandemic emerged in the United States in early 2020, most WHS sites ramped up efforts to strengthen their whole health services. The additional stress on the workforce during this time also highlighted that employees need whole health services as well, and employee whole health was implemented as a promising approach to support health care worker well-being (Dryden et al., 2021).

Recognizing that it has never been more important to care for one's physical, mental, emotional, and spiritual health and well-being, many VA facilities are offering classes in CIH and whole health to employees. VA also provides a wide array of online resources to support individual employee and team health, wellness, and whole health. Online resources include, but are not limited to,

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[3] Information on this cyberseminar is available at https://www.va.gov/healthequity/fhea_cyberseminar.asp (accessed June 10, 2022).

- VA's Life Whole Health mobile app
- Videos that support resilience and balance via topics such as guided meditation, chair yoga, acupressure, gratitude, and relaxation techniques
- Videos, podcasts, music, and handouts on topics such as reconnecting with the mission, value and appreciation, supervisors helping their employees, staying VA strong, stress management and addressing burnout, social connection and community, spiritual health/spirit and soul, and parenting and other caregiver resources.

Urgent and crisis-level employee needs are also addressed by providing ready access to the 24/7 National Suicide Prevention Lifeline, 24/7 Veterans Crisis Line, Physician Support Line, and the Disaster Distress Helpline. VA notes that employee whole health may provide some protection against stress and burnout, a pervasive problem in health care systems today (NASEM, 2019). In fact, VA employees who are involved with WHS did experience slightly lower rates of burnout and turnover, had slightly higher rates of motivation, and had a more positive view of their workplace compared with employees not involved in WHS (Bokhour et al., 2020b). For more detail on these data and this analysis, see Chapter 5.

While these efforts are laudable, they focus primarily on individual-level interventions and self-care strategies designed to build resilience and mitigate stress and burnout, rather than addressing some of the systemic issues that cause burnout in the first place. As Chapter 3 describes, the 2019 National Academies report *Taking Action Against Clinician Burnout: A Systems Approach to Professional Wellbeing* found that organizational-level interventions, such as those designed to reduce workload, lessen administrative burden, or enhance teamwork, are more effective at preventing and reducing burnout than interventions directed at individual behaviors and self-care strategies such as CIH, relaxation techniques, and stress management. While some of these systems-level strategies may be implicit in some of the WHS design, the explicit efforts to target team well-being are focused on individual-level and self-care-related interventions.

How Is the VA Whole Health System Illustrative of Whole Health?

The VA WHS represents a dramatic shift in the way care is delivered. It marks a drastic move away from a medical/disease-focused approach to one that is systematically focused on health promotion and disease prevention with potential to significantly improve the health, wellness, and lives of veterans (Marchand et al., 2020). It is grounded in principles that closely align with the committee's definition of whole health and the foundational elements of whole health the committee presents in Chapter 2. Table 4-1

TABLE 4-1 Congruence of the VA Whole Health System with the Foundational Elements of Whole Health

Foundational Element	Components that Address the Foundational Elements	VA Indicators
People-centered	Achieving a sense of purpose through longitudinal, relationship-based care	☑
	People/families/communities direct goals of care	☑
	Care delivered in social and cultural context of people/family/community	☑
Comprehensive and holistic	Address all domains that affect health—acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care	☑
	Attend to the entirety of a person/family/community's state of being	☑
	Components and team members are integrated and coordinated	☑
Upstream-focused	Multisectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health	☑
	Address the structures and conditions of daily life to make them more conducive to whole health	☑
Equitable and accountable	Whole health systems need to be accountable for the health and well-being of people/families/communities	☑
	Care needs to be accessible to all	
Team well-being	The health of the care delivery team is supported	—

NOTE: Based on the program descriptions, ☑ indicates that the component is addressed; — indicates that it is partially addressed; a blank space indicates that it is not addressed. The committee determined that VA WHS care is not accessible to all because it has not been fully implemented system-wide. The committee determined that team well-being is partially addressed because well-being interventions target individual resilience rather than systems-level changes.

summarizes how the VA WHS *design* maps to the committee's five foundational elements of a whole health approach to health care. It is notable, however, that VA evaluations have revealed that there is some variation in the fidelity of the WHS implementation across the locations where it is available. It is also not yet available throughout the system. The implications of this are that, while the WHS addresses (at least partially) each of the foundational elements in its intended design, the reality experienced by veterans and the workforce may not reflect this.

Southcentral Foundation/The Nuka system of care

Southcentral Foundation (SCF) is an Alaska Native–owned, nonprofit health care organization serving nearly 65,000 Alaska Native and American Indian people living in Anchorage, Matanuska-Susitna Borough, and 55 rural villages (Schneider et al., 2020). Southcentral Foundation describes its Nuka System of Care (Nuka) as a relationship-based, customer-owned approach to transforming health care that improves outcomes and reduces costs (Gottlieb, 2013; Muller et al., 2017; Southcentral Foundation, 2017a). Initially incorporated in 1982 under the tribal authority of Cook Inlet Region, Inc. (CIRI), Southcentral Foundation is the largest of the CIRI nonprofits, employing more than 2,500 people in more than 80 programs (Southcentral Foundation, 2022c). In the late 1990s, in response to long wait times and low satisfaction, Alaska Native leaders and community members chose to assume ownership of the health system from the Indian Health Service. In 1998, SCF began managing primary care, and, in 1999, SCF entered into a co-ownership and co-management agreement with the Alaska Native Tribal Health Consortium (ANTHC) to take over the Alaska Native Medical Center, which is responsible for delivering hospital services to Alaska Native and American Indian people (Southcentral Foundation, 2017a). SCF moved to a customer-ownership model to enhance culture and empower individuals and families to take charge of their lives, earning a Malcolm Baldridge Quality Award in 2011 and again in 2017 (SCF Public Relations, 2011; Southcentral Foundation, 2017b). SCF is a federally qualified health center (FQHC) and meets the Health Resources and Services Administration's (HRSA's) Health Center Program requirements.

The Nuka care model refers to the entire health care system created, managed, and owned by Alaska Native people as part of Southcentral Foundation to achieve physical, mental, emotional, and spiritual wellness. It includes all parts of SCF devoted to behavioral, dental, medical, and traditional services and all the systems, processes, and departments supporting the service delivery. SCF's vision for Nuka is "a Native Community that enjoys physical, mental, emotional and spiritual wellness" (Gottlieb, 2013). Southcentral Foundation's barometer for success is whether the population it serves is able to truly experience multidimensional wellness and if improvements in wellness are experienced from one generation to the next (Gottlieb, 2013). Its mission statement focuses on "working together with the Native Community to achieve wellness through health and related services" (Gottlieb, 2013), with a strong emphasis on building and maintaining relationships.

People-Centered

The Nuka system provides customer-driven whole person care that is focused on the individual (described as the "customer-owner") and their family at the center of care rather than the interprofessional team. Services are woven into customers' lives and built around them, rather than around a clinical medical office. The goal is to advance a system of care using an approach that addresses the whole person and their family in a well-coordinated and personal way that results in "customer- and family-driven integrated care provided on their terms" (Gottlieb, 2013). The Nuka system prioritizes shared responsibility, a commitment to quality and representation, and a focus on family wellness that emphasizes community as core values (see Box 4-1) (Gottlieb, 2013).

The Nuka System of Care also places a strong emphasis on building and maintaining relationships (Gottlieb, 2013). One of the chief responsibilities of each provider is to "work with customer-owners to establish trusting, accountable and long-term relationships," based on the premise that a strong provider–client relationship affords the clinician the opportunity to better understand the context in which the patient lives, enabling the clinician to "better understand symptoms, answer questions, have meaningful conversations about risks and benefits, and work with each customer to make better health decisions" (Gottlieb, 2013).

BOX 4-1
Core Values of the Nuka System of Care

Shared Responsibility We value working together with the individual, the family, and the community. We strive to honor the dignity of every individual. We see the journey to wellness being traveled in shared responsibility and partnership with those for whom we provide services.

Commitment to Quality We strive to provide the best services for the Native community. We employ fully qualified staff in all positions and we commit ourselves to recruiting and training Native staff to meet this need. We structure our organization to optimize the skills and contributions of our staff.

Family Wellness We value the family as the heart of the Native community. We work to promote wellness that goes beyond absence of illness and prevention of disease. We encourage physical, mental, social, spiritual, and economic wellness in the individual, the family, the community, and the world in which we live.

SOURCE: Gottlieb, 2013.

Comprehensive and Holistic

Nuka provides comprehensive primary care in outpatient and home settings as well as in dentistry, outpatient behavioral health, residential behavioral health, traditional healing, complementary medicine, health education, and more. It consists of a medical center—Alaska Native Medical Center's 150-bed hospital and the Anchorage Native Primary Care Center—and other Southcentral Foundation facilities and services. Care delivery modalities include ambulatory office visits, home visits, email and telephone visits, health information and education, inpatient hospital services, day and residential treatment, as well as consultation with and referral to higher levels of specialty care. Southcentral Foundation engages with the tertiary and specialty medical services division of ANTHC when higher-level complex care is needed.

In addition to clinic-based care, clinical teams provide home visits in which they regularly travel to villages accessible only by air or boat to deliver family medicine, behavioral health, and dental and optometry services. This helps ensure that populations that may otherwise have trouble accessing services are able to do so and that the system is accountable to those who are not able to travel to receive services. E-consults also improve access by virtually connecting to remote areas where village clinics are in place. Nuka clinicians also use electronic communication, including state-of-the-art telemedicine technology, to consult on assessment and treatment (Gottlieb, 2013).

In the Nuka system every family has a comprehensive, clearly identified patient-centered medical home (see Figure 4-2) (Eby, 2007). Coordinated care is delivered by interprofessional teams rather than by individual clinicians. These teams include primary care physicians or physician assistants, nurses, certified medical assistants, and other clinicians. Since the system's inception, the interprofessional care teams have added behavioral health consultants, nutritionists, HIV consultants, and appointment schedulers (Driscoll et al., 2013). Nuka also embraces a whole person orientation as defined in the New Model of Family Medicine (Martin et al., 2004), which commits to integrated, whole person care through a variety of mechanisms (e.g., partnerships with services or organizations that extend beyond the practice setting that help meet the full range of needs for the patient population). The focus of the practice is to build capacity to help guide a patient through the health care system by integrating and not simply coordinating care (Eby, 2007).

Nuka offers other resources to support the overall health and wellness of its customer-owners. Learning circles, for example, are community-centered gatherings based on the Alaska Native value of sharing story and listening to others share theirs. SCF developed them as part of Nuka to

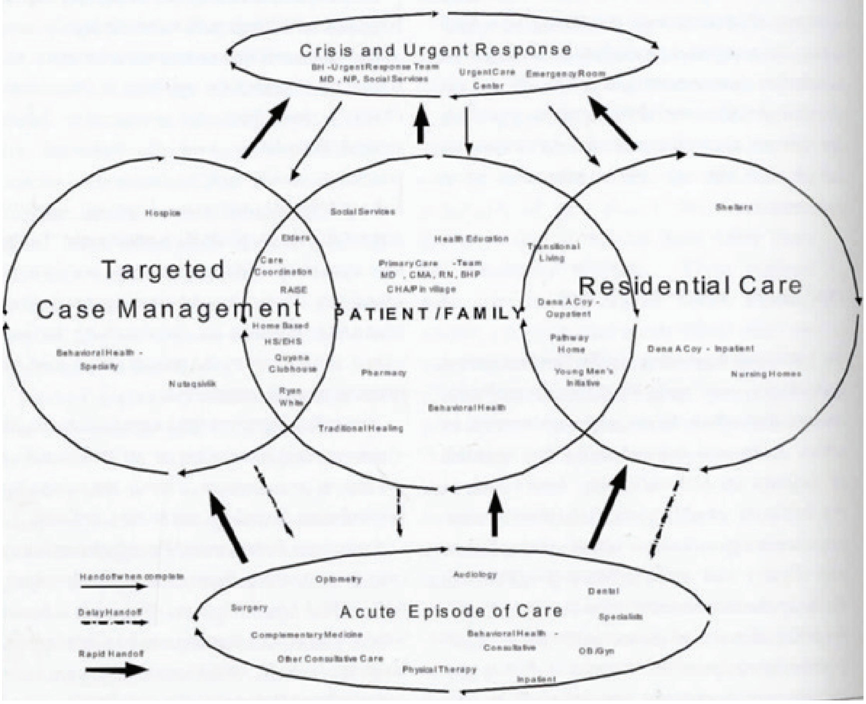

FIGURE 4-2 Southcentral Foundation's circle of care.
SOURCE: Eby, 2007.

provide more immediate access to behavioral health services and to create supportive communities (Southcentral Foundation, 2022d). For example, the Family is Sacred learning circle provides tools for families with children to promote positive changes in the home and community.

Upstream-Focused

SCF places a strong emphasis on addressing the social, environmental, and behavioral determinants of health in order to improve the overall health and well-being of its customer-owners (Southcentral Foundation Nuka System of Care, 2022). As noted above, the Nuka System of Care's relationship-building focus is designed to provide the clinician with the opportunity to better understand the context of their patients' lives. To further help clinicians, SCF has an ongoing effort to track social determinants of health in the system's EHR and create a means of expanding access to this information without stigmatizing customer-owners.

SCF has developed a number of programs to augment the direct health care services that Nuka provides. Its Lose to Win program is a 13-week weight management program that emphasizes healthy lifestyle changes to improve overall health in addition to helping participants lose weight. Registered dietitians provide nutrition counseling for disease management and prevention, meal planning, and weight management. The My AK Wellness program created a free website and mobile app that tracks the user's exercise and food intake, provides exercise plans and videos, and logs health information such as blood pressure, glucose levels, and cholesterol levels (Southcentral Foundation, 2022e). SCF's Raise Program (Southcentral Foundation, 2022f) offers internships that introduce customer-owners to potential health care, administrative, and related careers; support educational goals; and provide workplace experiences. Interns develop a portfolio they can use to apply for scholarships or jobs and skills that reflect Alaska Native cultural values. Through a partnership with the Cook Inlet Housing Authority, SCF helps customer-owners find housing, secure a mortgage, and improve and weatherize their homes. SCF also has an employee and community assistance fund that provides emergency financial relief to customer-owners as a means of supporting its vision of a "Native community that enjoys physical, mental, emotional, and spiritual wellness" (Southcentral Foundation, 2022a).

Besides providing health care for the individual, the Nuka system makes a concerted effort to improve family and community well-being. The Nuka Family Wellness Warriors program, for example, focuses on equipping organizations and individuals to address the spiritual, emotional, mental, and physical effects of domestic violence, abuse, and neglect through training, education, and community engagement (Southcentral Foundation, 2022b). The Dena A Coy Residential Treatment program serves women experiencing problems related to alcohol and other drugs and experiencing emotional and psychological issues. The Native Men's Wellness program supports Alaska Native and American Indian men in areas such as employability, cultural connectivity, and healthy living, while the Beauty for Ashes program "uses culturally-grounded approaches to health and healing from trauma, such as relationship building, intergenerational role modeling, and sharing story, to develop knowledge and skills that promote healing and improved social health outcomes" (Southcentral Foundation Nuka System of Care, 2022).

Equitable and Accountable

There are several aspects of the Nuka system that focus on equity and accountability. Open-access scheduling, expanded office hours, and increased availability of electronic communication between patients and care team members reduce barriers to access (Driscoll et al., 2013). The system also employs universal empanelment, a hallmark of equity and accountability, as all the individuals in the system either self-select or are assigned to a specific integrated and comprehensive care teams that are accountable for their care (Driscoll et al., 2013).

As noted above, SCF operates on a customer-ownership model as a means of enhancing Native culture and empowering individuals and families to take charge of their lives. This model represents a deliberate and proactive way to ensure that customer-owners hold the system accountable, and customer-owners provide guidance on all quality improvement and new program development activities. SCF designed Nuka based on a year-long effort to identify Alaska Native communities' needs and values, and Alaska Native people have been running the health care system for over two decades.

Several features of HRSA's Health Center Program certification requirements help ensure equity and accountability at Nuka and other health centers (for a description of HRSA's Health Center Program, see Chapter 2). For example, health centers must accept all patients regardless of their ability to pay for service and have a sliding fee scale for those who do not have insurance. Another health center requirement is that governing boards must constitute a majority of individuals that use the health center for their own care (HRSA, 2018). In the case of Nuka, all come from the Alaska Native community that SCF serves, and its chief executive officer and vice president of executive and tribal services both come from the Alaska Native community. To keep its customer-owners engaged with SCF's operations, organization leadership holds regular fireside chats with the community (Southcentral Foundation Nuka System of Care, 2021).

HRSA health center certification also requires annual reviews of catchment areas and population needs assessments every 3 years. Needs assessments are required to inform and improve services and must assess access to care and health care use, population geography, transportation needs, transience, unemployment, income level, educational attainment, morbidity and mortality, and any disparities in the above within the population served. This process ensures that the services offered by Nuka (and all federally qualified health centers) are designed to meet the specific needs of the population served (HRSA, 2018).

SCF regularly reports very high patient satisfaction; a survey of customer-owners found that 98 percent were satisfied with the care they received from SCF, 97 percent reported that they participate in care decisions, and 96 percent said that care was delivered in a manner that respected their culture and traditions (Southcentral Foundation Nuka System of Care, 2020). They also report other positive outcomes which are described in greater detail in Chapter 5. For example, a 2013 study found that prior to the implementation of the Nuka system, emergency department care was increasing among Alaska Native and American Indian people in the system's service area, but that it decreased after the implementation (Driscoll et al., 2013). SCF also reported that both emergency department visits and hospitalizations fell by 36 percent between 1996 and 2013, while specialty clinic visits decreased by 58 percent over the same period (Gottlieb, 2013). On measures of health care effectiveness, as measured by the Healthcare Effectiveness Data and Information Set, SCF exceeded the 90th percentile for diabetes annual care testing, and made significant improvements on other measures, including adolescent immunization and colorectal screening (Blash et al., 2012).

Team Well-Being

Nuka's focus on relationships relates not only to the relationships between providers and customer-owners, but also to the relationships between providers themselves. Nuka makes use of integrated care teams to provide care to customer-owners, with each team consisting of a primary care provider, nurse case manager, case management support person, and a certified medical assistant. Other providers, such as nutritionists, behavioral health consultants, and pharmacists are added to the care team as they are needed. The primary care provider, nurse, the certified medical assistant, and the case management support person share an open workspace with other providers. This allows for the coordination of care and helps foster strong relationships among care workers, which increases their effectiveness when working with each other (Southcentral Foundation, 2017a).

There are challenges, however, to providing this level of team-based care. A 2013 article that describes Nuka's implementation of the patient-centered medical home (PCMH) notes despite substantially increased resources for primary care, 65 percent of primary care clinicians thought that the increased demand for primary care services during the transition to a PCMH model outpaced the rate at which resources to meet that demand were increasing (Driscoll et al., 2013). For example, open-access scheduling resulted in overbooking and the addition of unscheduled daily clinical encounters throughout the day without limit. In the words of one physician, "I've seen providers cry, you know? Because they had 14 appointments at 4:30 and they had to get home to their family, and we had this unlimited overbook and that is the expectation. For some teams it was really hard to manage. I think there was a lot of stress around that in the clinic" (Driscoll et al., 2013, p. S46).

Moving to the PCMH did result in some clinician attrition and turnover. One study described a leadership focused on implementing empanelment and team-based models and how the implementation conflicted with the experiences or expectations of some clinicians (Driscoll et al., 2013). In the words of one physician, "Some doctors who were kind of trained in a private practice mentality had a hard time with a system that valued the patient maybe more than they valued the doctor. The doctor was just one of the peer groups that assisted in taking care of that patient population" (Driscoll et al., 2013, p. S48). The study describes feedback mechanisms such as anonymous workforce and customer satisfaction surveys, which were implemented as the transition took place and used by the leadership to adopt new processes to ameliorate some of the tensions among employees while improving efficiency for customer-owners (Driscoll et al., 2013). However, there is limited discussion of the enabling structures built within the teams to foster resilience of care team members and to facilitate and sustain these changes to care delivery. Similarly, it is not clear if employee burnout and well-being are measured or if systems-level approaches are employed to minimize the known causes of burnout (e.g., reducing administrative burden and excessive workload and improving workflow efficiency, among others) (NASEM, 2019).

How Is the Nuka System Illustrative of Whole Health?

The Nuka system is a leading example of health care redesign based on the needs of the community it serves. While it offers a full range of health care services, including both traditional approaches to medical care and CIH modalities, it also provides a wide range of services that address many of the social determinants of health and that are designed to create a healthy and thriving community based on Native Alaska culture and practices. The entire system is intended to provide integrated and comprehensive care through a PCMH and is accountable to its customer-owners. Table 4-2 summarizes how the foundational elements of the SCF/Nuka system of care address the five foundational elements of a whole health approach to health care.

MARY'S CENTER[4]

Mary's Center is an FQHC that provides that provides health care, social services, and family literacy programs in the Washington, D.C., region. Mary's Center refers to this integrated approach as its Social Change Model. In 2020, roughly 800 staff served roughly 52,000 individuals and families from over 50 countries. Nearly 97 percent of the population that

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[4] Much of the information presented in this section is based on committee member Dr. Seiji Hayashi's personal knowledge of Mary's Center. Dr. Hayashi was the chief transformational officer at Mary's Center until September 2022.

TABLE 4-2 Congruence of the SCF/Nuka System of Care with the Foundational Elements of Whole Health

Foundational Elements	Components that Address the Foundational Elements	Nuka Indicators
People-centered	Achieving a sense of purpose through longitudinal, relationship-based care	☑
	People/families/communities direct goals of care	☑
	Care delivered in social and cultural context of people/family/community	☑
Comprehensive and holistic	Address all domains that affect health—acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care	☑
	Attend to the entirety of a person/family/community's state of being	☑
	Components and team members are integrated and coordinated	☑
Upstream-focused	Multisectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health	☑
	Address the structures and conditions of daily life to make them more conducive to whole health	☑
Equitable and accountable	Whole health systems need to be accountable for the health and well-being of people/families/communities	☑
	Care needs to be accessible to all	☑
Team well-being	The health of the care delivery team is supported	—

NOTE: Based on the program descriptions, ☑ indicates that the component is addressed; — indicates that it is partially addressed; a blank space indicates that it is not addressed. The committee determined that team well-being was partially addressed because it was unclear if well-being interventions employed systems-level approaches to minimize burnout and there was limited discussion of the enabling structures that foster resilience of care team members in the literature.

Mary's Center serves earns below 200 percent of the federal poverty level. In addition, 95 percent of patients identify as belonging to a racial or ethnic minority group, and 76.3 percent identify as Hispanic or Latinx. Nearly 72 percent of the patient population is best served in a language other than English (Corallo et al., 2020), with Spanish and Amharic being the two most commonly spoken languages by patients. Just over half of Mary's Center patients receive Medicaid, and 15 percent are uninsured (HRSA, 2020).

Mary's Center's service area is large for an urban health center, extending over 30 miles in each direction from its headquarters in Washington, D.C. Although the bulk of the patients live in clustered neighborhoods, gentrification has pushed families outside of the District of Columbia. Known for its bilingual services in English and Spanish, it is not uncommon for the centers to have new patients come from as far north as Baltimore.

Services are offered at five community health centers and two senior wellness centers. Behavioral health therapy is offered at all clinical sites in addition to 26 public schools, and comprehensive school-based primary care is offered at one public high school and one middle school. Separately, the Briya Public Charter School has campuses co-located at three Mary's Center community health centers. Two mobile units and three mobile pods extend the availability of services for dental, mammography, HIV and sexual health services as well as of COVID-19 testing and vaccinations.

People-Centered

Mary's Center provides people-centered services by ensuring personalized access, affordability, and quality in addition to understanding each person's values and wishes. Mary's Center uses the term "participants" to refer to its clients in recognition of the fact that people at the center actively participate in their care and are true partners with shared expectations and goals concerning outcomes. In addition, Mary's Center provides many services outside of health care, and the term "patient" inadequately characterizes program participants.

Mary's Center provides culturally and linguistically appropriate services by hiring staff from the community it serves and by hiring multilingual staff. Program participants come from roughly 50 different countries, and, according to a Mary's Center human resources document, employees come from 40 countries and speak over 35 different languages (Mary's Center, 2018). The vast majority of participant-facing staff are able to provide services in a language other than English, with Spanish and Amharic being the two languages most spoken by participants and staff. When a staff member does not speak a participant's language, interpreters are used to ensure proper communication.

Mary's Center ensures direct input from the users of its services in three main ways. Like Southcentral Foundation, Mary's Center maintains a patient-majority board of directors, which is also a HRSA requirement for all FQHCs. The board has the authority to hire and fire the chief executive and decides on organizational priorities. Mary's Center also convenes a monthly community engagement council composed exclusively of current participants. The council advises organizational leaders on service priorities and on how to improve participant experience. Mary's Center also uses an external company to continually survey patients on their experiences, and it uses multiple surveys and questionnaires to identify the specific needs of individuals. Surveys cover health issues and non-health issues. Mary's Center uses the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) tool (PRAPARE, 2022) to collect information on its participants' social determinants of health. Finally, Mary's Center has a specific staff member, a patient care advocate, dedicated to addressing patient complaints including customer service issues, access to care, and quality of care.

Comprehensive and Holistic

Mary's Center refers to its holistic and comprehensive integration of health care, social services, and family literacy programs and educational services as its "Social Change Model" (Galvez et al., 2019). Mary's Center developed the model based on the philosophy that social and economic well-being are an integral part of overall wellness in addition to comprehensive primary care that includes oral health and behavioral health services. Because of the behavioral health needs of the population, Mary's Center currently employs more behavioral health providers than medical providers. The organization uses an integrated behavioral health model where therapists are embedded into the primary care team and "warm handoffs" occur between primary care clinicians and behavioral health therapists. Warm handoffs also occur between social services, nutrition, and health education which are also on site and integrated into the care team. Virtual warm handoffs have become common as some staff have been working remotely during the pandemic. Mary's Center does not offer complementary and integrative health, vision care, or hearing services.

Upstream-Focused

As mentioned earlier, Mary's Center offers social services and educational programs in addition to traditional treatment and preventative health care services. The majority of Mary's Center staff focus on upstream issues and are nonclinicians. The PRAPARE tool is integrated into every participant's EHR as a means of guiding staff on what services are necessary for each participant.

To augment access to its services, Mary's Center offers myriad programs to address patients' social determinants of health. Care coordination and case management are at the heart of the social services program, which assists patients in obtaining food, clothing, housing, and direct cash assistance. Staff implement priority programs directly, and partnerships with hundreds of community-based organizations provide additional resources, such as legal services and housing (Galvez et al., 2019). For example, a bilingual staff member accompanies survivors of domestic violence through the court system and helps them find safe housing. Mary's Center also has a robust program to offer case management, counseling, and coaching through its home visiting programs for at-risk mothers and infants. All sites offer multilingual services to help patients enroll in health insurance and other benefits, and Mary's Center has recently added services for refugees, asylees, and parolees.

Mary's Center also offers a variety of educational programs for its patients. In partnership with Briya Public Charter School, originally a program of Mary's Center, parents and children enroll together in a two-generation program in which parents learn English, digital literacy, and parenting while their children receive high-quality early education. This focus on family literacy stems from the center's experience that the English language and literacy are essential to gaining employment and accessing resources. Since the socioeconomic trajectory of a family is dependent on the successes of each member and as a unit, Mary's Center and Briya use a family-centered approach (Galvez et al., 2019). Through this partnership, participants can receive a high school diploma and training for medical assistant certification and child development associate credentials. In addition, Mary's Center runs an afterschool program to support teen participants to be college or career ready. In 2022, 100 percent of high school seniors enrolled in the Mary's Center Teen Program (32 students) were accepted into college.

Mary's Center participates in several care coordination and case management programs for complex patients. One program, for example, serves participants with severe mental illness who receive support from the D.C. Department of Behavioral Health. Another program serves participants with multiple chronic diseases who are D.C. Medicaid program clients. Both of these programs integrate social services, behavioral health services, and clinical services.

Equitable and Accountable

Mary's Center provides people-centered services by ensuring personalized, equitable access; affordability; and quality. Like SCF Nuka, Mary's Center must meet requirements to maintain certification by the HRSA Health Center Program. As described earlier in the chapter, these requirements include implementing a sliding pay scale for the uninsured, community-majority governance and board membership, annual catchment area analysis, and triennial population needs assessments. All of these requirements help ensure that Mary's Center is accountable to its participant population, that it understands that population's unique needs, and that it considers equity in its service delivery and design.

Mary's Center also has staff dedicated to helping its participant's access benefits and entitlements, including insurance. It also participates in the

340B drug pricing program[5] which provides uninsured or underinsured patients medications at a discount.

Mary's Center has an infrastructure for accountability and continuous quality improvement and publicly reports its clinical quality measures to HRSA (HRSA, 2020). It has received Community Health Quality Recognition awards from HRSA for being a national quality leader and COVID-19 data reporter as well as for advancing health information technology for quality. It has also maintained recognition by the National Committee for Quality Assurance as a PCMH for many years.

An Urban Institute evaluation found that Mary's Center provided a welcoming environment for patients and that its customer service ratings were very high (Galvez et al., 2019). A review of evidence regarding health centers found that those offering services similar to those offered by Mary's Center provided higher quality of care (Martinez et al., 2020). Preliminary findings from a retrospective review of EHR data showed that receiving services beyond traditional medical care at Mary's Center was associated with greater protection against hypertension, obesity, diabetes, and hyperlipidemia.

To address issues of health equity, Mary's Center convenes a Health Equity Taskforce. The Taskforce reviews data on health equity issues, including race/ethnicity, sexual orientation, and gender identity, and develops interventions. The Taskforce works closely with Mary's Center's Inclusion, Diversity, Equity, Awareness Committee which is composed of frontline staff and senior leadership. Mary's Center received a top score of 100 on the Human Rights Campaign's Health Care Equality Index in 2020. In addition, all Mary's Center staff have received multiple trainings on the topics of diversity, equity, and inclusion. Specific topics covered include race and racism, sexual orientation and gender identity, and trauma-informed care.

Team Well-Being

Mary's Center integrates many programs and activities focused on staff well-being throughout the organization, and it has received the *Washington Post*'s Top Workplaces award every year since 2018 (Top workplaces 2021, 2021). For example, Mary's Center implements an annual staff satisfaction survey to gather information and input on how to improve the workplace for staff. Burnout reduction initiatives focus on improving workflow efficiency, such as through technology adoption; building personal resilience through retreats, exercise classes, and meditation classes; and improving organizational communications through activities such as virtual townhalls

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[5] Additional information is available at https://www.hrsa.gov/opa/index.html (accessed June 10, 2022).

and intranet development. Work-hour reductions and liberal telework policies have also improved staff morale and reduced stress. Mary's Center has a Trauma-Informed Practice Workgroup designed to create a work environment in which staff feel safe to voice concerns and address issues. Since the majority of employees at Mary's Center are people of color and may also identify as members of other marginalized groups, such as LGBTQ+, the diversity, equity, and inclusion training noted above also focuses on creating a work environment that is more welcoming and inclusive for all staff.

How Is Mary's Center Illustrative of Whole Health?

Mary's Center provides comprehensive physical and behavioral health care that is well integrated with social and educational services, many of which it provides through an extensive network of community partners (Table 4-3). Reflecting the multinational client base that it serves, Mary's Center provides culturally and linguistically appropriate services, and its participants engage actively in their care and are true partners with shared expectations and goals on the outcomes. Staff can provide services in a wide variety of languages. Its focus on providing educational services is intended to equip its participants with the knowledge and skills they need to improve their overall well-being in ways that extend beyond physical and mental health. Maintaining its FQHC status helps ensure that its services are deliberately designed with equity and accountability in mind. Mary's Center also focuses on the health of its team members and takes a number steps to help ensure their well-being, both organizationally and individually.

NATIONAL INTREPID CENTER OF EXCELLENCE (NICoE)

Operation Enduring Freedom in Afghanistan and Operation Iraqi Freedom in Iraq triggered an unprecedented pace of deployment, with over 2 million U.S. troops deployed as part of these conflicts. Advances in medical technology and improvements in body armor enabled many service members to survive injuries that would have been fatal in previous conflicts. While minimizing battlefield casualties is obviously a goal in any wartime conflict, increased survival of battlefield injuries contributed to the increase of "invisible wounds" such as cognitive disorders and mental health conditions among service members who might have been casualties in previous conflicts (IOM, 2013). In response to this increased survivorship of battlefield injuries, psychological health services have grown rapidly in the past couple of decades as part of the extensive health care delivery system serving uniformed service members, retirees, and their families, improving

TABLE 4-3 Congruence of Mary's Center with the Foundational Elements of Whole Health

Foundational Elements	Components that Address the Foundational Elements	Mary's Center Indicators
People-centered	Achieving a sense of purpose through longitudinal, relationship-based care	☑
	People/families/communities direct goals of care	☑
	Care delivered in social, cultural, and linguistic context of people/family/community	☑
Comprehensive and holistic	Address all domains that affect health—acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care	—
	Attend to the entirety of a person/family/community's state of being, with a focus on behavioral health	☑
	Components and team members are integrated and coordinated	☑
Upstream-focused	Multisectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health.	☑
	Address the structures and conditions of daily life to make them more conducive to whole health	☑
Equitable and accountable	Whole health systems need to be accountable for the health and well-being of people/families/communities	☑
	Care needs to be accessible to all	☑
Team well-being	The health of the care delivery team is supported	☑

NOTE: Based on the program descriptions, ☑ indicates that the component is addressed; — indicates that it is partially addressed; a blank space indicates that it is not addressed. The committee gave a partial score for addressing all domains that affect health because Mary's Center does not offer complementary and integrative health, vision, or hearing services.

a system that the Department of Defense (DoD) described as insufficient (Defense Health Board Task Force on Mental Health, 2007).

In the early 2000s, despite the significant allocation of resources and seemingly extensive support network to bolster it, the Military Health System (MHS) still faced significant challenges in providing adequate care for injured service members. A DoD Task Force report highlighted the increasing challenges from post-traumatic stress disorder (PTSD), depression, and mild traumatic brain injury (mTBI), and it indicated that without greater efforts to enhance the systems of care, the prevalence of these conditions would continue to remain high (Defense Health Board Task Force on Mental Health, 2007). In addition, the report highlighted challenges with access to care, quality care, culture and the stigma associated with psychological health disorders, and consideration of families in treatment.

The study findings triggered a congressional mandate to create the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE). MHS, the Defense Health Agency, and the medical components of each service branch have used the National Defense Authorization Act of 2007 (NDAA) as a catalyst for change and to create true value for service members. Under NDAA, DCoE was established to provide clinical guidance and share best practices for treating psychological health and traumatic brain injury (TBI). The increased rate of troop deployments to Iraq and Afghanistan significantly influenced the immediate need to provide expanded services (DCoE, 2009). As a result, DCoE developed the NICoE to complement the current efforts of the existing centers. NICoE offers clinical care, diagnosis, research, and education for active-duty service members with TBI and psychological health needs that do not respond to traditional treatment.

People-Centered

The NICoE uses an integrative model known as the Intrepid Spirit University (ISU) (Figure 4-3) with the goal of combining integrative medicine modalities with traditional care for post-concussive treatment (Lee et al., 2019). To achieve this goal, the model places the person at the center of care and redefines therapeutic end points by enhancing the person's understanding of their plan of care, optimizing individualized precision medicine with the right patient receiving the right care at the right time, and institutionalizing process and language. The model views each participant as a student, and physician or nurse practitioner admission officers assess each individual's needs fully as well as the impact of the injuries on the student's family. An admissions committee comprising physicians, physician assistants, neuropsychologists, behavioral health, and rehabilitation professionals reviews the application packet and develops an individualized curriculum that takes into account the number of credits required for graduation. Once the student has completed the requirements for graduation, the clinical providers hold a commencement ceremony with the student and his or her family to highlight positive gains and provide an opportunity for the student to give an experiential testimony before his or her family and providers (Lee et al., 2019).

ISU uses goal attainment scaling, an empirically based method that provides an individualized, criterion-referenced measure of change that serves as a means for collaboratively tracking student's progress (Turner-Stokes, 2009). The involvement of the student's spouse/significant other is strongly encouraged by offering individual appointments with a licensed clinical

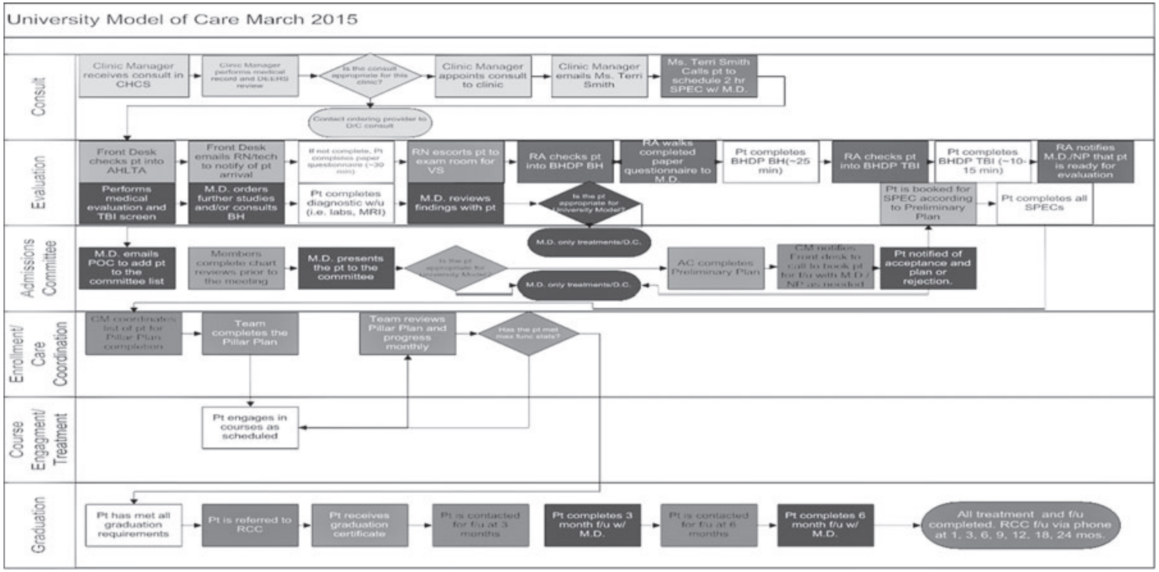

FIGURE 4-3 The Intrepid Spirit University process map.

NOTE: CHCS = Composite Health Care System; pt = patient; AHLTA = Armed Forces Health Longitudinal Technology Applications; TBI = traumatic brain injury; RN = registered nurse; BH = behavioral health; MRI = magnetic resonance imaging; VS = vital signs; BHDP = Behavioral Health Data Portal; RA = research assistant; POC = point of contact; AC = admissions committee; CM = case manager; NP = nurse practitioner; RCC = regional care coordinator; f/u = follow-up.

SOURCE: Lee et al., 2019.

social worker, who develops an individualized plan for family members ranging from familiarization with the student's medical conditions and treatment recommendations to specific therapies for family members. A 2019 study of this model of care found that it had a destigmatizing affect among participants and reduced the average length of treatment to 126 days from 202.6 days when compared with standard referral-based care. It also reduced costs from $103.24 to $85.57 in relative value units compared with standard referral-based care (Lee et al., 2019).

Comprehensive and Holistic

NICoE offers both an outpatient mTBI program and an intensive outpatient program which last 4 weeks. For the intensive program each participant has an intake appointment with an interprofessional care team to hear the patient's story. This helps to ensure that participants do not have to repeat the same information to multiple team members. After a service member has received a full evaluation by the NICoE care team over a 4-week stay, the care team compiles a discharge report with diagnostic findings and an individualized treatment plan. The care team, patient, and family collaborate on designing the treatment plan, which providers at the service member's home station implement following discharge.

Over the course of 4 weeks, each patient meets with a variety of care team members on an as-needed basis. Core team members include an internist, neurologist, psychiatrist, neuropsychologist, family therapist, and a designated nurse specialist who serves as the student's point of contact throughout the program (DeGraba et al., 2020). Care teams can also include an audiologist, art therapist, chaplain, licensed clinical social worker, nutrition specialist, occupational therapist, optometrist, physical therapist, recreational therapist, sleep medicine physician, and speech and language pathologists.

In addition, NICoE provides traditional and alternative treatments such as group counseling, psychoeducation, yoga, tai chi, and a canine program, where patients are encouraged to interact with and train a service animal. Patients engage in a treatment modality during their stay to assess whether continued engagement with a given treatment approach would benefit the participant and be included in their long-term treatment plan. NICoE also offers short-term services, and participants continue their treatment at their home clinical centers. NICoE accepts active-duty service members from any service branch, including the National Guard and reserve components.

Upstream-Focused Care

NICoE's interprofessional care team includes behavioral health specialists and family counselors, and it may also include a licensed clinical social worker, nutritionist, and sleep medicine physician. All of these professions address upstream factors. However, the committee could not find a detailed description of how NICoE operationalizes this upstream care.

Equitable and Accountable

The committee found one published study that examined how effective the NICoE is at producing symptom recovery from combat-related mTBI in 1,456 service members with residual symptoms from mTBI and psychological health conditions who received treatment at NICoE at Walter Reed National Military Medical Center (DeGraba et al., 2020). That study reported that "after treatment in the 4-week intensive outpatient program, patients whose symptom severity was at or above threshold at admission showed clinical improvements at discharge and return to duty in each of the seven assessments" (DeGraba et al., 2020). The assessments included the Neurobehavioral Symptom Inventory (NSI), PTSD Checklist—Military Version (PCL-M), Satisfaction With Life Scale (SWLS), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), Epworth Sleepiness Scale (ESS), and Headache Impact Test-6 (HIT-6) (DeGraba et al., 2020). The investigators reported that 77 percent of the service members who had symptoms above the admission threshold improved on the NSI scale; improvements were also seen on GAD-7 (72 percent), ESS (72 percent), PCL-M (57 percent), PHQ-8 (55 percent), SWLS (53 percent), and HIT-6 (33 percent). The researchers postulated that these improvements resulted from comprehensive and coordinated care and the establishment of trust between the participant and the care team.

The committee found little information explicitly pertaining to equitable care; however, all service members who meet the admissions criteria are technically eligible to participate in the program. That said, there are documented issues with geographic access to NICoE services, and home station providers are not always aware of NICoE, the eligibility criteria, or the specific services offered and how they differ from what is available elsewhere in the military health system. One report recommended that NICoE should better develop its outreach efforts to raise awareness of the program. The report also recommended that NICoE focus on recruiting eligible participants from locations with the greatest need and that it better evaluate the effects of its assessments, treatment, patient outcomes, and cost-effectiveness (Ayer et al., 2015).

Team Well-Being

The committee was not able to find any information suggesting that team well-being was part of the NICoE program design or implementation.

How Is NICoE Illustrative of Whole Health?

While NICoE is focused on post-concussive symptoms, depression, and PTSD rather than overall health and well-being, it operates through a whole health lens (see Table 4-4). It is a short-term intervention, and, despite this limited focus, it does align well with several of the committee's five foundational elements of whole health. The model holistically and comprehensively addresses the participants' needs and keeps them at center of the program. A dedicated, interprofessional team supports and empowers participants to take ownership of their health, an approach that they can ideally carry with them through their life course to improved well-being.

PROGRAM FOR ALL-INCLUSIVE CARE OF THE ELDERLY (PACE)

On Lok, a community-based organization in San Francisco, developed the Program for All-Inclusive Care for the Elderly (PACE) as an alternative to nursing home care in 1972. The goal of PACE is to extend participant independence in the community and to enhance the quality of their lives and overall well-being; the program is also designed to keep frail elderly in the community and allow them to age safely in place, instead of in a nursing home, for as long as possible (On Lok, 2022). It does this by providing the elderly with adequate medical care, social services, and maintenance rehabilitation services (Fretwell and Old, 2011; Lehning and Austin, 2011). Unlike the other approaches described in this chapter, PACE is a delivery model implemented by different systems around the country.

PACE is a federally authorized Medicare/Medicaid managed-care benefit available to frail adults aged 55 years and older whom the state certifies as nursing home eligible but who want to remain in their community. PACE participants must be able to live safely at home within a PACE site's geographic area. Most participants are dually eligible for Medicare and Medicaid, and the program provides all Medicare- and Medicaid-covered services, paying for care via monthly capitation payments from Medicare and Medicaid. The program has grown steadily since 2012, and in 2022 there were 145 PACE programs operating 273 PACE centers in 31 states, serving over 60,000 participants (National PACE Association, 2022b). Participation in PACE is associated with improved care quality, reduced mortality, preservation of function, fewer unmet assistance needs, greater

TABLE 4-4 Congruence of NICoE with the Foundational Elements of Whole Health

Foundational Elements	Components that Address the Foundational Elements	NICoE Indicators
People-centered	Achieving a sense of purpose through longitudinal, relationship-based care	☑
	People/families/communities direct goals of care	☑
	Care delivered in social and cultural context of people/family/community	☑
Comprehensive and holistic	Address all domains that affect health—acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care	☑
	Attend to the entirety of a person/family/community's state of being	☑
	Components and team members are integrated and coordinated	☑
Upstream-focused	Multisectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health	—
	Address the structures and conditions of daily life to make them more conducive to whole health	—
Equitable and Accountable	Whole health systems need to be accountable for the health and well-being of people/families/communities	—
	Care needs to be accessible to all	
Team well-being	The health of the care delivery team is supported	

NOTE: Based on the program descriptions, ☑ indicates that the component is addressed; — indicates that it is partially addressed; a blank space indicates that it is not addressed. The committee gave a partial score for both upstream-focused components because it was unable to find details of how the components were operationalized, aside from the participation of upstream-focused professionals. The committee also gave a partial score for the accountable component of equitable and accountable because NICoE is focused on individual participants and not their families or communities. This is, however, by design. The committee determined that care provided by NICoE is not accessible to all, given the limited locations of available services. The committee was unable to find any information regarding efforts to foster team well-being.

participant satisfaction, greater team member satisfaction, and less hospital and nursing home use (Arku et al., 2022; Fretwell and Old, 2011). Studies of cost savings have produced conflicting reports. A 2012 study concluded that PACE produced a substantial savings for Medicaid (Wieland et al., 2013), while a 2015 study found that PACE does not generate savings for Medicare and increases Medicaid costs (Ghosh et al., 2015).

On Lok founded PACE on the belief that everyone should have the choice to age at home, regardless of their physical, medical, and financial circumstances. This is based on the idea that when patients have their medical and long-term care needs taken care of, participants can live to their fullest, at any age and level of ability. PACE makes aging at home possible by

- Working with patients and their family to design a personalized care plan
- Carefully assessing patient needs and managing every aspect of their health care—using a high-touch approach designed to make patients feel valued and supported—by an interdisciplinary team
- Providing patients with in-home support, as well as transportation from their homes to their clinics and adult day health centers and to their networks of thousands of local providers
- Assisting with the tasks of daily living, such as preparing a meal or doing laundry (On Lok, 2022)

People-Centered

PACE is designed for patients who are nursing home eligible but would like to remain living independently in the community. PACE makes aging at home possible by working with patients and their families to design a personalized care plan. While the concepts of people-centeredness are intrinsic in the program philosophy—i.e., it is based on the premise of catering to people who are eligible for nursing care but wish to remain in their own community—the operational details of the approach are less clear in the available literature.

The professionals in a PACE care team are selected for their experience and qualifications in senior care. They meet regularly to exchange information and review the patient’s plan as their needs change and handle all aspects of their care (On Lok, 2022). This frequent contact with each other and with the program participants allows close monitoring of chronic conditions and ongoing needs assessment. The arrangement also enables team members to build close, longitudinal relationships with program participants. Team members partner with patients to schedule and coordinate appointments with their vast network of specialists, fill prescriptions, and provide transportation and support at home when needed (Gross et al., 2004).

Comprehensive and Holistic

The PACE model is designed to be comprehensive and holistic. Care is delivered by an interdisciplinary PACE team that includes a primary care physician, a nurse, a social worker, a physical therapist, an occupational therapist, a recreational therapist or activity coordinator, a dietitian, a PACE center supervisor, nursing aids, and drivers. The team develops a comprehensive care plan based on its assessment, which is aligned with the patient's care preferences. This care plan addresses a standard set of biopsychosocial/functional issues or domains that are relevant to the health of frail older adults: diagnoses and medications, nutrition, bowel and bladder function, cognition, emotion, social activity, mobility, activities of daily living, and cooperation with the care plan. To ensure continuity, the interdisciplinary team meets regularly. The team evaluates and revises the care plan every 6 months.

Home care caregivers are trained to understand and assist patients with day-to-day care needs, including memory support needs and dementia issues. Home care is a supportive senior service that is integrated into the clinical care provided at their clinics (On Lok, 2022). Home care workers can help with light housekeeping, personal care, light meals preparation, feeding, medication reminders, laundry, and escort assistance to medical appointments, as needed, as well as with preparation for van transport to and from PACE center visits or other health care appointments.

Upstream-Focused

The wide array of professionals involved in PACE is a testament that prevention and empowerment are a primary focus of the program (Boult and Wieland, 2010). As discussed above, interprofessional PACE care teams include a wide variety of disciplines in order to meet the medical, behavioral, social, and well-being needs of the participant population. Because all members of the care teams regularly meet to discuss program participants, the model is designed to proactively identify their whole health needs, including upstream factors, and to quickly address them. For example, a driver may notice a problem at an individual's home (e.g., a pile of unpaid bills or an empty refrigerator) and alert the social worker or home care coordinator to help resolve it. In terms of prevention, physical therapists and activity therapists work to maintain strength, mobility, and function among elderly patients, and they work alongside primary care and other team members to help identify and prevent problems before they arise.

Equitable and Accountable

PACE is available to anyone who meets the eligibility criteria described above (National PACE Association, 2022a); however, not all programs have the capacity to accept new patients, and programs are not geographically accessible to all. The vast majority of enrollees (90 percent) are dually eligible for Medicaid and Medicare (MACPAC, 2020). Nearly everyone else who participates (9 percent) is Medicaid eligible only, and the remaining 1 percent pay for services privately. Services are covered at no cost to dually eligible or Medicaid-eligible participants. According to the National PACE Association, 67 percent of Medicaid-eligible older adults do not have access to a PACE program. While this population is by definition underserved, the committee was not able to find any demographic information about PACE users and PACE-eligible non-users to see if certain subgroups were over- or underserved. Centers for Medicare & Medicaid Services (CMS) rules state that PACE organizations must not discriminate against any participant in the delivery of required PACE services based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, or source of payment (CMS, 2011).

Geographically, PACE programs are not evenly distributed across states. Twenty states have no access to PACE, and among the 30 states that do, access to PACE is inconsistent (National PACE Association, 2020). Nevertheless, the program is growing and is designed to provide high-quality services to underserved older adults. Among participants, the on-site inclusion of a variety of medical and other services enables the care teams to coordinate medical and social needs during patients' visit, reducing the burden of having multiple visits, which may exclude specific populations. In the past several years, a series of legislative and rule changes granted CMS the authority to develop pilots for PACE programs for individuals under 55 but who otherwise meet the PACE eligibility criteria. This could improve access to the comprehensive and holistic care that PACE offers to younger, but still high-need populations (National PACE Association, 2015).

Regarding accountability, PACE is required to report quality-of-care data to CMS as a condition of its participation in Medicare and Medicaid. PACE organizations are required to develop, implement, maintain, and evaluate an effective data-driven quality assessment and performance improvement program. These programs are to consider the full range of services that PACE offers, although individual organizations should design programs that best meet the needs of their participants and that are not limited to certain services or patient populations. These quality assessments should inform continuous improvements for all PACE services. CMS uses the resulting data to monitor health outcomes and quality improvement efforts as well as to identify gaps or areas in need of improvement, although the committee did not find information in the published literature detailing these efforts (CMS, 2011).

Participants are also active in PACE program governance. Every program has a participant advisory committee which provides advice to the governing body on participant-related concerns. Program participants must make up a majority of the advisory committee, and they select a participant to represent them on the organization governing board (CMS, 2011).

Team Well-Being-Focused

The committee was not able to find any information suggesting that team well-being was part of the PACE model design or implementation.

How Is PACE Illustrative of Whole Health?

PACE is designed to address four of the committee's five foundational elements of whole health, including providing holistic comprehensive care, addressing upstream factors that influence health, using a people-centered care approach, and having a focus on equity and accountability (Table 4-5). The approach aligns well with whole health aims to achieve patients' goals for well-being. For the elderly, this often means maintaining independence and function in their homes and communities. That said, based on the available information, it was unclear to the committee if there is a formal structure to understand what matters most to patients in the context of their families and communities although their programs directly address the basic needs and requirements for well-being, including social, emotional, and material supports in partnership with patients and their families. In addition, the committee could not find information that addressed the foundational element of team well-being.

FINDINGS AND CONCLUSIONS

This chapter described health systems and models with design characteristics of the committee's five foundational elements of whole health (Table 4-6). While Chapter 5 will delve deeper into the evidence of these and other models that align well with the foundational elements, it is difficult to determine the scope and consistency of implementation fidelity of the models. For example, the VHA as a system provides all five foundational elements, but implementation varies from site to site and even within sites. The committee describes Mary's Center and NICoE as only partially addressing all domains that affect health due to Mary's Center's focus on outpatient services and NICoE's focus on a specific syndrome. PACE limits enrollment by age and insurance by design but is also not available in many

TABLE 4-5 Congruence of PACE with the Foundational Elements of Whole Health

Foundational Elements	Components that Address the Foundational Elements	PACE Indicators
People-centered care approach	Achieving a sense of purpose through longitudinal, relationship-based care	☑
	People/families/communities direct goals of care	☑
	Care delivered in social and cultural context of people/family/community	☑
Holistic comprehensive care	Address all domains that affect health—acute care, chronic care, prevention, dental, vision, hearing, promoting healthy behaviors, addressing mental health, integrative medicine, social care, and spiritual care	☑
	Attend to the entirety of a person/family/community's state of being	☑
	Components and team members are integrated and coordinated	☑
Addresses upstream factors that influence health	Multisectoral, integrated, and coordinated approach to identifying and addressing root causes of poor health	☑
	Address the structures and conditions of daily life to make them more conducive to whole health	☑
Equitable and accountable	Whole health systems need to be accountable for the health and well-being of people/families/communities	☑
	Care needs to be accessible to all	
Team well-being	The health of the care delivery team is supported	

NOTE: Based on the program descriptions, ☑ indicates that the component is addressed; — indicates that it is partially addressed; a blank space indicates that it is not addressed. The committee determined that PACE care is not accessible to all, given its uneven distribution around the country. Additionally, the committee found no information regarding team well-being efforts in PACE programming.

states. The committee recognizes the operational challenges of full implementation as well as the purposeful limitations of some of the programs and does not conclude that one system is superior to another. Additionally, information on patient perspective and experience on access to services is difficult to obtain.

Interestingly, the committee found no programs that embody all five foundational elements fully, but each of the examples highlighted in this chapter offers promising approaches that serve different populations. Variable implementation of foundational elements may be necessary to tailor and deliver whole health that addresses the needs of different communities. Other programs may exist that embody all five elements, but they were not readily found and described in the public domain. Team well-being is the most commonly missing element across the five examples; however, program design features of Mary's Center address team well-being more comprehensively than the others, employing individual and systems-based approaches. It is possible, though, that the other systems are addressing team well-being more comprehensively than what is documented in the published literature.

TABLE 4-6 Congruence of the Featured Models with the Five Foundational Elements of Whole Health

Foundational Element	**Components that Address the Foundational Elements**	**VA WHS**	**SCF/ Nuka**	**Mary's Center**	**NICoE**	**PACE**
People-centered	Self-empowerment, longitudinal, relationship-based	☑	☑	☑	☑	☑
	People/family/community-directed	☑	☑	☑	☑	☑
	Care delivered in social and cultural context	☑	☑	☑	☑	☑
Holistic and comprehensive	Addresses all domains that affect health	☑	☑	—	☑	☑
	Attends to the entirety of a person/family/community	☑	☑	☑	☑	☑
	Components and teams are coordinated	☑	☑	☑	☑	☑
Upstream-focused	Identifying and addressing root causes of poor health	☑	☑	☑	—	☑
	Addresses the conditions of daily life	☑	☑	☑	—	☑
Equitable and accountable	Accountable to people/ families/communities	☑	☑	☑	—	☑
	Accessible to all		☑	☑		
Team well-being	Supports the care delivery team	—	—	☑		

NOTE: Based on the program descriptions, ☑ indicates that the component is addressed; — indicates that it is partially addressed; a blank space indicates that it is not addressed.

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5

Whole Health Systems' Evidence

In Chapter 2 the committee stated that "whole health systems are not merely the sum of their parts. There is seamless coordination and provision of services across sectors and interprofessional care teams with a shared goal of helping people and communities achieve whole health." Accordingly, while it is important to define the evidence supporting the foundational building blocks of whole health, as done in Chapter 3, evidence on system-level transformation is ultimately needed to understand the impact of a whole health approach.

Chapter 4 described five health care delivery models whose program design and philosophy closely align with the committee's five foundational elements of whole health, showing how other systems have operationalized the delivery of whole health. In this chapter, the committee reviews and summarizes the evidence from U.S. and international systems that have implemented whole health care. The committee sought to identify outcomes related to the effectiveness, implementation, and dissemination of whole health programs. Summarizing the evidence, the committee sought to understand the effect of implementing whole health care, crosscutting themes for implementing and disseminating whole health, challenges with generating systems-level evidence, and the research and learning health systems strategies that are needed to inform the future of whole health.

METHODS

It was beyond the capacity of the committee to conduct a systematic review of systems-level evidence on whole health care. However, the committee did seek to comprehensively identify a globally inclusive and broad sample of bright-spot systems that had both implemented and evaluated a whole health systems approach to care that was consistent with the committee's definition and mostly inclusive of the five foundational elements described in Chapter 2. Inclusion criteria were purposely broad: implementing a whole health systems approach to care consistent with the committee's definition; one or more publications reporting the outcomes on effect, implementation, or dissemination of whole health; and the use of some type of comparison group (e.g., randomized control, pre–post comparison, matched comparison, contemporaneous comparison) in the evaluation of effectiveness. Quantitative, qualitative, and epidemiologic studies were included. All outcomes that spoke to an approach's effectiveness, implementation, or dissemination were included. For example, the effectiveness outcomes considered included mortality, morbidity, patient activation and engagement, cost, care experience, team well-being, and more. Similarly, outcomes that spoke to implementation and dissemination included measures on such domains as the adoption, reach, and maintenance of whole health programs (Gaglio et al., 2013; Glasgow et al., 2019). Bright-spot examples were not included if they did not have an evaluation component that could be objectively assessed in a publication with transparent methods.

The committee used four steps to identify bright-spot systems: it (1) composed a list of whole health systems that committee members knew about; (2) invited panelists to present their whole health work to several open hearing sessions; (3) commissioned a report from Asaf Bitton, executive director of Ariadne Labs, on whole health bright spots; and (4) used a constrained snowball approach from publications identified in the first three steps to find additional whole health bright-spot examples and additional publications on whole health evaluations.

Bitton's commissioned report identified bright-spot examples by examining key global repositories of case studies.[1] These repositories included (1) the World Health Organization's (WHO's) People-Centered Integrated Care unit (World Bank and WHO, 2019); (2) the case study repository of the global consortium known as the Primary Health Care Performance Initiative, which includes case studies from WHO, the World Bank, UNICEF, the Global Fund, the Gates Foundation, and others (PHCPI, 2022); (3) important reviews of integrated care case studies done by the World Bank over the last decade; and (4) key state, federal, and academic reviews of integrated care in the United States. The VA Whole Health System, Southcentral Foundation's Nuka System of Care, and Mary's Center were purposely excluded from the commissioned report as they had already been

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[1] Asaf Bitton's commissioned paper is available at https://doi.org/10.17226/26854.

identified by the committee through invited panel presentations and closed committee discussions. The commissioned paper identified seven innovative models that share important characteristics with the foundational elements of whole health. Six examples were international whole health implementations, and one, the Vermont Blueprint for Health model, was a U.S. implementation. The committee excluded one of the six international programs as it did not have outcomes data on the implementation of the whole health program (Singapore: Regional Health Systems and Agency for Integrated Care Initiatives).

The committee's parallel process identified six additional systems (not including the Veterans Health Administration [VHA]), all of which were U.S. based. The program design and philosophical approaches for five of these whole health systems are also described in detail in Chapter 4 (VHA, Southcentral Foundation's Nuka System of Care, Advanced Care for Elderly, Mary's Center, and the National Intrepid Center of Excellence for Traumatic Brain Injury). The final sample of bright-spot implementations of whole health included in this chapter's review consists of the following:

U.S.-based systems (**bold** denotes systems profiled in Chapter 4)

1. **Department of Veterans Affairs Whole Health System**
2. **Southcentral Foundation's Nuka System of Care**
3. Kitsap Mental Health Services Race to Health! program
4. **Advanced Care for Elderly (ACE) Programs**[2]
5. **Mary's Center**
6. Vermont Blueprint for Health
7. **National Intrepid Center of Excellence (NICoE)**
8. International systems
9. New Zealand: Canterbury Health Pathways
10. Australia: South Australia Health in All Policies/Integrated Care Adelaide
11. Spain: Basque Country Integrated Chronic Care Model
12. Germany: Gesundes Kinzigtal Model
13. Costa Rica: EBAIS Community-Based Primary Health Care Model

This chapter reviews what is known about these whole health systems and presents each case summary by providing a brief description on the system and whole health program followed by a summary of the evidence. It is important to recognize that the data sources the committee collated to

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[2] Chapter 4 details the Program for All-Inclusive Care for the Elderly (PACE) specifically. ACE programs include PACE but also Geriatric Resources for Assessment and Care of Elders (GRACE) and House Calls.

develop these case summaries represent a view of these whole health systems at one or more points in time, as reflected by their respective evaluation periods and publication dates noted in the evidence tables. The stability and sustainability of these existing programs is largely unknown. Additionally, the committee identified numerous ongoing evaluations, advances, and new programs that are being implemented and evaluated. This indicates that the field of whole health systems of care is rapidly advancing, and the committee expects a growing body of evidence in the future. Thus, while the summaries that follow will become dated, the lessons learned from their implementation will continue to have relevance.

DEPARTMENT OF VETERANS AFFAIRS WHOLE HEALTH SYSTEM

Given that the Whole Health System (WHS) of the U.S. Department of Veterans Affairs (VA) has been described in detail in the prior four chapters, more specifically in Chapter 4, this section will focus on reviewing the evidence evaluating the use and implementation (Table 5-1a)[3] and health and delivery outcomes (Table 5-1b) of the WHS.

The VA initially implemented and evaluated the WHS at 18 pilot sites,[4] one from each the geographically distributed Veterans Integrated Services Networks (VISNs). Initial publications spanned the first 18 months of the 3-year pilot program[5] and evaluated veterans' use of WHS services for opioid use and assessed the impact of WHS services on patient-reported outcomes regarding patient experiences, engagement with health care and self-care, quality of life, and overall well-being (Bokhour et al., 2020, 2022).

In a 2020 evaluation, researchers identified a group of veterans with a history of chronic musculoskeletal pain with moderate or severe intensity levels of pain (29 percent of all VA users). Many of these veterans also had co-morbid anxiety, depression, or post-traumatic stress disorder (PTSD) (42 percent of all VA users), chronic conditions for which self-care plays an important role (obesity, cardiovascular disease, and chronic obstructive

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[3] All tables can be found at the end of this chapter.

[4] The pilot sites were the VA Boston Healthcare System, VA New Jersey Health Care System, Erie (Penn.) VA Medical Center, Beckley VA Medical Center, W.G. (Bill) Hefner VA Medical Center (Salisbury, N.C.), Atlanta VA Health Care System, James A. Haley Veterans' Hospital (Tampa, Fla.), Tennessee Valley Healthcare System, Aleda E. Lutz VA Medical Center (Saginaw, Mich.), Tomah (Wisc.) VA Medical Center, VA St. Louis Health Care System, Central Arkansas Veteran Healthcare System, South Texas Veteran Health Care System, VA Salt Lake City Health Care System, VA Portland Health Care System, VA Palo Alto Health Care System, Southern Arizona Health Care System, and VA Nebraska-Western Iowa Health Care System.

[5] The evaluation, as reported here, included only the first 18 months of the 3-year pilot program in order to meet an early 2020 report deadline set by Congress in the Comprehensive Addiction and Recovery Act.

pulmonary disease; 56 percent of all VA users), or both (Bokhour et al., 2020).[6]

In a more recent evaluation which used data from electronic health records (EHRs), the research team identified veterans who availed themselves of WHS services along with a control population of veterans who did not use WHS services. During the evaluation period, which spanned from the first quarter of fiscal year (FY) 2017 to the third quarter of FY 2019, 1,368,413 unique veterans received care at the 18 pilot sites. Of the total veteran population at the 18 sites, 114,397 were included in an evaluation of opioid utilization, 6,594 of whom had used WHS services for the first time and 107,763 who had only received conventional care. In the patient-reported outcome analysis, the first 3,266 of the veterans who agreed, to participate in the Veterans Health and Life (VHL) survey at baseline and at 6 and 12 months after engaging in WHS services provided self-report data on the impacts that WHS services had on veterans' perceptions of care; engagement in care; engagement in a life that had meaning and purpose; sense of health and well-being, including functional status and perceived stress; and pain intensity and its effects (Bokhour et al., 2022).[7]

The EHR provided information on which WHS services the veterans used, and pharmacy records served as the source of data on opioid use. Using EHR data, the researchers identified three types of care:

- Core whole health, which included personal health planning, peer-led whole health groups, whole health pathway services, whole health coaching, and whole health education groups;
- Chiropractic care; and
- Complementary and integrative health, which included acupuncture, therapeutic massage, biofeedback, guided imagery, clinical hypnosis, meditation, yoga, and tai chi/qi gong, all part of the standard VA medical benefits package (Reed et al., 2022).

Outcomes Results

A preliminary WHS assessment published in 2020 found that the percentage of VA health care users with chronic pain who had enrolled in WHS services increased from 10.5 to 30.7 percent over the 18 months of the study (surpassing the outset goal of 30 percent). All 18 pilot sites saw increases in the proportion of veterans with chronic pain enrolling in WHS services (Bokhour et al., 2020). The 2022 study looking at the pilot implementation of WHS found that, collectively, of veterans with chronic pain

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[6] After a prepublication version of the report was provided to VA, this paragraph was edited to more accurately describe the research study.

[7] After a prepublication version of the report was provided to VA, this paragraph was edited to more accurately describe the research study.

and PTSD, 40 percent used core whole health services and 53 percent used complementary and integrative health (Reed et al., 2022). Use was slightly lower for veterans with chronic pain only, with 28 percent using core whole health services and 40 percent using complementary and integrative health.

In the 2022 evaluation which compared 1,554 veterans who used WHS services to 1,712 who only used conventional care, veterans using WHS services reported greater improvements in the quality of their interactions with VA providers, particularly the interactions that included discussions of personal health goals, and they reported higher levels of engaging in healthy behaviors and participating in health care decisions.[8] The researchers also noted that there were "small improvements in overall meaning and purpose in life, especially among the veterans with chronic pain who utilized comprehensive WHS services" (Bokhour et al., 2022, p. 9) as well as slight improvements after 6 months in their self-reported quality of life and well-being compared with veterans who received conventional care.[9] Users of WHS services improved more than those who received conventional care according to the Perceived Stress Scale, which measures an individual's ability to manage the challenges associated with chronic illness (Bokhour et al., 2022). Small improvements in mental and physical health also occurred, although veterans who received conventional care experienced greater improvements in physical health scores than those who used WHS services. Pain scores improved for both groups, but the changes were not clinically meaningful.

Veterans with chronic pain who used WHS services had a larger overall decrease in the average morphine-equivalent dose of opioids than veterans who received conventional care. During the study, opioid use fell among all veterans as a result of national VA efforts to reduce opioid use. Opioid use among veterans classified as either core WHS comprehensive or core WHS intensive users fell by 38 percent (95% confidence interval [CI]: –60.3 to –14.4); those classified as complementary and integrative health intensive users fell by 26 percent (95% CI: –30.9 to –18.4), and the full group of veterans who used any two or more WHS services fell by 23 percent (95% CI: –31.9 to –6.5). Opioid

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[8] After a prepublication version of the report was provided to VA, this paragraph was edited to more accurately describe the research study.

[9] Experience with care was measured using CARE (Bikker et al., 2015; Mercer et al., 2004); CollaboRATE (Barr et al., 2014). Satisfaction-with-care questions were adapted from the VHA survey of health experiences of patients; questions about goals were developed internally by VHA. Process questions developed internally were measured using the Patient-Reported Outcomes Information System (PROMIS-10), physical and mental health subscales, and the Perceived Stress Scale (PSS). Engagement with care was measured using the ACE-C and ACE-N (Altarum Consumer Engagement, Commitment and Navigation subscales) (Duke et al., 2015). Meaning and purpose were measured using the LET (Life Engagement Test)(Scheier et al., 2006) and the Institute for Heathcare Improvement's 100 Million Healthier Lives (Kottke et al., 2016). Well-being was measured using the PROMIS-10 physical and mental health subscales (Hays et al., 2009) and the PSS (Ezzati et al., 2014).

use among veterans who used only conventional care services fell by only 11 percent (95% CI: –12.0 to –9.9) (Bokhour et al., 2022).

The pilot evaluation also found that among veterans with PTSD, anxiety, or depression, those who used WHS had an increase in annual outpatient pharmacy costs of 4.3 percent versus an increase of 15.8 percent for veterans with PTSD, anxiety, or depression who did not use WHS (Bokhour et al., 2020). Similarly, annual pharmacy expenditures for veterans who took advantage of comprehensive WHS rose by 4.3 percent, compared with an increase of 15.8 percent for veterans who did not use WHS. The authors noted that there were insufficient data at the time of the evaluation to determine whether WHS reduced costs, the use of more expensive care, emergency department visits, inpatient admissions, or other types of care. Unpublished data cited by the congressionally mandated Creating Options for Veterans' Expedited Recovery (COVER) Commission found that pharmacy costs for veterans with any condition who used WHS increased 5.3 percent compared with 9.4 percent for the total veteran population (COVER Commission, 2020). This same unpublished dataset showed that using WHS was associated with a cost reduction in all service categories, except pharmacy, ranging from 12 to 24 percent.

A mixed-methods quality improvement evaluation at the San Francisco VA Health Care System found that peer coaching helped participants make incremental progress toward goals and improvements that were described as profound and life changing (Purcell et al., 2021). This 3-month study involved 65 veterans who agreed to participate in telephone surveys before and after participating in a coaching intervention. Survey instruments included demographic questions and multiple validated scales drawn from the VA's Whole Health Evaluation Toolkit. These scales included the PROMIS-10, which measured overall mental and physical health; the Perceived Stress Scale 4 (PSS-4), which measured perceived stress, and the Perceived Health Competence Scale 2 (PHCS-2), which measured perceptions of competence to manage one's health (Purcell et al., 2021). In addition, 42 of the subjects participated in a semistructured qualitative interview to identify helpful aspects of the program and solicit suggestions for improvements. There were improvements in 3-month versus baseline PROMIS-10 scores for mental health (12.58 vs. 11.74, p=0.006), stress (5.34 vs. 6.54, p=.003), and health competence (7.88 vs. 6.80, p=.01). Surveyed veterans reported that the veteran-driven nature of the coaching they received worked for them and that they valued the fact that the coaches were largely following the individual veteran's lead and helped the identify realistic goals. Routine, consistent meetings were important contributors to making progress, as the veterans reported that these meetings motivated them to make changes.

An embedded randomized controlled trial at one site in Salt Lake City randomized 250 veterans with co-occurring opioid misuse and chronic pain to a Mindfulness-Oriented Recovery Program (MORE) or to group psychotherapy (Garland et al., 2022; Roberts et al., 2022). At 9 months there was a greater reduction in opioid use for the MORE group than for those receiving the supportive psychotherapy (odds ratio of reduction of 2.06: 95% CI, 1.17–3.61; *p*=.01) (Garland et al., 2022). At 3 months, the MORE group also had greater reductions in emotional distress on the Depression Anxiety Stress Scale ($\beta = -0.263$, *p*=.034) and greater self-regulation of distress ($\beta = 0.335$, *p*=.001) than the supportive psychotherapy (Roberts et al., 2022).

Employee Benefits from WHS Delivery

The preliminary evaluation included efforts to assess how employee involvement in the WHS affected engagement, turnover intention, and burnout (Bokhour et al., 2020).[10] The researchers included a question on the 2018 and 2019 All Employee Survey that VA conducts yearly that asked employees to indicate their involvement with their facility's WHS approach. Employees from the 18 pilot sites who indicated they had a clinical role provided responses to a multipart separate question on WHS. In 2018 and 2019, 20,701 and 21,667 employees at the 18 pilot sites responded (greater than 60 percent response rate), indicating broad representation.

This survey found that employee involvement in WHS varied across the 18 pilot sites, averaging 18 percent but with a high of 87 percent. Primary care, mental health, rehabilitation, and home/community care services had the highest involvement rates. Employees involved in the WHS spoke favorably of their workplaces, leadership, and supervisors, and they reported intrinsic motivation and a lower likelihood of burnout or leaving. Facilities with a greater degree of employee involvement in WHS had higher ratings on hospital performance and higher ratings from veterans on receiving patient-centered care (Bokhour et al., 2020).

A three-site evaluation of the VA's national Employee Whole Health program found that implementation varied across the three sites (Shah et al., 2022). Factors that facilitated implementation included employee interest and enough staff with the time and expertise to provide complementary

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[10] Using items from the All Employee Survey, the researchers created scores for drivers of engagement, a Best Places to Work engagement score, turnover intention, and burnout. These scores were based on the Federal Employee Viewpoint Survey measures for (1) drivers of engagement, representing workplace characteristics with potential to influence engagement conditions and reflect perceptions of leadership behaviors, supervisor behaviors, and self-motivation; (2) best places to work, a weighted score based on responses to questions on job satisfaction, organization satisfaction, and recommending the organization as a place to work; and (3) turnover intention, whether employees were planning to leave their job in the next year. Burnout consisted of two items asking about emotional exhaustion and depersonalization.

and integrative care for employees. The study investigators noted that the program lacked the infrastructure to evaluate program effectiveness and impact, and they recommended that the VA provide guidance on how to evaluate the program and develop solutions to increase employee participation.

Use and Implementation of the VA WHS

Several studies reported on the use and implementation of the VA WHS program (Table 5-1a). One retrospective analysis of the first 20 months of the flagship implementation found that of 559 veterans referred to WHS services, 73 percent had a service-related disability, 47 percent had nine or more medical needs, 54 percent had mood disorders, and 42 percent had PTSD (Marchand et al., 2020). Compared to VA users overall, those referred to WHS were more likely to be younger, female, of Hispanic ethnicity, a nonwhite race, and service connected. Implementation challenges included having a disproportionate number of referrals from a few clinical services (mainly primary care and WHS programs); poor initial and ongoing treatment engagement, with almost half of referred veterans not initially engaging in the WHS care; and a low average number of sessions attended. Another study conducted semistructured interviews, made observations, and carried out document analysis of 45 staff and clinicians from five design sites and one flagship site (Haun et al., 2021). The researchers concluded that implementation was a complex process but that clinicians and leadership were generally engaged and motivated to deliver WHS. The factors that influenced implementation included a progressive culture, early adopters who integrated whole health in their personal life, recognition of a change in focus of care, leadership support, resources (facilities, hiring, funding), collaboration among interdisciplinary team members, agreed-upon policies and procedures, and standardized measures.

A national organizational survey of 196 VA clinicians and 289 VA sites found that as of 2018, VA sites offered an average of five WHS approaches (range 1–23), with 63 sites offering 10 or more approaches (Farmer et al., 2021). The most frequently offered programs were relaxation techniques, mindfulness, guided imagery, yoga, and meditation. WHS was primarily offered by physical medicine and rehabilitation, primary care, and integrative/whole health clinicians and practices. A recent query of the VA billing system found that a total of 441,891 veterans used 2,930,700 of these services in 2020, representing a slight decrease from the use in 2019 (3,083,806 total visits) (Zeliadt et al., 2022). This correlates with 8.1 percent of all veterans in the VA receiving at least one WHS service. Use was highest among women (14.3 percent), patients with chronic pain (18.1 percent), opioid use disorder

(15.6 percent), rheumatoid arthritis (13.3 percent), obesity (12.9 percent), or a mental health condition (12.8 percent) (Zeliadt et al., 2022).

The Whole Health System of Care During the COVID-19 Pandemic

When the COVID-19 pandemic swept across the United States, implementation of the WHS was under way at the first 18 sites, along with a 3-year evaluation of the new system. As part of this evaluation, periodic interviews were to be conducted at the 18 sites to provide an opportunity to gather qualitative data regarding the program from 61 participants across the sites (Dryden et al., 2021). During the pandemic, while in-person WHS services were canceled, many sites shifted to online provision of patient services. The findings from this descriptive study reflect how the pandemic highlighted the need for health care to address patient well-being and how the VA WHS was able to use virtual technology to promote self-care, reduce stress, and support the well-being of veterans. Overall the sites embraced the WHS approach during the pandemic, conducting patient wellness calls and, for patients and employees, promoting complementary and integrative health therapies, self-care, and other concepts to combat stress and support well-being during the pandemic (Groves et al., 2022). VA medical centers converted in-person programs to telehealth offerings. By the end of 2020 nearly one-third of the monthly in-person visit volume was provided through telehealth for therapies including core whole health services, yoga, tai chi/qi gong, meditation, biofeedback, guided imagery, and hypnosis (Zeliadt et al., 2022).

Ongoing Evaluations of the VA WHS

Multiple evaluations of the WHS are currently under way at the VA. A commissioned paper for the committee by Denise Hynes identified 17 funded projects addressing whole health, 51 addressing coaching, and 97 addressing care coordination.[11] The committee also identified other publications of evaluation protocols, and the committee expects that findings from the full 3-year evaluation of the flagship implementation will be published in the future as well (Haun et al., 2019; Seal et al., 2020).

SOUTHCENTRAL FOUNDATION'S NUKA SYSTEM OF CARE

The Southcentral Foundation's (SCF's) Nuka System of Care ("Nuka") is an Alaska Native–owned, nonprofit federally qualified health center (FQHC) serving nearly 65,000 Alaska Native and American Indian people

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[11] Denise Hynes' commissioned paper is available at https://doi.org/10.17226/26854.

living in Anchorage, Matanuska-Susitna Borough, and 55 rural villages in Alaska. Nuka uses a person-centered, relationship-based, customer-owned system of care to reduce costs and improve outcomes (Gottlieb, 2013; SCF, 2017). In 1998, SCF began managing primary care, which was previously overseen by the Indian Health Service. The following year, SCF entered into a co-ownership and co-management agreement with the Alaska Native Tribal Health Consortium to take over the Alaska Native Medical Center (SCF, 2017).

The goal of the Nuka model is to achieve physical, mental, emotional, and spiritual wellness for its customer-owners. As Chapter 4 explains, based on the information that the committee could find, Nuka's system design explicitly addresses four of the committee's five foundational elements of whole health. It provides *comprehensive and holistic* services, offering primary care, in both outpatient and home settings, as well as dentistry, outpatient behavioral health, residential behavioral health, traditional healing, complementary medicine, and health education. Care is extended to all residents via in-person and telehealth modalities—even reaching remote locations by air or boat. Nuka is *people-centered*, using a patient-centered medical home approach, and embraces integrated, whole person care through cooperative alliances with services and organizations beyond the practice setting to meet the complete range of needs for the patient population (Martin et al., 2004). It addresses *upstream factors* and offers a variety of housing, financial, nutrition, and employment programs and services (SCF, 2022), informed in part by information on social determinants of health in the Nuka EHR which allows clinicians to track upstream factors and better understand the context of the customer-owners' lives.

As an FQHC, Nuka is required to comply with several *equity and accountability* features in its operations. Care is provided on a sliding fee scale, ensuring guaranteed access to customer-owners who may not have insurance coverage. Additionally, at least 51 percent of its governing board members must be individuals receiving their care in the system, which helps ensure that user input governs the system. Nuka must also complete annual reviews of its catchment area and needs assessments every 3 years to ensure that services are designed to meet the specific needs of its customer-owners. Universal empanelment also helps ensure that clinical teams are accountable to the customer-owners under their care. Regarding *team well-being*, Nuka has taken steps to improve team functioning, although it is unclear from the published literature if Nuka systematically measures burnout and well-being or if it considers evidence-based, systematic approaches to minimizing burnout of clinical teams.

Evidence Summary

The Nuka System of Care represents a shift from traditional government-managed tribal health care. Three studies reported in five manuscripts compare outcomes in the Nuka system of care with the government-managed care offered prior to 1996 and describe changes in quality and outcomes measures over time using billing, administrative, and EHR data (see Table 5-2) (Blash et al., 2011; Driscoll et al., 2013; Gottlieb, 2013; Johnston et al., 2013; SCF, n.d.). Compared with the prior system of government managed care, the Nuka system substantially improved access to care in 2013 and resulted in an increase in the proportion of people seeing a primary care clinician from 35 to 95 percent, a reduction in wait time to see a primary care clinician from 4 weeks to same-day access, and a reduction in people on the behavioral health waitlist from 1,300 people to none. Concurrently, multiple quality measures improved across multiple time periods, including an increase in the proportion of people with diabetes having gotten an A1c measurement in the year prior, from 78 percent in 2007 to 92 percent in 2009; an increase in childhood immunization rates, from 80 percent in 1998 to 93 percent in 2006; and increased colorectal screening rates, from 49 percent in 2008 to 59 percent in 2009. Health outcomes also improved, with a 42 percent reduction in emergency room use, a 36 percent reduction in hospital days, and a 58 percent reduction in specialist use. Monthly emergency room use overall decreased annually from 2000 to 2006 ($p<.001$) and then leveled off after 2006. As a result, the proportion of people with one or more emergency room visits in a month decreased from 7.6 percent in 1996 to 5.8 percent in 2009 (p value not reported), and the proportion of people with one or more hospital admissions in a month decreased from 0.9 percent in 1996 to 0.7 percent in 2009 ($p<.001$). During this time period, staff retention improved from 60 percent in the early 2000s to 83 percent in 2012, suggesting improved team well-being.

A fourth study looked at 90 Alaska Natives and American Indians who participated in a whole health program to address adverse life experiences (Ray et al., 2019). A retrospective analysis of EHR data compared outcomes for program participants with 90 propensity-matched people who participated in other wellness programs. Participation in the whole health program resulted in statistically significant reductions in total system visits (incidence rate ratio 0.64, 95% CI 0.49–0.84) and substance use visits (incidence rate ratio 0.30, 95% CI 0.10–0.93), and a non-statistically significant trend toward reduced emergency room visits (incidence rate ratio 0.60, 95% CI 0.35–1.02) (Ray et al., 2019).

KITSAP MENTAL HEALTH SERVICES

In January 2013, a community mental health center in Kitsap County, Washington, implemented a program to address concerns about inadequate general medical care and poor self-management for people with mental illness, which was called Race to Health! (Bouchery et al., 2018). The program follows a whole health model and addresses all aspects of a person's health, including mental health, substance use, and nonpsychiatric health needs. Implementing the program involved redesigning the system's infrastructure and care delivery model and training staff to address a person's whole health. Staff were reorganized into multidisciplinary care teams including a psychiatrist, a psychiatric nurse, bachelor's-level case managers, master's-level therapists, and co-occurring disorder specialists. Medical assistants supported each care team by collecting medical data, coordinating care between the Kitsap staff and a person's primary care clinician, coaching people on issues related to nonpsychiatric health needs, and assisting with wellness groups. Resources were invested to expand the EHR system to include data on nonpsychiatric health conditions, medications, and emergency visits. Care teams used data to identify people with health risks in order to engage them in wellness services and to identify people with emergency visits in order to provide them with more intensive care coordination with other social service providers.

Evidence Summary

In a pre–post comparison, 846 people enrolled in the Race to Health! program were compared with a matched observational cohort of 2,643 participants not enrolled in a similar program (see Table 5-3) (Bouchery et al., 2018). Using Medicare claims data, the investigators conducted a difference-of-difference analyses of the first 2.5 years of the program and found a reduction in Medicare expenditures by $266 per month ($p$<.01) as well as 0.02 fewer hospitalizations per month (p<.01), 0.03 fewer emergency visits per month (p<.01), and 0.13 fewer office visits per month (p<.04).

ADVANCED CARE FOR THE ELDERLY (ACE) PROGRAMS

A series of programs for older adults to help people meet their health care needs in the community instead of going to a nursing home or other care facility have been developed and tested. These programs include the Program of All-Inclusive Care for the Elderly (PACE)(CMS, 2021), the Geriatric Resources for Assessment and Care of Elders (GRACE) program (Counsell et al., 2006), and the House Calls program (Melnick et al., 2016). The PACE program is further detailed in Chapter 4. In these programs, comprehensive medical and social care is delivered by an interdisciplinary team of health care providers. Team members often meet daily to discuss the medical and social needs of participants. The advanced care programs are typically intended for older adults who are eligible for nursing home care but can safely live in their home. The programs generally target low-income seniors, and most participants are dual eligible for Medicare and Medicaid. Programs provide all necessary health care services to beneficiaries using a capped financing model (Arku et al., 2022). *Comprehensive and holistic* services include conventional medical services (primary care, specialty care, hospital care, emergency services, prescription drugs, laboratory and radiology services, physical therapy, occupational therapy), complementary and integrative medicine (recreational therapy), and programs aimed at *upstream factors* (adult day care, home care, meals, nursing home care, nutritional counseling, social services, transportation). Programs additionally may include in-home assessments, the use of specific care protocols for the evaluation and management of common conditions, the use of an integrated electronic medical record and care management tracking tools, and integration with pharmacy, mental health, home health, and community-based and inpatient geriatric care services (Counsell et al., 2007).

Evidence Summary

A randomized controlled trial, a case-control study, an observation cohort, and a scoping review provide key evidence on the GRACE, House Calls, and PACE programs (see Table 5-4). The first study was a randomized controlled trial that compared 474 low-income seniors randomized to receive home-based care in a GRACE program in Indiana versus 477 low-income seniors who continued to received usual care (Counsell et al., 2006, 2007, 2009). Overall, the 2-year emergency room visit rate per 1,000 was lower in the intervention than in the control group (1445 [n=474] vs. 1748 [n=477], p=.03), but hospitalization rates were not different. However, in a predefined high-risk group of seniors, both emergency room visits (848 [n=106] vs. 1,314 [n=105]; p=.03) and hospital admission rates (396 [n=106] vs. 705 [n=105]; p=.03) were lower for the intervention group in the second year of the program. Four of eight SF-36 scales improved more for the seniors in the GRACE program than with those given usual care [general health (0.2 vs. -2.3, p=.045), vitality (2.6 vs. -2.6, p<.001), social functioning (3.0 vs. -2.3, p=.008), and mental health (3.6 vs. –0.3, p=.001)]. The mean 2-year total costs were not significantly different for the study overall group and for high-risk seniors, but the costs were higher in the low-risk seniors randomized to receive the GRACE program compared with usual care ($13,307 vs. $9,654; p=.01). A second study used a case-control design to compare 179 senior veterans discharged from acute hospitalization who received a veteran-centric care plan and support from a GRACE team versus 77 matched hospitalized veterans who received usual care at discharge between 2010 and 2011 (Schubert et al., 2016a). Veterans who received GRACE care after discharge had 28.5 percent fewer bed days in the hospital in the following year than veterans receiving usual care (p=.01). There were non-statistically significant trends towards a reduction in emergency visits (7.1 percent, p=.59), 30-day readmissions (14.8 percent, p=.19), and total hospitalizations (p=.14) as well.

An observational cohort analysis followed 7,925 high-risk, high-cost patients enrolled in the California House Calls program after hospital admission between 2009 and 2013 (Melnick et al., 2016). Comparing 6 months before enrollment, 6 months after enrollment, and 6 months after disenrollment, there were sustained reductions in emergency visits per person (0.46 vs. 0.21 vs. 0.08), hospital days per 1,000 people (680 vs. 286 vs. 100), and health care spending ($1,768–2,673 vs. $965–1,362 vs. $326–453).

A scoping review of the PACE program funded by the Centers for Medicare & Medicaid Services identified six studies with 4,826 people who received PACE care and 7,920 people in comparison groups (Arku et al., 2022). All studies compared people receiving care through other non-PACE Medicare programs (e.g., Wisconsin Partnership Program, Medicaid long-term care, Visiting Nurse Service, Veteran's Affairs, or nursing home care). The review found mixed results. Two of three studies found that PACE participants had worse or declining activities of daily living, while the third showed improvement. Two of three studies found PACE participants to have had less hospital use, but the third showed no difference. Both studies that measured use of service found an increased use of community-based services and adult day center visits. One study that evaluated pain, discomfort, or depression found no difference in outcomes. One of three studies showed increased mortality with PACE participation, another showed no difference, and the third showed longer survival with PACE.

MARY'S CENTER

As described in Chapter 4, Mary's Center, established in 1988 and recognized as an FQHC in 2005, primarily serves women and children, immigrants, low-income individuals, and uninsured or underinsured individuals across Washington, D.C., and Maryland. Mary's Center emphasizes wraparound services for clients, such as English as a second language, job training, and behavioral health services, and it has a unique partnership with Briya schools to provide educational opportunities (Mary's Center, n.d.). Mary's Center serves over 55,000 individuals across five community health centers and two senior wellness centers. The center also provides integrated behavioral health in each center and in area public schools, and it deploys mobile units and pods to extend dental, imaging, HIV, sexual health, and COVID-19-related services (Galvez et al., 2019; Martinez et al., 2020). Mary's Center refers to those individuals it serves as "participants," encouraging and endorsing active participation in one's own care and recognizing that the term "patient" inadequately characterizes program participants. Program participants coming from roughly 50 different countries partner with employees who come from 40 countries and speak over 35 languages.

Mary's Center ensures that it has direct input from its participants by having a patient-majority board of directors (a requirement of its FQHC certification), a monthly community engagement council meeting, and an external company to continuously survey patients on their experiences. Mary's Center grounds its model in the philosophy that overall wellness depends on social and economic well-being as well as on comprehensive primary care that includes oral health and behavioral health. The model includes an integrated behavioral health approach with therapists embedded into the primary care team and regular interaction across team members plus those from on-site social services, nutrition, and health education team members. The center incorporates social determinant assessment into patient care, using the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) tool in every participant's EHR records to guide staff on what services are necessary for each participant and to guide care coordination and case management to assist patients in obtaining food, clothing, housing, and direct cash assistance (PRAPARE, 2022). Key partnerships with hundreds of community-based organizations provide additional resources, such as legal services and housing, as well as home-visiting programs for at-risk mothers and infants. All sites offer multilingual services to help patients enroll in health insurance and other benefits, and Mary's Center has recently added services for refugees, asylees, and parolees. Mary's Center also has staff dedicated to helping its participants access benefits and entitlements, including insurance, and it participates in the 340B drug pricing program[12] that provides uninsured or underinsured patients medications at a discount (HRSA, 2022).

Evidence Summary

The Urban Institute conducted an evaluation of Mary's Center to highlight lessons learned for community health centers, medical providers, health policy makers, and others interested in addressing the social determinants of health (Galvez et al., 2019). The evaluation reviewed care for

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[12] Additional information is available at https://www.hrsa.gov/opa/index.html (accessed June 10, 2022).

55,000 people between 2009 and 2017. The Urban Institute research team collected staff, participant, and community perspectives on Mary's Center's history, approach, and outcomes. Data sources included a document review, online survey of over 300 Mary's Center staff members (representing about half of all staff), and interviews or focus groups with 16 staff, 35 current and former participants, and 14 community partners(Galvez et al., 2019).

Mary's Center is organized around primary care services, and 61 percent of people use Mary's Center exclusively for primary care (see Table 5-5). However, there is a high level of engagement with wraparound services, and 24 percent of people receive primary care plus one or more services, while 15 percent of people receive wraparound services only. Overall, 74 percent of encounters are for primary care, 4 percent for social services, 13 percent for dental, and 10 percent for behavioral health.

Preliminary findings from a retrospective review of EHR data showed that receiving services beyond traditional medical care at Mary's Center was associated with greater protection against hypertension, obesity, diabetes, and hyperlipidemia (Galvez et al., 2019). Compared with other FQHCs, Mary's Center ranked in the top 25 percent of FQHCs for cervical screening, child immunizations, cholesterol treatment, adolescent weight screening/follow-up, depression screening, and asthma treatment (Galvez et al., 2019). Among participants in teen after-school programs, 99 percent graduated from high school, avoided pregnancy, and attended college. The participants of the home visiting program reported "virtually no" cases of abuse or neglect after enrollment.

VERMONT BLUEPRINT FOR HEALTH

Established in 2006, the Vermont Blueprint for Health is intended to design, implement, and evaluate community-led strategies for improving health and well-being. Through the provisions of a statutory framework act in 2010, the mission of Blueprint for Health was broadened to include integrating systems of health care, improving overall population health, and improving health care cost control through prevention, care coordination, and health maintenance (Vermont Blueprint for Health, 2022). There is a central administrative core at the state level with an executive director and central office, but most of the work happens at the hospital or health service area (HSA), where administrative entities exist in each of these 13 regions to receive payments, hire and maintain community health teams, and coordinate quality improvement initiatives.

A foundation of the Blueprint model is advanced team-based primary medical homes as a locus for *comprehensive and holistic care*. Medical homes are aligned with National Committee for Quality Assurance patient-centered medical home (PCMH) standards and work toward continuous quality improvement through ongoing engagement with a quality improvement facilitator at each HSA (Crabtree et al., 2010; Jaen et al., 2010; Nutting et al., 2009, 2011). Practices participating in this model receive augmented monthly payments of between $2 and $4 per person per month to implement the model (Jones et al., 2016). There are also performance payments and bonuses based on health care use and quality measure attainment. Improving patient experience and self-management approaches through enhanced medical visits and the use of community-based support resources has accentuated the focus on *people-centered care*. Over the last few years, the state made payment system changes aimed at moving primary care practices away from fee-for-service and toward prospective risk-adjusted payments. A statewide all-payer accountable care organization (ACO) sustains initial implementation of elements of this model, provides incentives for attainment of population health goals, and reduces cost growth (NORC, 2021).

Augmenting the move toward advanced primary care, each HSA established community health teams to support broader provision of work on *upstream factors* that drive community health. Community health teams support practices to identify and address the root causes of health issues through behavioral health integration and screening for the social determinants of health. The teams spend considerable effort at the HSA level to connect patients with effective community interventions, support people in managing their chronic conditions, and catalyze community-wide well-being initiatives. Community health teams include community health workers, dietitians, care coordinators, panel managers, behavioral health managers, and nurses. In addition, the community health teams are integrated into teams with a broader mandate which are intended to provide whole health service, including home-based services, food security initiatives, housing resources, and connections with other state and local agencies. HSAs receive funding from commercial and state insurance to staff these community health teams at between $2 and $3 per person per month. Given the significant and community-identified challenges around substance use disorders and access to women's and reproductive health, Vermont Blueprint for Health has increased its emphasis on providing care in these areas (Bitton, 2022).

Community health dashboards exist for each of the HSAs and offer baseline and iterative data on population demographics as well as on the performance of the community-led strategies, providing *equity and accountability*. These profiles are based on data from Vermont's all-payer claims database and other reporting systems as well as on data from commercial Medicaid and Medicare payers. Finally, through a Center for Medicare and Medicaid Innovation program, Vermont has now added a statewide all-payer ACO model to catalyze further payment and delivery transformation with the hope of improving health and reducing spending. This program provides the flexibility for Vermont to implement an all-payer approach that moves away from fee-for-service payment toward global spending targets and prospective payment in service of whole health goals (Bitton, 2022).

Evidence Summary

A 6-year, sequential, cross-sectional analysis from 2008 to 2013 compared the annual cost, usage, and quality outcomes for people attributed to 123 practices participating in the program versus a comparison population from each year attributed to nonparticipating practices (Jones et al., 2016). After the second year, people seen in participating practices had significantly higher rates of adolescent well-care visits, breast cancer screening, cervical cancer screening, appropriate testing for pharyngitis, and, for people with diabetes, eye exams, A1c testing, lipid testing, and nephropathy screening. The rates for imaging for low back pain, treatment of upper respiratory infection, and well-child visits were not significantly different (see Table 5-6). A financial analysis using a difference-in-difference approach revealed statistically significant reductions of approximately $482 in total medical expenditures per person for model participants, with the savings driven primarily by decreases in inpatient spending (Jones et al., 2016). As was intended, Medicaid beneficiaries had a statistically significant higher rate of spending on social, dental, and community-based support services (Jones et al., 2016). Overall expenditures over a 2-year period fell by $104.4 million, driven largely by reduced spending for inpatient care, and total expenditure decreased by $5.8 million for every $1 million spent on the program.

NATIONAL INTREPID CENTER OF EXCELLENCE

The U.S. Armed Forces is the world's third largest military and has deployed 2.8 million troops since September 11, 2001, for operations Enduring Freedom, Iraqi Freedom, and New Dawn (DeGraba et al., 2020). This extensive troop deployment has led to an unmet need within the military and civilian health delivery systems to help veterans with traumatic brain injury (TBI) and comorbid psychological health conditions (Inoue et al., 2022). The Department of Defense established the National Intrepid Center of Excellence (NICoE) in 2010 to meet the needs of service members of all branches, including the National Guard and reserves (DeGraba et al., 2020). NICoE treats service members with comorbid TBI and psychological health conditions that have not responded to previous treatment or for whom extensive treatment options are not available at their home stations. The program is further detailed in Chapter 4.

NICoE is an interdisciplinary intensive outpatient program. It combines conventional rehabilitation therapies and integrative medicine techniques with the goal of reducing morbidity in multiple neurological and behavioral health domains and enhancing military readiness (Singman, 2021). Those who are referred to the program have a robust intake evaluation from the interdisciplinary team, including a head-to-toe evaluation and state-of-the-art screenings and imaging (Foote and Schwartz, 2012). After a period of comprehensive care, NICoE then works to successfully transition the service member back to their home station. A discharge summary with all evaluations, treatments, treatment plans, and goals is provided to the patient and clinician (Ayer et al., 2015). Care at NICoE differs from conventional care in that it includes alternative treatment options, such as group counseling, psychoeducation, yoga, tai chi, and canine programs (DeGraba et al., 2020).

Evidence Summary

In 2013 researchers fielded surveys and conducted site visits and interviews with 184 clinicians and 311 former NICoE patients from the Bethesda, Maryland center (Table 5-7). Respondents reported that NICoE treats the most severe cases and that a disproportionately large number of those referred are active service members, especially Navy SEALs and other special forces, who require more discretion and deploy more frequently (Ayer et al., 2015). Patients expressed low levels of satisfaction with their usual source of care prior to referral to NICoE due to long wait times for appointments, staff shortages, and having no access to complementary and alternative medicine treatment modalities. Patients expressed positive opinions about the value of care, the facility's care model, and the involvement of family members in care. Referring clinicians from smaller rural sites, who provided usual care, viewed NICoE as an extremely valuable resource, although many other usual-care clinicians did not perceive a significant difference between the type of services offered at home stations and NICoE. Usual-care clinicians gave positive feedback on discharge planning process but noted some gaps in communication about patient progress while treatment was being delivered.

In a prospectively planned pretest–posttest analysis of people referred to the program from 2011 to 2019, 91 percent of people consented to include their data in the analysis (Table 5-7) (DeGraba et al., 2020). There were statistically significant and clinically meaningful improvements in differences across seven symptom inventories administered to all participants. Benefits were maintained for all but one outcome measure at 1, 3, and 6 months after discharge from the program. The symptom inventories included the Neurobehavioral Symptom Inventory (NSI), PTSD Checklist-Military (PCL-M), Satisfaction With Life Scale (SWLS), Patient

Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), Epworth Sleepiness Scale (ESS), and Headache Impact Test-6 (HIT-6).

NEW ZEALAND'S CANTERBURY HEALTH PATHWAYS

The Canterbury, New Zealand, district health board plans and provides services using a whole health system approach in partnership with health service providers, communities, and the wider New Zealand governmental agencies. It aligns itself with a clinical care network, a charitable trust, and an alliance of district health boards across the South Island of New Zealand. Its mission is to create and improve a health system and community of people taking greater responsibility for their own health, staying well in their homes and community, and receiving timely care.[13]

Canterbury's journey toward integrated care began in 2007 after it had experienced bottlenecks in acute inpatient and emergency department care (Timmins and Ham, 2013; World Bank and WHO, 2019). Primary care physicians and general practitioners were a main early focus of this work, which used new agreed-upon clinical standards and referral pathways as well as district-level support outside of practices. These new services were built around a contracting alliance for standard care protocols as opposed to the previous fee-for-service visit billing. Canterbury is well known for HealthPathways, a set of approaches based on consensus-based agreements about best practices for person-centered and comprehensive care created among general practitioners, specialists, and hospital providers (Timmins and Ham, 2013). Initially developed as a focused project to reduce referral waiting time, HealthPathways has grown to be the centerpiece of an integrated approach to health which includes resources and practitioners outside of conventional medical care and inclusive of other realms where health is created (Figure 5-1).

The HealthPathways approaches are a centerpiece of *comprehensive and holistic care* in the system. Consumer, patient, and community perspectives informed their development and management, and these, along with a clear vision concerning improved self-management of health, make them a paragon of *people-centered care*. Furthermore, after the creation of the agreements and pathways below, much effort was given to enumerating and supporting *team well-being* across the care continuum. The pathways have increasingly but not substantially started to focus on *upstream factors* by including a whole-of-government approach aligned with the national health strategy. Their greater focus on *equity* is apparent, especially for Māori and Asian populations, though much work remains to be done.

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[13] Additional information is available at https://www.cdhb.health.nz/about-us/vision-mission-values/ (accessed December 13, 2022).

FIGURE 5-1 Pictogram of health care system in Canterbury.
SOURCE: Timmins and Ham, 2013.

Evidence Summary

Several observational studies compared the performance of the New Zealand Canterbury system with other regions of New Zealand between 2008 and 2017 (see Table 5-8) (Gullery and Hamilton, 2015; McGeoch et al., 2019; World Bank and WHO, 2019). These studies report that there are between 15,000 and 35,000 people referred to the program per year. Between 2008 to 2014 the acute demand management system resulted in a 30 percent lower annual hospitalization rate in Canterbury than in New Zealand as a whole, and the timely discharge to rehabilitative services resulted in a 14 percent reduction in long hospital stays (over 24 days) for people over 75 years old. Compared with before the program started, there was a reduction in the surgical waitlist, as more people were able to access needed care. Additionally, more people over the age of 75 years were able to age in their home, resulting in a reduction in the proportion of people living in care homes from 16 to 12 percent between 2006 and 2013 (Gullery and Hamilton, 2015). Benefits were partially attributable to improved primary care workups and an increased speed of diagnosis by using HealthPathways (Timmins and Ham, 2013), and HealthPathways has now been deployed to more than 23 systems across Australia and New Zealand, highlighting the program's success and perceived value (Gullery and Hamilton, 2015).

AUSTRALIA: SOUTH AUSTRALIA HEALTH IN ALL POLICIES/INTEGRATED CARE ADELAIDE

South Australia is an Australian state with a population of 1.6 million people predominantly living in and around Adelaide. It has a relatively high life expectancy and health outcomes, though notable inequities exist especially among its Aboriginal and Torres Strait Islander populations. Based on previous work done at both the WHO and the European Union on the concept of Health in All Policies (HiAP), the South Australian government adopted an HiAP model that built on its history of public policy experimentation and innovation (Baum et al., 2019). In 2007 the Department of Health and Ageing established a dedicated department and sequentially created a set of HiAP processes (Baum et al., 2019). Links were made between the executive premier's office and the Department of Health and Ageing in order to coordinate intersectoral processes and policies (Government of South Australia and WHO, 2017). Key steps in establishing this HiAP approach were endorsement at the executive level followed by a set of agreements staking out shared responsibilities and collaborations and the creation of the cabinet-level task force on key priorities (Government of South Australia and WHO, 2017).

In 2011 the South Australian Public Health Act offered new governance mechanisms and legislative pathways for the HiAP unit to create additional levers and formalize cross-sector collaboration around *upstream factors* that affect health (Williams and Galicki, 2017). Further work established performance and accountability mechanisms for this work and assigned them to the chief executive branch. The HiAP office was staffed using relatively small amounts of funding totaling less than $1 million per year (Baum et al., 2019). The office's areas of focus included upstream factors to address social determinants of health within and outside of the formal health care sectors. In addition, communities of practice were established along with policy impact evaluation capacities (Government of South Australia and WHO, 2017). Work conducted by the HiAP office included establishing improved licensing mechanisms for Aboriginal drivers in order to offer wider driving training and reduce the unlicensed driving that had been associated with higher road accidents (Government of South Australia and WHO, 2017). Other projects included working with business communities on sustainable regional community development with mining entities and establishing broader investments in healthy park systems for outdoor recreation with the environmental department. Later areas of focus included access to more nutritious food for children along with new approaches to incorporating health and well-being planning into urban environments (Williams and Galicki, 2017). This iterative approach to intersectoral policy making that incorporated a health lens but was not bound to a health care approach resulted in a number of clearly documented policy changes across a variety of sectors (Baum et al., 2019).

In parallel, the South Australian government invested in integrated care services by adopting best practices from inside and outside of Australia and by creating an independent government agency in 2020 known as Wellbeing SA to lead cross-government and cross-sector strategies concerning health and prevention. In some ways this agency grew out of the HiAP approach, but it also represented further integration with established health care systems and a focus on partnering, prioritizing, and delivering evidence-based approaches to improve the integration of community-based health care and improve overall population health (Wellbeing SA, 2022). Currently, its specific areas of action are in mental health and suicide prevention, integrated care for chronic disease, and maternal health. Integrated approaches for *comprehensive and holistic care* include adapting the HealthPathways models from New Zealand to the South Australian context and creating advanced primary care practice capacity and networks (known as health care homes) to provide better coordinated, more supportive *people-centered care*. Finally care integration is promoted through care connection models to improve coordination across the continuum of care and through home hospital models to deliver acute care services at home instead of in the hospital.

Evidence Summary

The evaluation of the South Australian model has focused more on the outcomes for HiAP than on the integrated health care services (see Table 5-9). A mixed-methods evaluation consisting of qualitative analysis, quantitative analysis, policy analysis, and survey instruments was conducted between 2012 and 2016 with the results reported in three publications (Baum et al., 2019; van Eyk et al., 2017; Williams and Galicki, 2017). Data sources included 918 public servant interviews, 5 document reviews, 144 key informant interviews, and 2 workshops. Investigators reported an increase in public servants' awareness of the health impacts of their agencies' policies. Of participants, 55 percent reported that they better understand the link between their department and social determinants, and 53 percent agreed that collaborations between policy and health increased their understanding of equity. However, participants said that the initial intentions to address equity were only partially enacted and that little was done to reduce inequities due to government narrowing its priorities to economic goals. Using a program logic model to identify and organize the data against the three most relevant components of the model that link to the anticipated program outcomes, the authors report likely improved overall population health (Baum et al., 2019). Other governmental reports also came to similar conclusions (Williams and Galicki, 2017).

SPAIN'S BASQUE COUNTRY INTEGRATED CHRONIC CARE MODEL

The Basque Country is an autonomous community in Northern Spain with a population of approximately 2.2 million people. Health organization and planning powers rest with the Ministry of Health, while the provision of public health care services is the responsibility of the Basque Health Service known as Osakidetza. In 2010 the health system created an integrated care strategy to manage the challenge of rising chronic diseases, focusing on five areas: (1) a population health approach that used risk stratification methods to identify targeted patients with chronic conditions; (2) prevention and health promotion efforts aimed at addressing risk factors for these common prioritized chronic conditions such as heart failure, diabetes, and chronic obstructive pulmonary disease; (3) an emphasis on self-management approaches to achieve better self-care in the community using a patient autonomy framework as well as patient networks of people who shared conditions in common; (4) integrated EHRs, along with standardized care pathways, referral mechanisms, and connections to social care, accentuating both continuity and coordination of care; and (5) electronic visits and e-prescriptions, which allowed more connection to patients in the community and research on care innovations to occur (Rosete and Nuno-Solinis, 2016).

By the end of the first phase of integration, a total of 13 integrated health organizations had been built across the Basque Country. The integration efforts focused primarily on making *people-centered care* more available throughout the Basque Country, and they used novel organizational and funding mechanisms to provide a wider array of *comprehensive and holistic care*, particularly for patients with complex needs. Complex care management and the transitions of care strategies were emphasized, and more comprehensive approaches were taken inside and around primary care settings to improve the continuity and coordination of care in the five areas identified above. Both centralized and local approaches were used iteratively in recurrent cycles of quality improvement (Polanco et al., 2015).

Evidence Summary

Three studies in five publications describe the outcomes of implementing the integrated care model (see Table 5-10). The first was a case study of the Bidasoa Integrated Health Organization (Polanco et al., 2015; Rosete and Nuno-Solinis, 2016). In this evaluation, 80 to 122 clinicians were surveyed annually between 2010 and 2013, and organizational quality metrics were compared pre- and post-implementation (2014 vs. 2011). Clinicians reported improvements over time in the organization of health systems, the health care model, self-management, clinical decision support, information systems, shared goals, the patient-centered approach, mutual knowledge, trust, strategic guidelines, and shared and supportive leadership. However, they did not report improvements in community health. Clinical quality measures showed that over 4 years, hospital admissions fell by 7 percent, and hospital readmissions decreased by 24 percent. Specifically, there was a 16 percent reduction in adverse event admissions, 10 percent reduction in ambulatory care sensitive admissions, and a decrease in mental health hospital readmissions within 30 days from 16 to 7 percent (Polanco et al., 2015; Rosete and Nuno-Solinis, 2016). These improvements were even more pronounced in patients with chronic or multiple complex conditions, with a 38 percent reduction in hospital use and a 31 percent reduction in adverse event admissions.

A second evaluation used a quasi-experimental design and compared 200 patients with complex needs, age 65 years and older, with two or more chronic conditions who were registered in four health systems that implemented the Carewell program with matched patients in two health systems that had not implemented the program (Mateo-Abad et al., 2020). Patients from the Carewell health systems had fewer emergency room visits (0.3 vs. 1.3 percent, $p<.001$), more primary care visits (12.2 vs. 9.6, $p=.041$), and more phone meetings (6.7 vs. 3.6, $p=.002$). There were also non-statistically significant trends toward reductions in weight, glucose, and blood pressure.

During the COVID-19 pandemic, interviews with 20 system stakeholders indicated that health integration processes that have been in place for nearly a decade resulted in improved resilience and flexibility of the health care system in the face of health shocks (Izagirre-Olaizola et al., 2021). The integration of primary care into the program was key for success, but primary care needed even more resources than it had been allocated. Telehealth allowed for more care delivery. Despite growing social needs, social care remained poorly integrated into the model.

GERMANY'S GESUNDES KINZIGTAL MODEL

Gesundes Kinzigtal is a health care management company in the Southwest German Black Forest area that was launched in 2005 to care for members in its region. The company is structured as a cooperative agreement among a large physician network called MQNK, a health management and services company called OptiMedis AG, and two large statutory health insurers in the region (Hildebrandt et al., 2010). The Kinzigtal model focuses on integrating health and social services through a novel private partnership to improve patient experience and population health outcomes and to reduce the overall cost of care. The Kinzigtal entity allows the two insurers and the health care management company to establish contracted shared savings initiatives to provide incentives to better manage care, improve cross-sector integration, and reward improved outcomes instead of usage volume (Marill, 2020).

A majority of doctors in the area and about one-third of eligible patients participate in the program (Marill, 2020). Cost benchmarks which include all national age and health-adjusted costs help mitigate the risk of selecting healthier patients into the program. The success of the program has allowed investments in non–health care infrastructure to promote *comprehensive and holistic care* such as gyms, health academies where patients engage in education classes, and group sessions for amplifying the ability of people to manage common chronic conditions together outside of the medical arena. The doctor network has incentives to stay involved, such as the doctors' two-thirds stake in the company. Physicians have used the savings to build extra time into their schedule to engage in broader conversations around shared decision making as well as to hire other health professionals such as nurses, physiotherapists, and social workers to help patients achieve their self-management goals (Marill, 2020). In fact, *team well-being* has been an important emphasis of the initiative. However, its voluntary basis and position in a relatively wealthy region of Germany means that a focus on community *equity* has not been the mainstay of the program. Furthermore, while there is connection to integrated social services, there has been less emphasis on addressing *upstream factors* through intersectoral approaches aligned with government or other areas, although health behavior and mental health needs are an important part of the program.

Evidence Summary

Five key publications review the use of the Gesundes Kinzigtal program and its impact on quality, hospitalizations, and cost (see Table 5-11). An early evaluation on the use of the program reported that in 2010 about 31,000 of the 60,000 residents of Kinzigtal participated in one of the Gesundes Kinzigtal insurance programs and 6,870 residents had enrolled in the integrated care model (Hildebrandt et al., 2010). The numbers of members who enrolled by program included heart failure (67), lifestyle intervention (122), smoking cessation (128), active health for elderly (511), therapy for personal crisis (126), prevention osteoporosis (455), social case management (78), diabetes (830), coronary artery disease (288), breast cancer (18), asthma (100), chronic obstructive pulmonary disease (154), patient university (1,070), and nursing home medical care (124). Despite success in this region, there was poor dissemination to other regions in Germany until 2017 when the program was extended to two low-income neighborhoods in Hamburg which have a large immigrant population, a high rate of chronic disease, and low health literacy (Marill, 2020).

Two independent analyses compared outcomes for people in the Gesundes Kinzigtal program with people in other regions of Germany who were insured by the same insurer but not in the integrated care model (Schubert et al., 2016b, 2021). The first study, which reported on results between 2004 and 2011, found greater improvements in two of five indicators of overuse (long-term NSAID use and inappropriate medications for vascular dementia) and greater improvements in 2 of 10 indicators of underuse (antiplatelet drugs for heart disease and diabetes patients with eye exams) (Schubert et al., 2016b). Additionally, from 2007 to 2011 people in the integrated care program had a lower risk of osteoporotic fracture (hazard ratio [HR] 0.81; 95% CI: 0.74–0.89; $p < .001$) and a lower risk of death (HR 0.94; 95% CI: 0.90–0.99; $p < .019$) than the comparison group, but no difference in preventable hospitalizations. The second 10-year evaluation, carried out between 2006 and 2015, found that out of 101 quality indicators there was no difference seen for 88 indicators, positive differences seen for 6 indicators, and negative differences seen for 7 indicators for people in the integrated care model versus those not in the program (Schubert et al., 2021). The authors concluded that, overall, there was neither a positive nor negative trend in health care indicators seen over time compared with the control group. However, in the setting of notable shared savings and reduced cost, the fact that there was no decrease in quality compared with more expensive usual care may be significant.

A case study describing the successes of the program reported a net savings of almost $20 million from 2007 to 2018, decreased avoidable hospitalization rates, and increased life expectancy (Marill, 2020). However, the magnitude of benefit and statistical significance were not reported, and the original studies referenced were in German and were not verified. In 2013 and 2015, over 3,000 integrated care model program members were surveyed about their experiences, with about one-quarter completing the survey (Siegel and Niebling, 2018). Over 90 percent of surveyed participants said they would likely or would definitely recommend this model to others. From 2013 to 2015 patient satisfaction and quality of life (measured by EQ-5D) were both very high but did not change over the 2-year period. The proportion of respondents who felt they lived an overall healthier life did increase over the 2 years from 25.6 30.7 percent (p=.020), consistent with a model focus on patient activation and motivation for better self-care (Siegel and Niebling, 2018).

COSTA RICA'S EBAIS COMMUNITY-BASED PRIMARY CARE MODEL

Costa Rica is an upper-middle-income country in Central America with a population of approximately 5.1 million people. In 1994 the Equipo Básico de Atención Integral de Salud (EBAIS) model was started (VanderZanden et al., 2021). This approach builds multidisciplinary care teams assigned to a geographically empaneled group of people in each area across the country. Each team includes a doctor, a nurse, a technical assistant who acts as a community health worker, a medical clerk, and a pharmacist who provide comprehensive acute, chronic, and preventive care, both at a clinic and in homes within the community. The average team cares for approximately 4,500 patients and is located within a health area that serves between 30,000 and 100,000 people (Pesec et al., 2017). EBAIS teams conduct regular proactive population outreach, visiting each household at least once a year to conduct social, demographic, and other health needs surveys as well as to register patients and their families in a geolocated electronic health record that is available on mobile platforms in a secure manner (VanderZanden et al., 2021). This integrated health record is used to help track and improve the care journey for patients as they access *people-centered care* across each different layer of the health care system. In addition, the integrated record stores both health care and social information, often enabling teams to be able to jointly address both health care and *upstream factors* in their visits either at home or in the clinic (PHCPI, 2022).

EBAIS teams also regularly conduct health education and integrated social referrals with other social agencies, enabling the patients and communities to have a single point of contact for most of their health and social needs. The model, which has been continually improved over the past three decades, is able to provide *comprehensive and holistic care* for the entire population, including previously marginalized members of Indigenous communities who live in rural areas and undocumented migrants who live primarily in your urban areas (Bitton et al., 2019).

Evidence Summary

Outcomes regarding effectiveness, efficiency, and patient experience have generally been positive (see Table 5-12). A report from the Commonwealth Fund followed national trends in Costa Rica from 1994 to 2019 (VanderZanden et al., 2021). The report compared change over time in Costa Rica versus other countries. Since being implemented more than three decades age, there have been clear improvements in access to care. In 2019, it was found that there were 1,053 EBAIS teams and 106 support teams, which provided more advanced behavioral health and social services care. More than 94 percent of the population in Costa Rica was empaneled and on average there was one EBAIS team per 4,660 citizens. These EBAIS teams provided 80 percent of care for health needs (Pesec et al., 2017). Between 1990 and 2010, deaths from communicable disease decreased from 65 per 100,000 to 4.2 per 100,000. There was an 8 percent reduction in infant mortality and 2 percent reduction in adult mortality. In 2016, health care spending was 7.6 percent of gross domestic product, substantially lower than the world average of 10 percent. To address equity, the first EBAIS teams were established in regions with poorer access to care and throughout the program, nearly one-third of funds go to the poorest 20 percent of the population. As a result, health equity in Costa Rica rivals that of the top performing countries in the world, and chronic disease outcome measures show high levels of control (Bitton, 2022).

Multiple literature reviews and summaries have compared Costa Rica's national trends with other countries and have verified these findings (Gawande, 2021; Pesec et al., 2017; PHCPI, 2018; Spigel et al., 2020; Unger et al., 2008). These reviews have confirmed that Costa Rica has the third-highest life expectancy in the Americas; that there has been a 25-year decline in maternal mortality (current rate 25/100,000 live births), infant mortality (current rate 8.5 per 1,000 live births), and mortality among children under 5 years (9.7 per 1,000 live births); and that Costa Rica spends less on health care per capita than the world average ($970 USD per person per year). Compared with the United States, the middle-aged death rate (adjusted for health and social factors) is 30 percent lower in Costa Rica (Gawande, 2021).

FINDINGS AND CONCLUSIONS

In the chapter the committee identified and reviewed system-level evidence from 12 promising whole health care approaches. It is clear from this review that whole health systems are greater than the sum of their parts, requiring a holistic vision rather than the mere addition of multiple isolated interventions. It is also evident that efforts to develop, refine, and iterate whole health systems in the United States and internationally are nascent. Despite the early nature of the field, the committee did find substantially more examples of whole health care and published evidence about outcomes than expected. While different studies in the published literature measured different outcomes and no single whole health approach demonstrated, or even measured, all the benefits listed below, the committee found evidence across the 12 approaches that whole health care had multiple benefits, including

- Better patient care experience and improved patient-reported outcomes
- Increased access to care, reduced emergency room use, and fewer hospitalizations
- Improved clinical quality metrics
- Improved outcomes for specific conditions such as management of chronic pain, mental health, traumatic brain injury, and healthy aging
- Reduced maternal and infant mortality
- Improved health equity
- Promotion of team well-being
- Some reductions in health care expenditures

Across this evidence several common themes emerged:

1. While whole health systems share many foundational elements, how these elements are designed is, out of necessity, tailored to the local environment and resources as well as to the preferences and needs of the people served.
2. At the core of a whole health system is a clear and identified approach to strengthening primary care (and primary health care) that includes comprehensive, team-based advanced primary care that is integrated with public, behavioral, and mental health care

to be people-, family- and community-centered and to value and support the whole person.

3. The unit of change, when it comes to developing a whole health system, should be the region served. Whole health systems, by design, aim to break down the walls that exist between medical care, mental health, public health, community programs, and social services across a region and not just for the people who seek care.
4. Whole health systems require robust and sustained financing mechanisms that pool risk so that a system can support integrated care that is often, but not always, publicly financed.
5. Many whole health systems need a more thoughtful and calculated equity strategy and approach that incorporates addressing upstream factors as drivers of inequitable and unacceptable poor outcomes.
6. Team well-being, especially in the wake of the high burnout rate resulting from the COVID-19 pandemic, is an oft-neglected foundational element of whole health systems.
7. Systematic evaluations of how whole health care is implemented are scarce, often limited in the methods used and outcomes studied, and rarely longitudinal, which makes it challenging for systems to evolve and learn.

What is clear from this chapter is that there is a need for more evidence about whole health care. Because the scale and spread of effective whole health care approaches will take fundamental and seismic changes to the structures, processes, and goals of how the nation thinks about and cares for people, it will be essential for public and private systems fielding a whole health approach to evaluate how they implement whole health care and its outcomes, continually learn from and adapt its approach, and broadly share findings so that all can benefit from the new knowledge. Several gaps will need to be addressed to accomplish this goal. First, there is an absence of common measures around which to evaluate the evidence of achievement of whole health and whole health care. Conventional biomedical measures of success—or even of cost—fail to capture the important elements of whole health care and what it can achieve. More research will be needed to identify and develop more appropriate measures of success.

Second, more funding will be needed to study how best to deliver care or implementation science. This funding can be applied to studying whole health care approaches. The National Institutes of Health (NIH) are provided with more than $45 billion annually to develop new cures for disease, the Centers for Disease Control and Prevention receive more than $8.25 billion to study public health, and the Food and Drug Administration is funded over $6 billion to study drug safety. While NIH's implementation science program has some direct applicability, and public health and drug safety are needed for whole health care, the only public agency with a mission focused on how care is delivered is the Agency for Healthcare Research and Quality, which receives only $500 million in annual funding. Without rebalancing these funding priorities, at least to some degree, collective knowledge about how to best deliver care and implement change will be limited.

Third, studying how care is delivered is difficult. Traditional study designs that limit the risks of bias, like randomized controlled trials, are difficult to apply to transforming health systems, particularly given the need for whole health to include multiple sectors such as health care, public health, community programs, and social services. A range of research methods and disciplines, on a large scale, with coordinated efforts will be needed to measure the outcomes of whole health care transformations.

Finally, little has been written to date about designing a whole health system for sustainability. This will necessarily require the development of measures of costs of implementing whole health systems and their impact on overall health system costs. There is a growing body of evidence suggesting that sustainability must not be an afterthought; from the start, whole health systems need to be designed to endure with the ability to adapt and evolve over time. It is abundantly clear from the above case studies that whole health systems, once implemented, must constantly evolve to meet the continually changing needs of the people, communities, and families they serve, and to respond to an ever-changing environment. More thinking, knowledge generation, and research is needed to consider how best to design and support whole health systems to be able to adapt, as this will be inevitable.

EVIDENCE SUMMARY TABLES

TABLE 5-1a The Veterans Health Administration—Use and Implementation of Whole Health Services

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
VHA early implementation and utilization—patient experience (Marchand et al., 2020)	A large VHA Whole Health flagship site with a 121-bed tertiary care center and outpatient clinics	Retrospective observational cohort analysis of EHR and referral data conducted during the first 20 months of Whole Health implementation (2018–2019)	First 559 veterans referred to VHA Whole Health program which includes a pathway to engage veterans in care, partnership from peers, and well-being programs	Veterans receiving usual primary care	Of those referred: 73% had a service-related disability 47% had 9 or more medical needs 54% had mood disorders 42% had PTSD Those referred were more likely to be younger, female, members of underrepresented minorities, and service connected Implementation challenges included: Disproportionate numbers of referrals from a few clinical services—primary care and Whole Health programs Poor initial and ongoing treatment engagement, with almost half of referred veterans not initially engaging The average number of sessions attended was also low	Selection bias from early adopters and referrals to Whole Health program Limited generalizability to other VHA Whole Health flagship sites or other health systems

VHA early implementation—staff experience (Haun et al., 2021)	VHA Whole Health model implementation in 18 design sites and 18 flagship sites	Cross-sectional semi-structured interviews, observations, and document analysis based on Consolidated Framework for Implementation of Research Constructs (2018)	45 staff and clinicians from 5 design sites and 1 flagship site who are providing Whole Health in the VHA	None	Implementation was a complex process, but clinicians and leadership were engaged and motivated and steps were taken to engage veterans Facilities varied in the degree to which Whole Health was implemented. Factors identified that influenced implementation including: Progressive culture, including early adopters who integrated Whole Health in their personal life Recognition of a change in focus of care Leadership support Resources (facilities, hiring, funding) Collaboration among interdisciplinary team members Agreed upon policies and procedures Standardized measures	Pilot study with potentially limited generalizability Selection bias from sites sampled on a volunteer basis and interviewees through purposive and snowball sampling
Whole health use and interest across veterans with co-occurring chronic pain and PTSD (Reed et al., 2022)	18 VHA Whole Health medical center flagship sites	Retrospective observational cohort study (2019–2020)	1,698 veterans with co-occurring chronic pain and PTSD	4,170 veterans with chronic musculoskeletal pain only	Of veterans with chronic pain and PTSD 40% used core whole health services 53% used complementary and integrative health Of veterans with chronic pain only 28% used core whole health services 40% used complementary and integrative health	Inclusion of all veterans with diagnoses limits risk for bias

continued

TABLE 5-1a Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Whole health efforts during the pandemic (Dryden et al., 2021)	Whole health system leaders	Semi-structured interviews (2020)	61 leaders at 18 VHA medical centers	None	Sites embraced whole health approach during pandemic conducting patient wellness calls, and, for patients and employees, promoting complementary and integrative health therapies, self-care, and concepts to combat stress and support well-being	Report on intentions and not actual use of programs Observations at one time early in pandemic
Patient-centered behavioral services for women veterans with mental health conditions (Pebole et al., 2021)	Female veterans using VHA mental health care services	Convenience sample survey (2018–2019)	107 female veterans	None	Over 50% endorsed relationships, physical activity, pain management, sleep/nightmares, spiritual/moral pain, or anger as top wellness priorities Preferred site to receive services: Main VA facility: integrative medicine (50%), pain (61%), sleep (60%), anger (60%), sexual health (57%) Community facility: physical activity (52%) Remote-based options lowest endorsed	Number of surveys distributed, characteristics of nonrespondents, and the response rate were not reported Geographic focus on one city
Complementary and integrative approaches offered at VHA	VA medical centers and community-based outpatient clinics	National organizational survey (2017–2018)	196 clinicians from 289 VHA sites participated 63–91% response rate depending on region	None	Sites offered an average of five approaches (range 1–23), and 63 sites offered 10 or more approaches Relaxation techniques, mindfulness, guided imagery, yoga, and meditation were most frequently offered	Self-reported availability of programs

(Farmer et al., 2021; Whitehead and Kligler, 2020)					Mostly offered in physical medicine and rehabilitation, primary care, and integrative/whole health programs	

TABLE 5-1b The Veterans Health Administration—Outcomes of Whole Health Services

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Evaluating the impact of VHA's implementation of the Whole Health System of Care on the flagship sites (Bokhour et al., 2022)	114,397 veterans with chronic pain at 18 VHA Whole Health medical center flagship sites	Retrospective observational cohort study (2017–2019)	6,594 veterans who initiated whole health services 3,266 veterans completed a baseline and 6-month survey	107,763 veterans who did not use whole health services	Decrease in opioid dose in 18 months 11% (95% CI: –12.0 to –9.9) for conventional care 23% (95% CI: –31.9 to –6.5) for use of 2 Whole Health services 26% (95% CI: –30.9 to –18.4) for use of intensive complementary and integrative health 38% (95% CI: –60.3 to –14.4) for use of intensive core Whole Health Survey respondents reported greater improvements in perceptions of care, engagement in health care, self-care, life meaning and purpose, pain, and perceived stress	Selection bias from willingness/interest in being referred to whole health program

continued

TABLE 5-1b Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Mindfulness-Oriented Recovery Enhancement (MORE) (Garland et al., 2022; Roberts et al., 2022)	250 primary care patients with co-occurring opioid misuse and chronic pain in Salt Lake City Utah	Randomized controlled trial (2016–2020)	129 veterans received training in mindfulness, reappraisal, and savoring positive experiences 8 weekly, 2-hour, group mindfulness sessions	121 veterans received supportive group psychotherapy	Odds ratio for reduction in opioid use at 9 months for mindfulness-oriented recovery enhancement group compared with the supportive psychotherapy group was 2.06 (95% CI, 1.17–3.61; p=.01) At 3 months, compared with the support group, the MORE group had Greater reductions in emotional distress on the Depression Anxiety Stress Scale (β = –0.263, p=.034) Greater self-regulation of distress (β = 0.335, p=.001)	RCT lowers risk of bias Unknown whether observed reduction in opioid use translates to health outcomes
Health Coaching and Quality of Life (Purcell et al., 2021)	88 veterans enrolled in the VHA Whole Health Coaching Program in Northern California	Mixed-methods pre–post quality-improvementevaluation of surveys (n=65) and interviews (n=42) (2019)	Structured program to support veterans in making healthy behavior changes	None	Improvements in 3-month vs baseline PROMIS-10, PSS-4, and PHCS-2 scores for: Mental health (12.58 vs 11.74, p=.006) Stress (5.34 vs 6.54, p=.003) Health competence (7.88 vs 6.80, p=.01)	Selection bias from willingness/interest in program. No comparators

TABLE 5-2 The Nuka System of Care (Southcentral Foundation)

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
The Nuka System of Care: improving health through ownership and relationships (Blash et al., 2011; Gottlieb, 2013; SCF, 2017)	Over 60,000 Alaska Natives and American Indians in Anchorage Alaska	Observational cohort analysis of annual satisfaction surveys and quality measures (1996–2013)		Prior system of government managed tribal health care Change over time	Compared with prior government managed care, access Increase in people with a primary care provider from 35% to 95% Improved access from 4-week wait to same day access Reduction in people on behavioral health waitlist from 1,300 to 0 Quality Improved diabetes monitoring from 78% with A1c in 2007 vs. 92% in 2009 Improved childhood immunization rates from 80% in 1998 to 93% in 2006 Increased colorectal screening rates from 49% in 2008 to 59% in 2009 42% reduction in emergency room use 36% reduction in hospital days 58% reduction in specialist use	Limited description of methods for data Statistical significance not reported Time periods for data comparisons sometimes unclear Citations to primary sources are non-functional links

continued

TABLE 5-2 Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
					Team well-being Improved staff retention from 60% in the early 2000s to 83% at publication	Limited description of methods for data
						Statistical significance not reported
						Time periods for data comparisons sometimes unclear
			In 1999… Shift to customer ownership to design, implement, and control health care			Citations to primary sources are non-functional links
Process and outcomes of patient-centered medical care (Driscoll et al., 2013)	Up to 48,043 Alaska Natives and American Indians in Anchorage Alaska	Time-series analyses of emergency care use from medical record data (1996–2010)	Built relationship with community Invested in primary care Provided prepaid services Team-based care Patients matched to comprehensive care team Open access	Change over time	Monthly emergency room use overall decreased from 2000 to 2006 and leveled off from 2006 to 2010 (p<.001) Bimonthly emergency room use for asthma decreased from 1998 to 2005 and then leveled off from 2005 to 2010 (p<.001)	Pre–post with no external comparison

Tribal implementation of a patient-centered medical home model (Johnston et al., 2013)	Up to 47,464 Alaska Natives and American Indians in Anchorage Alaska	Time-series analyses of hospitalizations from medical record data (1996–2009)		Change over time	Proportion of people with one or more emergency room visit in a month decreased from 7.6% in 1996 to 5.8% in 2009 (*p* value not reported) Proportion of people with one or more hospital admission in a month decreased from 0.9% in 1996 to 0.7% in 2009 (p<.001)	Pre–post with no external comparison
Program to address adverse life experiences (Ray et al., 2019)	90 Alaska Natives and American Indians who completed the intervention	Propensity score-matched cohort analysis using retrospective electronic health record data (2012–2017)		90 propensity matched people who participated in other emotional wellness programs	36% reduction in total system visits (incidence rate ratio 0.64, 95% CI 0.49–0.84) 70% reduction in substance use visits (incidence rate ratio 0.30, 95% CI 0.10–0.93) 40% reduction in ED visits (incidence rate ratio 0.60, 95% CI 0.35–1.02)	Propensity matching lowers risk of bias

TABLE 5-3 Kitsap Mental Health Services Race to Health! Program

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Implementing a whole health model in a community mental health center (Bouchery et al., 2018)	Medicare clients at Kitsap Mental Health in Washington	Pre–post comparison of matched observational cohort (2009–2015)	846 people enrolled in the Race to Health! Program, an interdisciplinary team to address mental health, substance use, and nonpsychiatric needs	Matched cohort of 2,643 veterans	Difference of difference for first 2.5 years favored intervention group: Reduced Medicare expenditures by $266 per month ($p$<.01) 0.02 fewer hospitalizations per month (p<.01) 0.03 fewer emergency visits per month (p<.01) 0.13 fewer office visits per month (p<.04)	Selection bias from willingness/interest in program

TABLE 5-4 Advanced Care for Elderly (ACE) Programs

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Geriatric care management for low-income seniors: a randomized controlled trial (Counsell et al., 2007, 2009)	6 community health centers in Indiana	Randomized controlled trial (2002–2004)	474 seniors received home-based care by a nurse practitioner, social worker, primary care clinician, and interdisciplinary team using 12 care protocols for common geriatric conditions	477 low-income seniors received usual care	Overall, 2-year ED visit rate per 1,000 was lower in the intervention group (1,445 [n=474] vs. 1,748 [n=477], $p=.03$), but hospitalization rates were not different In a predefined high-risk group, ED visits (848 [n=106] vs. 1,314 [n=105]; $p=.03$) and hospital admission rates (396 [n=106] vs. 705 [n=105]; $p=.03$) were lower for intervention patients in the second year 4 of 8 SF-36 scales improved more compared with usual care: General health (0.2 vs. –2.3, $p=.045$) Vitality (2.6 vs. –2.6, $p<.001$) Social functioning (3.0 vs. –2.3, $p=.008$) Mental health (3.6 vs. –0.3, $p=.001$) Mean 2-year total costs were not significantly different between intervention vs. usual care for overall group ($14,348 vs. $11,834; $p=.20$) and high-risk group ($17,713 vs. $18,776; $p=.38$) Mean 2-year total costs were higher in the low-risk group ($13,307 vs. $9,654; $p=.01$).	Randomized design limits bias

Implementing GRACE team care in a Veterans Affairs medical center (Schubert et al., 2016a)	5 Veterans Association medical centers (VAMCs) in Indiana	Case–control study (2010–2011)	179 senior veterans discharged home from acute hospitalization from 4 VAMC clinics received a veteran-centric care plan	77 hospitalized veterans from a fifth VAMC clinic	Enrollment in GRACE was associated with: 7.1% fewer emergency visits (p=.59) 14.8% fewer 30-day readmissions (p=.19) 37.9% fewer total hospitalizations (p=.14) 28.5% fewer total bed days of care (p=.01)	Only outcome of total bed days of care is statistically significant
House Calls: California program For homebound patients (Melnick et al., 2016)	7,925 high-risk, high-cost post-acute patients enrolled in program following hospitalization	Observational cohort analysis (2009–2013)	Interdisciplinary teams develop a care plan, monitor patient, maintain contact with clinicians, and meet weekly to review progress	None	Comparing 6 months before enrollment, 6 months after enrollment, and 6 months after disenrollment: Fewer emergency visits per person (0.46 vs. 0.21 vs. 0.08) Fewer hospital days per 1,000 people (680 vs. 286 vs. 100) Lower health care spending ($1,768–2,673 vs. $965–$1,362 vs. $326–$453)	Minimal methods presented No tests of statistical significance No comparison group

continued

TABLE 5-4 Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Scoping review of Program of All-Inclusive Care for the Elderly (PACE) versus other care programs (Arku et al., 2022)	6 studies with a total of 12,746 adults participating in a care program	Scoping review included studies used cross sectional as well as retrospective and prospective cohort designs (2002–2013)	PACE provides comprehensive health and social services to community-dwelling older adults	Participants in other caregiving programs including Wisconsin Partnership Program, Medicaid long-term care, Visiting Nurse Service, Veterans Affairs, nursing home, aged and disabled waiver program	Studies comparing PACE to other programs have mixed results 2/3 studies showed PACE participants had worse or declining activities of daily living, 1/3 showed improvement 2/3 studies showed PACE participants had less hospital use, 1/3 showed no difference 2/2 studies showed increased use of community-based services utilization and adult day center visits 1/1 study showed no difference in pain, discomfort, or depression 1/3 studies showed increased mortality with PACE participation, 1/3 showed no difference, 1/3 showed longer survival with PACE	The 6 included studies were more descriptive limiting assessment for risk of bias Selection bias from who enrolled in PACE versus other programs No studies reported on missing data

TABLE 5-5 Mary's Center

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Mary's Center's Social Change Model (Galvez et al., 2019)	Federally qualified health center serving 55,000 people in Washington D.C., high proportion immigrants, women, low-income, uninsured or underinsured	Case study reporting use of services (2016)	Social Change Model adds wrap-around services to conventional care such as job training, behavioral health services, trauma informed care, educational services, pediatric dental suite, telehealth, home visitation services	Contemporaneous comparison of other FQHCs	61% of patients use Mary's Center exclusively for primary care Encounters were for primary care (74%), social services (4%), dental (13%), and behavioral health (10%) Receive primary care only (61%), primary care plus one service (24%), and non-primary care services only (15%) Ranked in top 25% of FQHCs for cervical screening, child immunizations, cholesterol treatment, adolescent weight screening/follow up, depression screening, asthma treatment 99% of participants in teen after school programs graduated from high school, avoided pregnancy, attended college Home visiting program reported "virtually no" cases of abuse or neglect after enrollment Job training programs placed graduates in employment	Not a primary research report Limited methods description Retrospective analysis Contemporaneous comparison

TABLE 5-6 Vermont Blueprint for Health

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Vermont's Community-Oriented All-Payer Medical Home Model (Jones et al., 2016)	Residents in Vermont who were seen for care	Sequential cross-sectional analysis, difference of difference comparing post year 2 vs. pre-intervention (2008–2013)	Residents seen in 123 participating patient-centered medical homes supported by community health teams and payment reforms	Residents seen in non-participating practices	Quality In post-year 2, participants had significantly higher rates of adolescent well-care visits, breast cancer screening, cervical cancer screening, appropriate testing for pharyngitis, and for people with diabetes eye exams, A1c testing, lipid testing and nephropathy screening Rates for imaging for low back pain, treatment of upper respiratory infection, and well-child visits were not significantly different Cost Total expenditures –\$482 (95% CI, –\$573 to –\$391) Primarily driven by lower inpatient (–\$218; $p<.001$) and outpatient hospital costs (–\$154; $p<.001$) \$5.8 million decrease in expenditures for every \$1 million spent on program	Supported practices actively engaged in measuring and improving outcome measures

TABLE 5-7 National Intrepid Center of Excellence (NICoE) for Traumatic Brain Injury

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Care transitions to and from the National Intrepid Center of Excellence (NICoE) for service members with traumatic brain injury (TBI) (Ayer et al., 2015)	184 referring clinicians and 311 former NICoE patients from the NICoE center in Bethesda, MD., were surveyed with a 20–30% response rate	Surveys, site visits, and interviews to examine transitions of care between NICoE, usual care clinicians, and service members receiving care (2010)	NICoE provides interdisciplinary diagnostic evaluations, short-term treatment, and treatment planning for co-morbid traumatic brain injury and psychological health conditions to mitigate barriers for treatment	None	Patients most commonly referred if their traumatic brain injury or psychological health problems were complex and severe or their symptoms were not improving Usual-care clinicians at smaller, more rural sites viewed NICoE as extremely valuable while clinicians at larger facilities perceived it as duplicative Usual-care clinicians expressed a desire to have more information from NICoE about eligibility criteria and services available to help with future referrals Some usual-care clinicians noted gaps in communication about patient progress Patients expressed low levels of satisfaction with their usual source of care prior to referral to NICoE due to long wait times for appointments, staff shortages and no access to complementary and alternative medicine treatment modalities Patients expressed positive opinions about the value of care, the facility's care model, and the involvement of family members in care Many usual-care clinicians did not perceive a significant difference between the type of services offered at home stations and NICoE Usual-care clinicians gave positive feedback on the discharge planning process There was some duplication of diagnostic services	Selection bias from those clinicians and patients agreeing to participate in evaluation and responding to the survey

continued

TABLE 5-7 Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Efficacy of an interdisciplinary intensive outpatient program in treating combat-related traumatic brain injury and psychological health conditions (DeGraba et al., 2020)	1,456 service members with residual symptoms from traumatic brain injury and comorbid psychological health conditions referred to NICoE in Bethesda, Md.	Prospectively planned pretest–posttest analysis of people referred to the program from 2011 to 2019, with 91% consenting to participate	NICoE provides 4-week interdisciplinary diagnostic evaluations, short-term treatment, and treatment planning for comorbid traumatic brain injury and psychological health conditions to mitigate barriers for treatment	Baseline	Statistically significant improvements seen for all seven assessments: Neurobehavioral Symptom Inventory (NSI) PTSD Checklist-Military (PCL-M) Satisfaction With Life Scale (SWLS) Patient Health Questionnaire-9 (PHQ-9) Generalized Anxiety Disorder-7 (GAD-7) Epworth Sleepiness Scale (ESS) Headache Impact Test-6 (HIT-6)	Pre–post study design and lack of comparison group has a risk of regression to the mean and a risk of a response bias

TABLE 5-8 Canterbury HealthPathways (New Zealand)

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Integrated community system to reduce acute hospital demand (Gullery and Hamilton, 2015; McGeoch et al., 2019)	Acute medical hospitalization rate per 100,000 people in New Zealand	Prospective observational cohort analysis of national health trends (2008–2017)	Implemented in 2000 Acute demand management system of supported primary care teams provide in home care to prevent hospitalization	Other regions of New Zealand	15,000 to 35,000 referrals per year Annually from 2008 to 2014, a 30% lower hospitalization rate in Canterbury compared with New Zealand as a whole 14% reduction in long hospital stays (over 24 days) for people over 75 years of age Reduction in proportion of people over 75 years of age living in care homes from 16% to 12% from 2006 to 2013 Reduced surgical wait list from	Limited methods presented in reports Reports focused more on describing the model than evaluating the model

			Community rehabilitation enablement and support teams 24-hour general practice Localized clinical guidance website and shared electronic medical record			Evaluation focused on acute services and hospitalization usage

TABLE 5-9 Health In all Policy Initiative (Australia)

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
South Australian Health in All Policies initiative (Baum et al., 2019; van Eyk et al., 2017; Williams and Galicki, 2017)	918 public servant interviews, 5 document reviews, 144 key informant interviews, 2 workshops	Mixed-methods case study (2012–2016)	Collaboration across sectors to develop policies on factors that influence health such as environment, food, and social determinants implemented in 2007. Serve 1.6 million people in South Australia with a high proportion being Aboriginal/Torres Strait Islanders	None	Increased public servants' awareness of the health impacts of their agencies' policies 55% reported understanding the link between their department and social determinants 53% agreeing that collaborations increased their understanding of equity Health in All Policies addressed education, employment, regional planning, healthy weight, Aboriginal driving Participants said that the initial intentions to address equity were only partially enacted and little was done to reduce inequities due to government narrowing its priorities to economic goals	Quantitative data on number of policies developed and influenced and the impact of programs and policies not presented Difficult to assess participation rate in interviews and workshops

TABLE 5-10 Basque Region Integrated Care Model (Spain)

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Building integrated care systems (Polanco et al., 2015; Rosete and Nuno-Solinis, 2016)	Autonomous country in northern Spain with population of 2.2 million people	Case study of Bidasoa Integrated Health Organization, including 80–122 clinicians surveyed annually (2010–2013) and comparison of quality metrics for the health organization between 2014 and 2011	Integrated care model includes risk stratification of entire population, coordination between primary and specialty care (care pathways and common goals), common electronic medical record, continuity of care, prevention, patient responsibility and autonomy, patient-centered care	Change over time	Clinician respondents reported improvements over time in organization of health system, health care model, self-management, clinical decision support, information systems, shared goals, patient-centered approach, mutual knowledge, trust, strategic guidelines, and shared and supportive leadership; but no improvement in community health From 2011 to 2014 clinical quality metrics showed a 7% reduction in hospital use, 24% reduction in hospital readmission, 16% reduction in adverse-event admissions, 10% reduction in ambulatory care sensitive conditions, and decrease in mental health hospital readmissions within 30 days from 16% to 7% For people with multi-morbidity there was a 38% reduction in hospital use and 31% reduction in adverse event admissions	Some assessment instruments take 5–6 hours for team to complete Data not reported on response rate, characteristics of participants, or continuity of respondents over time Quality measures only report pre–post changes

Impact of the CareWell integrated care model for older patients with multimorbidity (Mateo-Abad et al., 2020; Rosete and Nuno-Solinis, 2016)	200 patients with complex needs who were >65 years old with two or more chronic conditions registered in 6 health systems in Basque Region	Quasi-experimental design (2015–2016)	Patients from 4 health systems that implemented the CareWell program which includes risk identification, therapeutic plan definition, patient stabilization at home by multidisciplinary team, integrated care during hospitalization, coordinated discharge	Patients registered in two health systems who had not implemented CareWell program	Compared with usual care, Carewell patients had Fewer emergency room visits (0.3% vs. 1.3%, $p<.001$) More primary care visits (12.2 vs. 9.6, $p=.041$) and phone meetings (6.7 vs. 3.6, $p=.002$) Non-statistically significant trends towards reductions in weight, glucose, blood pressure	Health systems not randomized, but intervention and control patients had similar characteristics

continued

TABLE 5-10 Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Integration of health care in the Basque Country during COVID-19 (Izagirre-Olaizola et al., 2021)	20 system stakeholders in the Basque model	Case study of qualitative interviews to assess the integrated care model during COVID-19 (2020)	Basque integrated care model implementation	None	Themes that emerged included: Integration of primary care into program was critical for success Primary care needs more resources Social care was poorly integrated into the model Telehealth has allowed for more care delivery and uptake/implementation	Small sample size Interview participant recruitment not described

TABLE 5-11 Gesundes Kinzigtal Model (Germany)

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
From rural Germany, integrated care grows into a global model (Hildebrandt et al., 2010)	Residents of Kinzigtal River Valley, Germany, who participate in KG model	Observational analysis (2006–2015)		None	In 2010, of the 60,000 residents of Kinzigtal, 31,000 were insured by AOK BW or LKK BW, and 6,870 enrolled in the integrated care model Number of members enrolled in each program: heart failure (67), lifestyle intervention (122), smoking cessation (128), active health for elderly (511), therapy for personal crisis (126), prevention osteoporosis (455), social case management (78), diabetes (830), coronary artery disease (288), breast cancer (18), asthma (100), chronic obstructive pulmonary disease (154), patient university (1070), and nursing home medical care (124)	No comparison group

					Poor dissemination to other regions in Germany until 2017 when extended to two low-income neighborhoods in Hamburg that have a large immigrant population, a high rate of chronic disease, and low health literacy	
From rural Germany, integrated care grows into a global model (Marill, 2020)	Residents of Kinzigtal River Valley, Germany, who participate in KG model	Time trend analysis (2007–2017)	Population-based integrated care model operated via shared savings contract includes integrated coordinated care teams, shared decision making, patient engagement through education and classes, and team support from nurses, dieticians, physiotherapists, nutrition counseling, social workers	Pre–post comparison	Net savings observed of almost $20 million from 2007 to 2018 Decreasing avoidable hospitalization Increased life expectancy	Primary research studies in German Some values and statistical significance not available in English
Evaluation of the population-based Integrated Health Care System Gesundes Kinzigtal (IHGK) (Schubert et al., 2016b)	Residents of Kinzigtal River Valley, Germany, who participate in KG model	Longitudinal cohort study (2004–2011)		Patients insured by same insurer in other regions of Germany without the integrated care model	Greater improvements in 2 of 5 indicators of overuse (long-term NSAID use and inappropriate medications for vascular dementia) Greater improvements in 2 of 10 indicators of underuse (antiplatelet drugs for heart disease and diabetes patients with eye exams)	Primary research studies in German Baseline Kinzigtal population may be healthier (longer life expectancy, younger, lower morbidity, less multi-medications)

continued

TABLE 5-11 Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
10-year evaluation of the population-based integrated health care system (Schubert et al., 2021)	Residents of Kinzigtal River Valley, Germany, who participate in KG model	Longitudinal cohort study (2006–2015)		Patients insured by same insurer in other regions of Germany without the integrated care model	From 2007 to 2011, compared with the control group Lower risk of osteoporotic fracture (HR 0.81; 95% CI: 0.74–0.89; p<.001) Lower risk of death (HR 0.94; 95% CI: 0.90–0.99; p<.019) No difference in preventable hospitalizations	Primary research studies in German Baseline Kinzigtal population may be healthier (longer life expectancy, younger, lower morbidity, less multi-medications)
Individual patient satisfaction in Gesundes Kinzigtal: Interim results of a trend study (Siegel and Niebling, 2018)	3,034 members in 2013 and 3,471 members in 2015 were invited to complete a postal survey	Cross-sectional survey (2013 and 2015)		None	From 101 quality indicators No difference seen for 88 indicators Positive differences seen for 6 indicators Negative differences seen for 7 indicators Overall, no positive or negative trend in health care indicators seen over time compared to control In setting of notable shared savings and reduced cost, no decrease in quality compared with more expensive usual care may be significant Survey response rate 23.4% in 2013 and 24.9% in 2015 Patient satisfaction and mean EQ-5D unchanged Proportion of participants who felt they lived overall healthier life increased from 25.6% to 30.7% (p=.020)	Full article only in German Unclear how members selected to complete survey Risk of response bias

TABLE 5-12 EBAIS (Equipo Básico de Atención Integral de Salud) Community-Based Primary Health Care Model (Costa Rica)

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
What does community-oriented primary health care look like? (VanderZanden et al., 2021)	4.8 million Costa Ricans covered under model	Prospective observational cohort analysis of national health trends (1994–2019)	Integrated health care team includes public health services and primary health care delivery, multidisciplinary EBAIS teams, geographic empanelment, measurement and feedback, digital technology	Change over time Other countries	EBAIS teams provide 80% of care for health needs By 2019 More than 94% population empaneled There were 1,053 EBAIS teams and 106 support teams (provide more advanced behavioral health and social services) Average one EBAIS team per 4,660 citizens First EBAIS teams established in regions with poorer access to care Quality Deaths from communicable disease decreased from 65 per 100,000 in 1990 to 4.2 per 100,000 in 2010 10 years after implementation, there was an 8% reduction in infant mortality and 2% reduction in adult mortality Cost In 2016, health care spending was 7.6% of gross domestic product vs the world average of 10% To improve equity, nearly one-third of funds go to the poorest 20% of the population	Many primary data sources in Spanish Temporal comparisons with no external comparison Cost comparison without adjustments

continued

TABLE 5-12 Continued

Study	Population	Study Design	Intervention	Comparator	Outcomes	Risk of Bias
Primary health care that works: The Costa Rican experience (Pesec et al., 2017; PHCPI, 2018; Spigel et al., 2020; Unger et al., 2008)	94% of 4.8 million Costa Ricans covered under model	Literature review of 280 articles comparing change in care (1994–2016)		Change over time Other countries	Quality Third-highest life expectancy in the Americas 25-year decline in (current rate): Maternal mortality (25/100,000 live births) Infant mortality (8.5/1,000 live births) Under 5 mortality (9.7/1,000 live births) Cost Costa Rica spends less on health care than world average per capita ($970)	Many primary data sources in Spanish Life expectancy comparison without adjustment Temporal comparisons with no external comparison

NOTES: AOK BW = AOK Baden-Württemberg; EBAIS = Equipo Básico de Atención Integral de Salud; ED = emergency department; EHR = electronic health record; FQHC = federally qualified health center; KG = Gesundes Kinzigtal; LKK BW = LKK Baden-Württemberg; PTSD = post-traumatic stress disorder; RCT = randomized controlled trial; VHA = Veterans Health Ad.

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6

Scaling and Spreading Whole Health

While a national transition to a whole health system of care must be grounded in well-articulated theory supported by a solid research base, it will also demand a seismic cultural shift in attitudes, structures, processes, and policies to support the committee's five foundational elements of whole health: people-centered, comprehensive and holistic, upstream-focused, accountable and equitable, and grounded in team well-being (see Chapter 2 for a detailed description of the foundational elements). This would constitute a radical departure from the current state of U.S. health care, which is largely problem based, siloed, reactive, transactional in nature, and built on a fee-for-service payment system that is not well suited to support a national whole health system. The study's statement of task (see Chapter 1) instructed the committee to consider ways to transform health care by scaling and disseminating whole person care to the entire population. This chapter and the one following will consider how the Department of Veterans Affairs (VA) might best scale its Whole Health System (WHS) at full enterprise level and how WHS and other whole health approaches may be scaled and spread across other health systems. The committee defines *scaling* whole health as expanding, adapting, and sustaining successful models within an organization, locality, or health system over time to reach a greater number of people (Greenhalgh and Papoutsi, 2019; Hartmann and Linn, 2008). The committee defines *spreading* as replicating whole health models elsewhere to serve as much of the U.S. population as possible (Barker et al., 2015; Charif et al., 2017; Greenhalgh and Papoutsi, 2019; Milat et al., 2016; Stewart, 2022).

To guide the discussion in Chapters 6 and 7, the committee—extending the framework for foundational elements of whole health introduced in Chapter 2—developed a framework (Figure 6-1) depicting the contextual conditions (shown at the top) and foundational infrastructure (shown at the bottom) necessary for scaling and spreading whole health. These factors mutually reinforce one another and, in doing so, enable the scale and spread of whole health. Building on this framework, this chapter and the one following will consider how VA might best scale its WHS to the full enterprise level and how whole health may be spread across other health systems. This chapter addresses three key contextual conditions that will

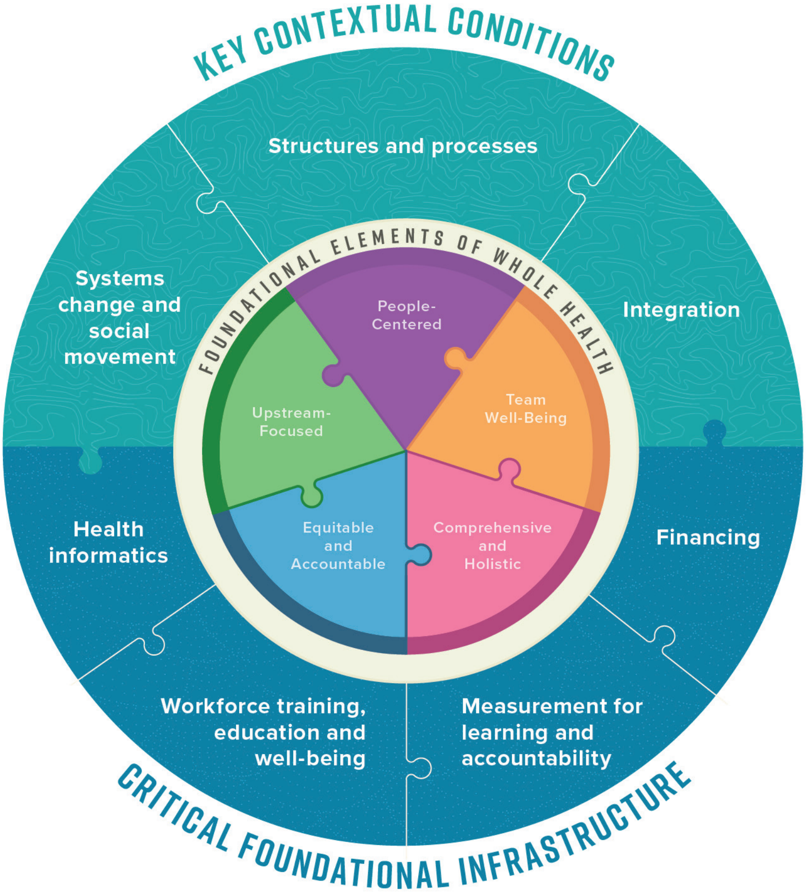

FIGURE 6-1 The committee's framework for scaling and spreading a whole health model of care.

directly enable whole health. First, it reviews theoretical models for systems change and social movement, considers cultural and systems change needed to facilitate whole health transformation across U.S. health care, and shares pertinent historical examples. It then describes the structures and processes required for scale and spread and the need to integrate siloed health and social services to achieve whole health at any scale. Chapter 7 will address the foundational infrastructure needed to establish the information flows, workforce training, education, well-being programs, measurement systems for learning and accountability, and innovative financing required to support the contextual conditions and thus *indirectly* facilitate the scaling and spreading of whole health throughout the United States.

SYSTEMS CHANGE AND SOCIAL MOVEMENT

As described in earlier chapters of this report, most people in the United States receive medical care that is episodic, reactive to medical symptoms or identified health risks, and passive from the patient's perspective. A shift from the current state to whole health care will require a transformation that incorporates individuals' core values, goals, and priorities and focuses on upstream factors while maintaining high-quality disease management. It will also require breaking down conceptual, administrative, financial, and policy barriers that isolate clinical care from the coordinated assessment and management of upstream factors, such as adequate housing, financial security, food security, and social support, which account for most of the variance in health outcomes (Magnan, 2017).

The committee acknowledges how difficult it will be to scale and spread whole health nationally, yet it believes that the nation can make progress through innovation and creativity, by learning from past experience and by identifying existing bright spots and ready opportunities for change. Previous National Academies of Sciences, Engineering, and Medicine (National Academies) reports, the policy window model, and historical examples of major transformational change in the U.S. health system can inform current and future efforts to scale and spread whole health.

Lessons from the National Academies

The committee's strategy for scale and spread builds upon previous National Academies reports, including *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care* (NASEM, 2021), *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being* (NASEM, 2019b), *Integrative Medicine and the Health of the Public: A Summary of the February 2009 Summit* (IOM, 2009) and *Crossing the Quality Chasm: A New Health System for the 21st Century*

(IOM, 2001). An essential lesson from these reports, which also sought to galvanize major systemic change in U.S. health care, was their recognition that effective systems change depends, in part, on bidirectional dialogue, connections, and interactions between and across all system levels (Carayon et al., 2015; Côté-Boileau et al., 2019) (Table 6-1). It also requires committed actors fostering change from the top down (macro and meso levels) and from the bottom up (the micro levels). Similarly, scaling and spreading whole health systems throughout the United States will require changes at all three levels, and there are actions that actors at each level can take independently to facilitate progress toward the goal of accessible whole health for all.

The whole health models this report describes in Chapter 4 provide good examples of how local and regional health systems can shift their philosophical approach and service delivery design within their local policy environments. Extending whole health across the entire United States will, however, require strong bottom-up demand from patients, families, health care professionals, and the public at large at the national level as well as top-down macro and meso public policy and infrastructure change to support and operationalize it.

A transformation to whole health will require such dramatic shifts in

TABLE 6-1 Implementation Framework for Effective Systems Change

System Level	Public		Private	
	Example Actor	**Example Actions**	**Example Actor**	**Example Actions**
Macro	Federal/state legislative branch	Policies, laws, funding	Coalitions, associations	Policy advocacy, public accountability, professional standards
Meso	Federal, state, local executive branch; federal payers; public delivery systems; educators	Regulations, contracting, payment, administrative practices, training	Private delivery organizations, private payers, corporations, institutions, educators	Management policies and practices, training
Micro	Individuals and interprofessional teams delivering care in private, public and government health systems	Self-education, quality assessment and improvement, behavior practice	Individuals and families seeking care	Self-education, behavior practice

SOURCE: Adapted from NASEM, 2021.

the structure and mindset of most health care systems that those seeking to spread and scale whole health may struggle to determine where to begin. Fortunately, as Table 6-1 indicates, change may begin in one of many sectors or across sectors. In parallel with the way that patients progressively engage whole health through thoughtful assessment of personal opportunities and challenges, each health system can identify small, manageable steps that align with its current mission, capabilities, and priorities to help it move along the path of systems transformation.

The Policy Window

The "policy window" model, introduced in 1984 and cited by some 30,000 scholars since, is perhaps the most referenced model from the literature on major transformational systems change. It describes three separate elements of public policy that must align to create a window of opportunity for change: political imperative, effective policy, and a perceived problem (Kingdon and Stano, 1984). The model suggests that all three elements must be present for major, systems-level change to take hold (Figure 6-2). Their intersection provides the opportunity and impetus for innovation, scaling, and spread.

The policy window model suggests that policy entrepreneurs can facilitate systems change by creating windows of opportunity. VA is well positioned to unite and focus the voices of a large population of patients, clinicians, administrators, organizations, and politicians at state, regional, and national levels to achieve whole health. Through the development of uniform metrics, the generation of new evidence, and the development of new policy, VA can promote the political imperative among veterans and across the wider electorate. It also has the advantage of managing nearly all aspects of care for enrolled veterans, including the ability to mobilize resources in support of housing, education, vocational rehabilitation and training, and financial security through in-house mechanisms or in partnership with other federal, state, and philanthropic programs.

Examples from History

Three historical examples, the mental hygiene movement (Novick, 1949), the Flexner report (Flexner, 2002), and the desegregation of American hospitals through the passage of the 1965 Medicare and Medicaid Act (Smith, 2003) demonstrate that positive change is most likely to occur when top-down and bottom-up approaches proceed concurrently. The mental hygiene movement altered the course of American mental health, yet it began with an event in the life of an individual with no previous association with health care practice or policy. In 1900, 24-year-old Clifford Beers

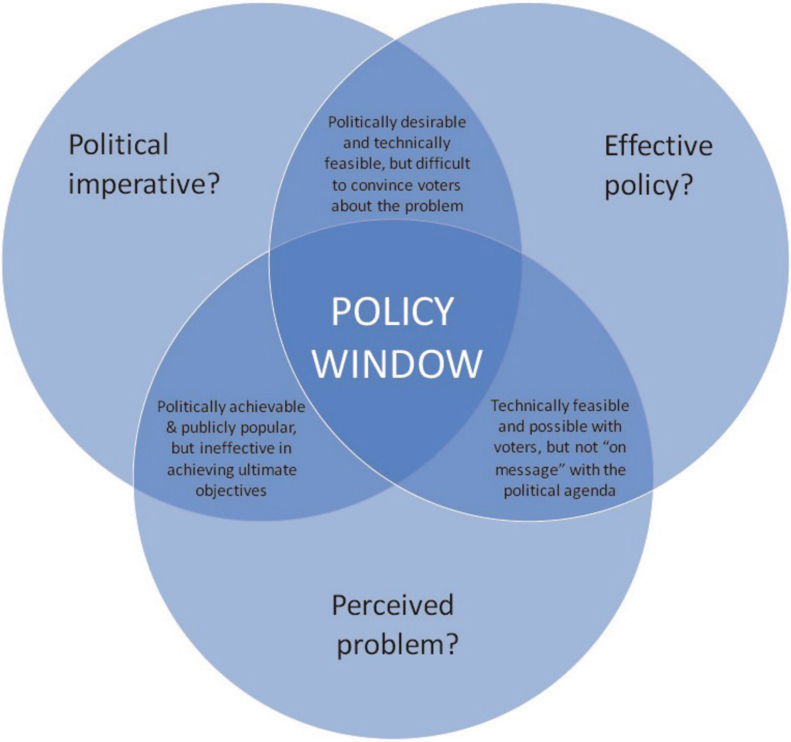

FIGURE 6-2 The policy window model of change.
SOURCE: NZIER, 2018; adapted from Kingdon, 1995.

attempted suicide. He spent the next 3 years in psychiatric hospitals. Out of his personal observations came a best-selling autobiography, *A Mind That Found Itself* (Beers, 1907), which detailed the appalling conditions of asylum life and protested the lack of effective treatment. Beers' stated intent was to alert the public to society's misunderstanding and mishandling of mental illness. This boiled down to a chilling message: If this could happen to me, it could happen to you or someone you love.

Beers extended his advocacy beyond the grassroots/micro level of his readership. His strategy was to engage leaders in American mental health and establish partnerships of lay people, mental health professionals, and policy makers within chapters organized at local, state, and national levels. Beers shared his unpublished manuscript with William James, father of American psychology, who in turn introduced him to Adolph Meyer, chief psychiatrist at Johns Hopkins Medical School (Parry, 2010). Beers, James, and Meyer formed the National Committee for Mental Hygiene in 1909 (Mental Health America, 2022a), which became the National Mental Health Association and, later, Mental Health America. The mental hygiene movement advanced reforms to prevent and treat mental illness and achieved successful scaling and spread through concurrent, coordinated top-down and bottom-up efforts to drive change.

A second historical example of transformative change in American health care was also instigated by someone who was not a health care professional. Abraham Flexner, a professional educator, exposed excessive variation among medical schools in admissions criteria, curriculum, length of training, the qualifications of faculty, and the application of basic science and new research to clinical training (Flexner, 2002) in his 1910 report, *Medical Education in the United States and Canada*. By revealing an entrenched system of for-profit education that churned out accredited but unqualified physicians, he created the momentum to transform medical training from an apprenticeship to an academic enterprise (Frenk et al., 2010) and accelerated the rate at which basic science and clinical research were translated into clinical practice. Flexner's indictment of the status quo mobilized medical societies and legislators at state and federal levels and led to strong regulatory support through professional sanctions and new licensing laws.

Although his efforts boosted the development of modern academic medical centers across North America and beyond, Flexner's primarily top-down, macro-level strategy also produced significant negative consequences, including a devastating effect on historically Black medical schools across the United States (Savitt, 2006). By 1920, 10 years after the Flexner Report was published, 8 of the nation's 10 Black medical schools had closed their doors because of negative statements about the schools and Black physicians, with only Howard University Medical Department and Meharry Medical College surviving (Savitt, 2006). The damage done to aspiring Black medical students, access to care for Black Americans, and the medical capacity of the entire nation is incalculable. This disaster might have been avoided had Flexner cultivated reciprocal, bottom-up input from the micro and meso levels of American medicine. In addition, Flexner's personal admiration for the German medical educational system, which prioritized the science of medicine over the art and practice of patient care, helped foster the reductionistic biomedical model with which whole health must compete today (Duffy, 2011).

The desegregation of most American hospitals accomplished by the Medicare and Medicaid Act (also known as the Social Security Amendments of 1965)[1] provides a third example of health care transformation through concurrent top-down and bottom-up approaches. Medicare

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[1] Public Law 89-97.

required hospitals to adhere to Title VI of the 1964 Civil Rights Act[2] which prohibits discrimination based on race, color, or national origin in any institution receiving financial aid from the U.S. government. Just three weeks before the new law came into effect, then–Surgeon General William H. Stewart issued a one-page report making it clear that hospitals could no longer discriminate based on race and that hospital admission policies, patient room assignments, availability of services and facilities, staff privileges, and training programs must also comply with Title VI (Stewart, 1966). The report emphasized elements of the new legislation designed to ameliorate damage done, in part, by the Flexner report.

At the time, the Public Health Service had 300 professional field inspectors to work with hospital administrators to help ensure the new policies were implemented. Knowing this limited workforce was inadequate to enforce compliance across the entire nation, Stewart also called on local physicians to assist in facilitating hospital policy change, support local administrators, and help create a culture of change.

According to David Barton Smith, author of *The Power to Heal: Civil Rights, Medicare, and the Struggle to Transform America's Health Care System*, the three people writing the regulations to implement the law were committed to civil rights themselves and also followed the "…direction and pleading of the civil rights organizations" (Andrews, 2016). Additionally, volunteer workers from the Social Security Administration and the Public Health Service who were also dedicated to civil rights augmented the ranks of the original 300 field inspectors. Inspectors' site visit reports also show that they relied on local people, civil rights activists, and black hospital employees to tell them if hospitals were complying with the new regulations (Andrews, 2016).

The federal courts also played a role in assuring compliance: A Black physician and two of his patients sued a hospital for failing to adhere to the new policies. A lower court ruled that they did not have a case because the hospital had, on previous review, been cleared to receive federal funds by meeting requirements of Title VI (Stewart, 1967). The Fourth Circuit Court of Appeals reversed that decision, pointing out that past certification afforded no assurance of current compliance. The higher court also upheld the legality and constitutionality of the new federal desegregation guidelines. By February of 1967, Assistant Secretary of Health Philip Lee reported that 95 percent of hospitals were receiving Black patients (DeWalt et al., 2005).

The success of the mental hygiene movement, the consequences, for good and ill, of the Flexner report, and the transformative change wrought by the Medicare and Medicaid Act in the 20th century offer lessons for the

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[2] 42 U.S.C. § 2000d et seq.

scale and spread of whole health in the 21st. In particular, they demonstrate that optimal scale and spread requires collaboration between health care systems and those they serve, an articulation of shared core values and priorities, and new alignment across multiple sectors of society within a social movement. Optimal scale and spread require scientific evidence, but as per the policy window model, systemic change is unlikely to occur unless there is a political imperative, effective policy, and widespread perception of a problem that needs fixing (Kingdon and Stano, 1984). Finally, transformation requires the dynamic interplay of concurrent top-down and bottom-up processes. Resonance across micro, meso, and macro sectors synergizes such efforts and may help insure against serious and enduring negative consequences, intended or unintended, resulting from unilateral, top-down change. Transformation requires recognition that all members of society are the stakeholders and future beneficiaries of whole health.

STRUCTURES AND PROCESSES FOR SCALE AND SPREAD

Beyond, and in support of, the systems change described in the previous section, scaling and spreading whole health systems will require new structures and processes along with practical ways to integrate them. The statement of task asked the committee to describe strategies, including implementation science strategies, that can overcome barriers to scaling and implementing components of whole health, such as integration of mental health, complementary and integrative health, health coaching, peer-to-peer approaches, and well-being. Barriers include overcoming current characteristics of U.S. health care that are inhospitable to whole health and identifying new drivers of change capable of scaling of whole health throughout VA and spreading it across the rest of U.S. health care. This section reviews research findings that can be applied in that effort.

Key Contextual Factors

Scale and spread will require an awareness of and accommodation to a variety of contextual factors that underlie the U.S. health care system. Among these are significant barriers to whole health, including the high-stakes/high-risk and time-pressured nature of biomedical care (Martinez et al., 2011) which is not focused on maintaining well-being for individuals, families, or communities but rather is designed to respond to patients with acute or chronic health problems. Even considering biomedical care alone, clinicians must deal with poor adherence to guidelines or a lack of evidence for care modalities (Pronovost et al., 2009) along with the high information demands (Chaudhry et al., 2006) that thinly stretched personnel experience (George et al., 2018). New structures and processes should address or overcome these barriers. In addition, a health system characterized by multiple siloed stakeholders, steep hierarchies, rigid disciplinary boundaries (Braithwaite et al., 2016), and patients increasingly presenting with multiple complex chronic conditions (Boersma et al., 2020) creates a pressing need for enhanced integration. The following sections describe structures and processes that could support scale and spread in the face of these contextual challenges.

Structures Supporting Scale and Spread of Whole Health

Structures capable of supporting whole health scaling within VA and of facilitating its spread across U.S. health care in the face of the barriers described above include health ecosystems at the macro level, integrated delivery systems at the meso level, and interprofessional care teams at the micro level (Mitchell et al., 2010). A variety of other structural elements can also support whole health, including, for example, patient and family advisory councils, health coaches, and peer-support specialists as well as the other workforce innovations, health information technology, measurement, and financing reforms described as supportive infrastructure and discussed in Chapter 7.

A "health care ecosystem" is a term used to describe fully interconnected systems of capabilities and services for caring for people and keeping them well, centered around consumers (Sudbury-Riley and Hunter-Jones, 2021). Accountable health communities and medical neighborhoods are similar concepts. Accountable health communities link community members with community services that may address their health-related social needs (i.e., housing instability, food insecurity, utility needs, interpersonal violence, and transportation needs) (Alley et al., 2016). A medical neighborhood is a narrower concept, given its focus on biomedical capabilities and services (Fisher, 2008). Ecosystems include traditional modalities, but also home and self-care, social care, activities of daily life, and financial support. Providing whole health will require intentionally developing and sustaining health care ecosystems capable of overcoming contextual barriers and delivering whole health services to individuals, families, and communities in accordance with the committee's five foundational elements of whole health.

Integrated delivery systems are vertically integrated networks capable of providing a broad spectrum of coordinated inpatient and outpatient care. They may include physicians, hospitals, post-acute services, and, in some cases, such as Kaiser Permanente, offer health insurance as well. VA is a vertically integrated delivery system that both finances and delivers health care services. Although integrated systems exist in the private sector, few are capable of delivering the full array of services that constitute whole health.

While integrated delivery models are better positioned than freestanding clinics or hospitals to provide whole health, most lack the scope and depth of services needed to fully address the committee's five foundation elements. For example, a few U.S. health systems provide support for higher education, vocational training, or sustained housing within their delivery models and are thus able to fully address many of the upstream factors of whole health without partnering with outside organizations.

An interprofessional care team is an essential structure that supports whole health. Such teams comprise clinicians and nonclinicians who collaborate across disciplines, health care system components, and community and social services to deliver patient-centered care (Gittell et al., 2015). Examples of interprofessional care team structures include VA's patient-aligned care teams and, outside VA, patient-centered medical homes. These teams integrate colocated, collaborative primary care and mental health services (including access to substance use services), share information, and coordinate the care they provide. Federally qualified health centers (FQHCs) also provide care through interprofessional care teams which are effective in coordinating a broad variety of health services to meet the diverse needs of their patients (Wright, 2012; Wright et al., 2017). To fully realize the concept of whole health, health systems should recognize people seeking care and their self-defined families as full team members rather than treating them as passive recipients of health care services.

Most VA primary care teams incorporate at least some degree of co-located, collaborative mental health services, but few non-VA health systems have reached that level of interprofessional integration (Ion et al., 2017; VA, 2020b). Creating interprofessional care teams will require meeting all the other contextual conditions and supportive infrastructure that facilitate a whole health mindset, including communication, coordination, and integration of the services that policy and procedural guidance and monitoring by leadership support; developing and fielding an interoperable medical record system that clinicians across disciplines, services, and locations can access easily; aligned measures and financial incentives; and a workforce trained and educated to work within interdisciplinary teams (see Chapter 7). A few other examples include service agreements, huddles, checklists (Haynes et al., 2009), and physical redesign of spaces to enable co-location within which team members can interact (Alidina et al., 2016).

Patient and family advisory councils are a structural innovation that can improve patient experience and lead to better care and improved clinical outcomes (Cunningham and Walton, 2016). In scaling and spreading whole health, patient and family advisory councils offer an important mechanism for increasing the likelihood that systems provide care and pursue organizational and clinical changes consistent with the values and preferences of patients. Also helpful for scaling and spreading whole health are structures that create the capacity for continuous improvement, innovation, and learning within and across organizations, including learning management systems, training programs, learning collaboratives, and reward systems (IOM, 2007).

Designing Whole Health Teams

Whole health delivery systems are built upon—and scaled and spread through—integrated, interprofessional teams of clinicians, other professionals, and, increasingly, peer-support specialists. This team-based approach to care can improve quality and reduce use and cost (Pany et al., 2021; Reiss-Brennan et al., 2016) and is associated with higher job satisfaction (Song et al., 2017) and lower burnout (Willard-Grace et al., 2014). Appropriately formed teams are better able to engage meaningfully with people, families, and communities; to better address their unique whole health goals in concert with shared values and desired outcomes of care; and to build stronger relationships over time (Mitchell et al., 2010; NASEM, 2021; Sullivan and Ellner, 2015).

To function effectively, teams must have clear, congruent, and well-organized workflows that are monitored by organizational leadership who respond to population demands. As the 2021 report *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care* (NASEM, 2021) describes, teams should both reflect the diversity of their local communities and contain a mix of professions, services, and expertise to sufficiently meet the specific needs of the population to which they are accountable. This community-oriented approach (described in greater detail in Chapter 2) calls for health systems or facilities to conduct population assessments to identify local medical and social needs (IOM, 1983), an approach that the Health Resources and Services Administration (HRSA) requires for health center program certification (see Chapter 2). For example, given disproportionately high rates of psychiatric disorders, including substance use and post-traumatic stress disorders, as well as high rates of military service among American Indian and Alaska Native (AI/AN) peoples (Herron and Venner, 2022), it is important to consider and respect these factors when working with these groups. While a large proportion of the AI/AN population is concentrated in just a few states, they are present in significant numbers in every state.[3] As such, virtually every U.S. health system should assess the size and health needs of its AI/AN population and coordinate their care with tribal organizations, the federal Indian Health Service, and VA in designing appropriate whole health teams. Such assessments also help determine the ratio of primary care teams to the population served and

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[3] https://www2.census.gov/geo/maps/DC2020/AIANWall2020/2020_AIAN_US.pdf (accessed December 15, 2022).

other demographic factors that can affect the demand for services, such as the percentage of the population age 65 and older (HRSA, 2018).

Within VA, the Patient-Aligned Care Team (PACT) model is an example of how teams address the primary needs of patients, including mental health, through VA's primary care–mental health integration program at many, if not most, VA sites and coordinate the remaining needs, including specialty care. PACTs, part of VA's patient-centered medical home transformation, are organized into "teamlets" comprising clinical and support staff and are assigned a panel of 1,200 individuals. While PACTs are focused primarily on core *clinical* services and do not generally have embedded social services such as homeless coordinators, nutritionists, or the many other disciplines required to comprehensively address whole health, they are associated with several positive clinical outcomes. These include fewer hospitalizations, specialty care visits, emergency department visits, and specialty mental health visits; an increase in mental health visits in primary care settings and in use of preventive services; lower levels of staff burnout; higher patient satisfaction with access to care; and clinical improvements for patients with diabetes, heart disease, and hypertension (Bidassie, 2017; Hebert et al., 2014; Leung et al., 2019; Nelson et al., 2014; Randall et al., 2017; Rodriguez et al., 2014).

Implementing PACTs has, however, been challenging. One review highlighted the implementation barriers resulting from inadequately staffed teams, a lack of training, poor team cohesion, a lack of clearly defined roles, communication difficulties, and the involvement of trainees whose required transitions cause disruptions in continuity (Yano et al., 2014). Early implementation efforts were also associated with high levels of emotional exhaustion, a key symptom of burnout (Meredith et al., 2015), and team members have reported inadequate training, incomplete implementation, limited guidance from leadership, and poorly defined team structure and roles. Overall, while PACTs have produced positive outcomes, their implementation also highlights the potential difficulties when systems shift to team-based approaches.

The committee is aware of one study that looked at workforce issues related to WHS implementation in VA (Haun et al., 2021). This qualitative study of VA WHS staff identified implementation barriers and facilitators across five VA WHS design sites and one flagship site.[4] While there was variation across sites, common barriers to implementation included the lack of progressive culture to embrace whole health, a misalignment of leadership priorities with whole health implementation, administrative barriers such as slow hiring, the lack of sufficient space and investment, excessive caseloads

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[4] VA Whole Health design sites are locations that have implemented elements of VA Whole Health. Flagships sites have implemented the full Whole Health System.

and a lack of time, and the lack of clear policies and procedures. That said, most participants indicated that they were invested in WHS implementation and valued it greatly. They embraced the new focus on wellness rather than on illness and reported improved relationships with veterans as well as reduced stress and burnout among staff.

As illustrated in the description of PACT implementation, clearly defining roles within a team is essential to the team's ability to function efficiently and effectively and to foster an environment that enhances team well-being. Poorly defined roles can lead to a misdistribution of effort, emotional exhaustion, and suboptimal care, and can erode a sense of purpose among the team (Hysong et al., 2019). In contrast, a study of 23 high-performing primary care team–based practices, including at one VA clinic (Sinsky et al., 2013), found that shifting from a physician-centric model to a shared team-based model emphasizing thoughtful distribution of tasks among different team members contributed to improved satisfaction and greater joy in practice. Team culture reflects organizational culture, mission, and values and, in turn, reflects how a team functions together, distributes tasks, and supports other team members (NASEM, 2019b, 2021).

Team Composition and Size Considerations

A well-designed whole health team has much in common with a high-quality primary care team, with similar structures, culture, and a focus on stability (Bodenheimer et al., 2019; Schottenfeld et al., 2016). However, whole health teams must have additional flexibility and adaptability to ensure that an individual can achieve his or her whole health needs and personal goals. While a well-functioning, interprofessional primary care team includes a core team, an extended health care team, and an extended community care team (Kerrissey et al., 2022), a whole health team integrates community care team members within the overall team. Community care team members could include social support professionals to help with housing, food insecurity, childcare, elder care, educational, training, and employment needs; peer-support specialists; home health aides; disability support professionals; and religious or spiritual supports, among others. In addition, community care teams have the capacity to address many upstream factors—one of the committee's five foundational elements of whole health (see Chapter 2). Because of the integral role of community care team members in a whole health approach, it does not make sense to treat community care separately from the rest of the whole health team. In some systems, especially smaller practices and health care organizations, professionals and peers with expertise specific to upstream factors may operate primarily within partnered community organizations, but even in such cases they can be aligned functionally with the whole health team for optimal effectiveness. Effective whole health systems will need to ensure that the integration of services is relatively seamless both within and outside a single organization.

In general, a core team includes a person seeking whole health, that person's family and informal caregivers, and the team members most directly involved in helping the individual achieve his or her whole health goals and addressing the person's most pressing health needs (NASEM, 2021). An individual's core team will look different depending on that person's specific needs. For example, a core team for an older veteran with post-traumatic stress disorder (PTSD) and diabetes who seeks to be more active with his or her grandchildren may include a primary care clinician, a health coach, a mental health professional, and a nutritionist as well as office staff and a medical assistant. A core team for a younger person experiencing homelessness and chronic pain may include a primary care clinician, a social worker, a community health worker, a behavioral health specialist, and a yoga instructor as well as office staff and a medical assistant. The most important feature of a person's core team is that it is composed to optimally assist in achieving that individual's whole health goals by addressing personal clinical and nonclinical needs.

Extended whole health care teams include members and services more peripheral to an individual's care plan but still involved on an as-needed basis to augment the core team. For example, someone with recurrent major depression that is usually managed by their primary care clinician may have a mental health specialist as part of the extended care team for consultation and occasional check-ins. Such coordination is a significant responsibility of the core team (NASEM, 2021). Extended care team members may support several core teams (Bodenheimer and Laing, 2007; Mitchell et al., 2019). One important feature of team composition is that it is flexible and able to change over time to meet the evolving needs and whole health goals of people at different points in their lives. In this way, whole health systems can incorporate a health trajectory approach that conceptualizes and responds to health issues across the lifespan from a people-centered perspective (Wyman and Henly, 2011). This people-centered point of view emphasizes changes in health over time within individuals, families, groups, and communities.

In general, whole health teams include a greater variety of members than those described above and should reflect the populations they serve. For example, the Southcentral Foundation Nuka System of Care (described in Chapter 4), a whole health model that serves an Alaska Native population, integrates traditional Alaska Native healers into its teams. For VA's WHS (and other whole health models), health coaches are an integral part of the care team and work closely with patients and staff over time. Complementary and integrative health (CIH) professionals are also core team members. While there is no one-size-fits-all formula for team composition and size, research suggests that transitioning from physician to team-based practice can occur through reconfiguration without substantial change to practice size or personnel (Chien et al., 2018; Meyers et al., 2018). Teams for panels with higher social needs, for example, may include community health workers, behavioral health specialists, and other social supports but fewer physicians. Those with a greater proportion of geriatric patients require more team members dedicated to complex care management, and teams for smaller rural panels generally include a community health worker but are smaller overall. Team structure and membership should also be fluid, adapting to the changing needs and resources of communities and systems.

Despite the shift to more team-based approaches in recent years, much of the guidance regarding panel size is typically based on a per-physician framework. At VA, for example, even within its team-based PACT model, the standard primary panel size is 1,200 veterans for every full-time physician (Shekelle et al., 2019). The physician has at least three supporting team members, but these may also work across multiple panels. This often-cited description of the PACT model is, however, based on an assessment from 2009 and is difficult to extrapolate across the entire VA system. The committee is not aware of specific guidance regarding team composition, size, or panel size for VA's WHS.

Interprofessional team-based models often have panels below 2,000, but the size depends on the level of task sharing, workflow, and the distribution of skill sets across the team (Altschuler et al., 2012). Southcentral Foundation's Nuka System of Care, for example, employs a 1,500-person panel plan with an entire department dedicated to managing panel assignment and support (Gottlieb, 2013). Risk adjustment is also important in designing a team to match the needs of a given population. With risk adjustment, systems account for population characteristics such as age, gender, comorbidities, disability, acuity, unique exposures, and other health risks and characteristics based on data they extract from electronic health records (EHRs), claims, needs assessments, and public health findings. Health systems can then configure teams and panels to best match the needs and level of risk of an empaneled population (Kivlahan et al., 2017).

Processes Supporting Scale and Spread of Whole Health

Scaling and spreading whole health also requires teams, systems, and ecosystems to deploy supportive processes of at least five types: adjudication, teaming, implementation, learning, and social. Adjudication refers to decision-making processes and the establishment of evidence criteria for making decisions. For example, health systems will require adjudication processes to determine which specific treatment modalities they will promote and reimburse as part of a whole health approach (Held, 2019). Systems and payers should consider how to incorporate, coordinate, and pay for services that address upstream factors, complementary and integrative modalities, health coaching, and peer-to-peer supports, along with other services and programs that standard care delivery does not typically include. Chapter 7 discusses financing issues in greater detail.

Teaming processes support interprofessional (team-level), interorganizational (systems-level), and intersectoral (ecosystem-level) integration. These processes include establishing safe cultures and psychologically safe work environments, social integration facilitated by trust and respect building, shared understanding of whole health, and facilitated communication, collaboration, coordination, and information exchange models among system leaders and frontline staff (Edmondson, 2018).

Implementation processes are methods and strategies for the prompt translation of evidence-based practices into clinical settings. By focusing on developing and operationalizing implementation strategy rather than simply raising awareness of an intervention's effectiveness, implementation science accelerates uptake. This is accomplished through attention to the acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability of new practices (Proctor et al., 2011).

Closely related are processes that enable learning within and across health systems. When professionals and teams need to work together, they require processes such as joint problem solving (Edmondson, 2018); humble inquiry that recognizes and defers to the expertise of patients, families, and communities (Schein, 2013); and adaptive leadership focused on empowering self-direction among those unused to asserting themselves (Heifetz and Linsky, 2002). These enable professionals, teams, and organizations to benefit from key learning practices such as education and training, experimentation, information collection, analysis, and information transfer, and are supported by leadership that reinforces learning, and supportive learning environments characterized by psychological safety, appreciation of differences, openness to new ideas, and ample time for reflection (Garvin et al., 2008; Singer et al., 2012).

Finally, whole health transformation requires social processes that motivate and shape new behaviors among consumers, clinicians, and administrators. Most notably, whole health requires social processes that shift power back to individuals, families, and communities (Toffler, 1999).

Action Steps in Scaling and Spreading Whole Health

As with any innovation, scaling WHS within VA and scaling and spreading whole health approaches across other health systems will likely follow a path consistent with the diffusion of innovations, which normally proceeds via the following steps: social activation of potential innovation adopters; diffusion from innovators to early adopters followed by buy-in from the early majority, then by late majority; and, finally, uptake by laggards in a roughly normal distribution (Rogers, 2014). Early adoption tends to occur where the fit of the innovation with the adopting community is greatest (Milat et al., 2015; Pallas et al., 2013; Stewart, 2022), where there is stronger leadership and political support for the innovation, and when there is a more supportive policy environment (Hirschhorn et al., 2013; Stewart, 2022). Contextual factors at local and institutional levels that may affect the rate of diffusion (Øvretveit et al., 2017) include the presence of competing or complementary innovations, social influence processes, intentional action to trigger interest and demand, implementation efforts, policy change, and re-invention and adaptation of the innovation (Dearing and Cox, 2018). A variety of factors can affect the rate and reach of innovation. For example, dissemination is facilitated when the innovation is promoted to communities and population segments where need is greatest, capacity is sufficient to adopt and implement, targeted learning opportunities are made available, and barriers that arise are addressed effectively (Dearing and Cox, 2018).

This process of spreading and scaling whole health can build on lessons from other health delivery innovation models both inside and beyond VA, several of which Chapters 4 and 5 describe (Kilbourne et al., 2012). Different systems at different stages may rightly choose different approaches at different points in time. There are, however, common principles that systems can adopt or adapt. Among the many available approaches, the committee describes five instructive examples: the ExpandNet/WHO framework for scaling up; the Institute for Healthcare Improvement's Framework for Spread; Ariadne Labs' Arc framework for spread; the Nonadoption, Abandonment, Scale-up, Spread, and Sustainability (NASSS) framework; and VA's Diffusion of Excellence model.

The World Health Organization's ExpandNet program's framework is intended to guide those seeking to scale successfully tested interventions, assuming feasibility and effectiveness has been established locally (Figure 6-3). It suggests that a scaling-up strategy involves five interrelated elements (top oval) and highlights five strategic choices required for formulating a scaling-up strategy (boxes outside the oval), which consists of nine steps: (1) planning actions to increase scalability, (2) increasing the capacity of the end-user organization, (3) assessing the environment and planning actions to increase the potential for success, (4) increasing the capacity of the resource team to support scale and spread, (5) making strategic choices to support scaling, (6) making strategic choices to support spreading (expansion/replication), (7) determining the role of diversification, (8) planning

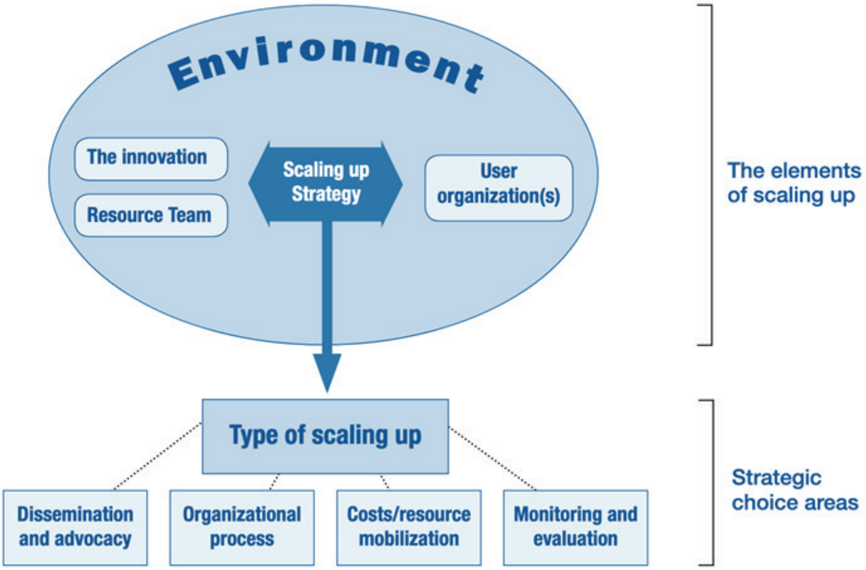

FIGURE 6-3 The ExpandNet/WHO framework for systematically scaling interventions.
SOURCE: WHO, 2009.

actions to address spontaneous scaling, and (9) finalizing the scaling and spread strategy and identifying next steps (WHO, 2009).

The Framework for Spread, introduced by the Institute for Healthcare Improvement (Figure 6-4) (Massoud et al., 2006), has guided successful collaborative efforts, including a VA-sponsored collaborative initiative to enhance access to care (Nolan et al., 2005). This framework, which applies to efforts to spread new ideas or operation systems both within and across organizations, emphasizes the responsibilities of leadership, the iterative identification of better ideas, targeted communication, strengthened social systems, standardized measurement and feedback systems, and knowledge management as key components.

A third framework, targeting large-scale spread of innovations with demonstrated effectiveness, the Ariadne Labs Arc, envisions spread as a process of continual learning and collaboration (Figure 6-5). Solutions, such as safe surgical checklists, advance through three stages: design, test, and spread (Ariadne Labs, 2022). Accomplishing this arc requires collaborating with implementation partners, iterating as new knowledge is discovered, and continuously refining the approach. Spread proceeds by distributing implementation tools and support materials broadly; providing

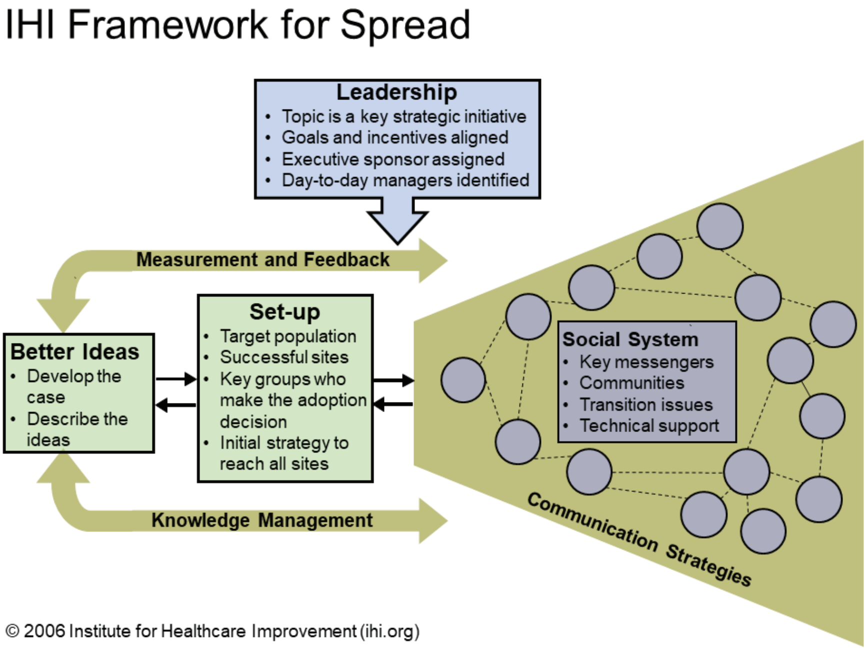

FIGURE 6-4 A framework for spread with strategies and methods that can contribute to the effective spread of new ideas or operation systems both within and across organizations.
SOURCE: Massoud et al., 2006.

direct implementation support to a select group of implementers; developing an education strategy complete with associated curriculum and training materials; creating and supporting communities of practice in which practitioners share implementation strategies and can guide each other; disseminating and promoting key ideas through peer-reviewed publications, other media coverage, and coalition-building; incorporating feedback and promoting adaptability; and measuring impact.

The fourth framework, NASSS, was derived from 28 previous technology implementation frameworks and empirical testing. It was designed specifically to help predict and evaluate the success of a technology-supported health or social care program (Greenhalgh et al., 2017). NASSS contains seven domains (Figure 6-6): condition or illness, technology, value proposition, adopter system (comprising professional staff, patient, and lay caregivers), the organization(s), wider institutional and societal context, and the interaction and mutual adaptation between all these domains over time (Greenhalgh et al., 2017). This model holds that innovation

FIGURE 6-5 Ariadne Labs arc framework for spread.
SOURCE: Ariadne Labs, 2022.

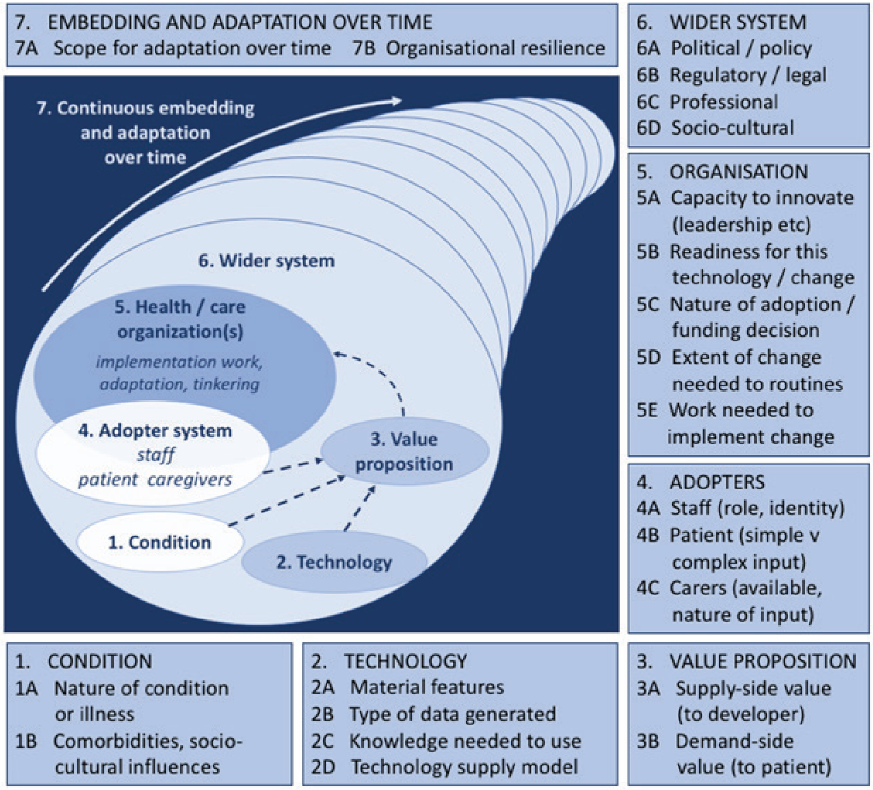

FIGURE 6-6 The Nonadoption, Abandonment, Scale-up, Spread, and Sustainability (NASSS) framework.
SOURCE: Greenhalgh et al., 2017.

becomes increasingly difficult to implement across these domains when it is characterized as complicated and complex rather than simple. VA has used the NASSS framework to examine factors influencing its national rollout of an automated texting system to support patient self-management (Yakovchenko et al., 2021).

The fifth framework, VA's Diffusion of Excellence model (Vega et al., 2019), categorizes initiatives for different implementation strategies (e.g., an initiative that will be packaged for potential organic implementation by other VA facilities versus an initiative destined for nationwide implementation and standardization with support of a national diffusion team versus an initiative whose implementation will be discontinued) based on factors such as the degree of enterprise-wide need, availability of outcome metrics, complexity of implementation, and projected impact. This model sets forth a five-step systematic process to identify, replicate, and eventually scale and spread practices with the greatest potential for positive impact (Figure 6-7). These steps are (1) identify promising practices and clinical interventions; (2) find champions; (3) adapt and replicate; (4) measure real-world impact; and (5) scale and spread best practices.

Within the first 4 years of its application, the five-step Diffusion of Excellence model succeeded in replicating 47 high-impact innovative practices more than 412 times at VA hospitals across the country (Vega et al., 2019). More than 100,000 veterans gained access to new clinical approaches, and VA avoided approximately $22.6 million in costs. Practices scaled and spread through this process have produced substantial reductions in patient mortality, such as with Project HAPPEN (Hospital-Acquired Pneumonia Prevention by Engaging Nurses to Complete Oral Care) (Munro et al., 2018). Providing special-purpose funding to hire and train new staff, purchase needed equipment/materials, and, when necessary, refurbish, lease,

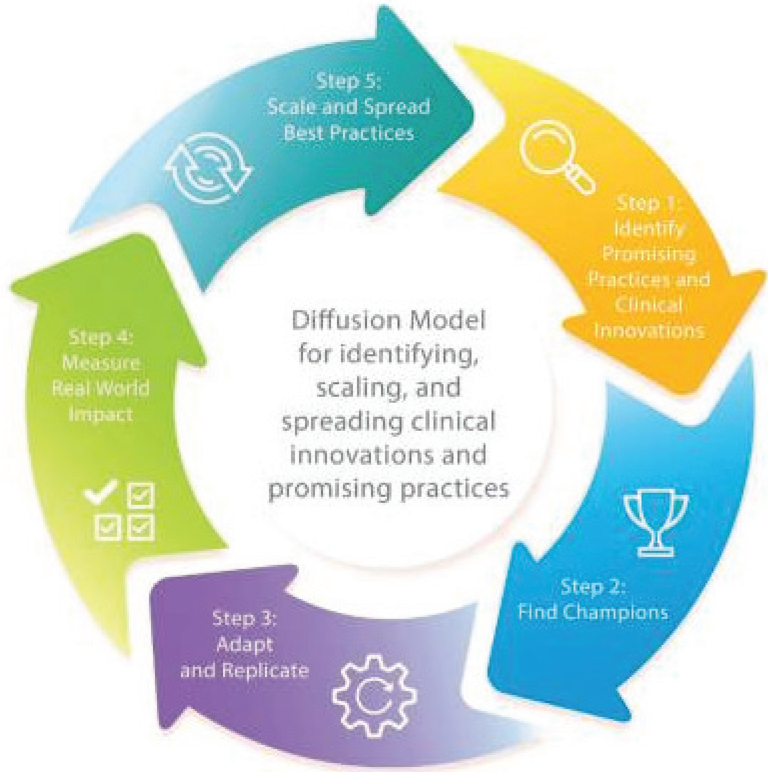

FIGURE 6-7 VA's Diffusion of Excellence model.
SOURCE: Reproduced from (Figure 1) Vega et al., 2019, with permission from the Permanente Federation.

or construct new space often incentivized scale and spread. Beyond the value associated with any one initiative, each successful iteration of the Diffusion of Excellence cycle advances the development of a culture of continuous quality improvement across VA.

Each of these five frameworks has value, and different systems should use whichever one best aligns with their current operations and culture to address the implementation they plan to achieve, overcome the challenges they anticipate, and advance the capabilities of their organization. Key principles for scale and spread that emerge across the five frameworks include

- A focus on a high-priority need shared by a broad range of stakeholders.
- Selection of effective practices which address that need.
- Pre-implementation attention to the acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability of the planned intervention.
- Strong buy-in from clinical, administrative, and policy leaders within the health care system and, when appropriate, at community, state, and federal levels.
- Engagement of stakeholders to build implementation capacity and specify needed practice adaptations and evaluation goals.
- Development of learning systems that train and motivate clinicians and other line staff to adopt effective practices.
- Identification and coordination of well-trained local champions capable of leading change at the front lines of health care.
- Adaptation of the medical record and other reporting systems to enable reliable measurement of implementation and outcomes using valid, standardized metrics.
- Ongoing analysis of system data and stakeholder feedback, which either makes a strong business case for sustaining new practice or guides next steps in adaptation.
- If successful, a handoff to local operational leaders to continuously refine local adaptation and own practice sustainment over time.

SCALING AND SPREADING WHOLE HEALTH TO ALL ENROLLED VETERANS

The statement of task charged the committee to comment on how VA can accelerate clinical integration with community services to expand whole person care to veterans who receive their care outside VA through the VA MISSION Act's provisions. It also charged the committee with identifying strategies that VA can use to overcome barriers to scaling and implementing components of the whole health approach, such as integration of mental health, CIH, health coaching, peer-to-peer approaches, and well-being programs. In response, this section focuses on two key questions: (1) How can VA scale whole health to reach all enrolled veterans, including those who receive care outside of VA through the VA MISSION Act? and (2) What strategies can help overcome barriers to spreading components of whole health across other sectors of U.S. health care?

Through a series of internal VA policy changes and implementation efforts as well as federal mandates, VA has expanded its WHS steadily since its launch in 2012. WHS is currently available at 37 sites, with at least one "flagship" site in every veterans integrated service network. In 2022, just over 1 million veterans (approximately 16 percent of veterans actively receiving care) had received at least one component of whole health care.[5,6] COVID-19 also illustrated the impact of WHS scaling (see Box 6-1). Recent outcome-evaluation studies of WHS users compared with non-users found greater reductions in opioid usage as well as improvements in perceptions of care, engagement in care, self-care, life meaning, and purpose, pain, and perceived stress (see Chapter 5 for more details). These findings provided the basis for a new executive decision memo that mandated VA integration of whole health principles and practices into mental health and primary care across the entire VA system. VA plans to complete WHS implementation at full enterprise scale between 2024 and 2027 (Kligler et al., 2022).

The growth of and commitment to WHS across VA bodes well for future scaling efforts, yet, as Chapter 4 notes, some barriers remain in place. VA evaluations suggest that the fidelity of WHS implementation varies across the locations where it is already available and that whole health services are not yet available throughout the system. In addition, as described in Chapter 4, the committee's foundational elements of whole health are not fully available at every site where VA has implemented WHS.

Addressing Barriers to Scaling Whole Health within VA

Despite the progress implementing the WHS within VA to date, significant barriers hinder its scale and spread throughout the system. Some of these barriers reflect lingering negative concerns about the WHS rollout among at least some VA staff members at multiple levels. Others have to do with how veterans first gain access to VA services at the point of separation from military service and how veterans who receive care in non-VA health systems lack access to whole health services. Still others reflect historical schisms built into VA itself which VA will have to resolve to optimize its effectiveness as a whole health system. None of these barriers are beyond solving, but each will require initiative, creativity, flexibility, funding, and

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[5] After a prepublication version of the report was provided to VA, this section was edited to correct the number of veterans receiving whole health care.

[6] Personal communication, Ben Kligler, Department of Veterans Affairs, February 13, 2022.

BOX 6-1
How COVID-19 Illustrated the Promise of Scaling Whole Health within VA

While the COVID-19 pandemic presented unanticipated challenges to VA's concurrent rollout of WHS, the crisis also facilitated whole health scaling at pilot sites as patients, frontline health care workers, and supervisors came to recognize and appreciate the support that whole health approaches provided to individuals, teams, and systems under extreme stress. This in turn demonstrated the program's value to top leadership, who often decided to incorporate whole health messaging and practices in their efforts to enhance individual and organizational resilience during the crisis (Dryden et al., 2021). One study showed that in the process of delivering whole health care to veterans and adopting a whole health approach to their own care during the pandemic, VA staff reported significant improvement in their personal well-being and work experience (Reddy et al., 2021). These findings align with anecdotal reports that enhanced self-care among VA employees working within WHS during the pandemic increased their resilience which, in turn, helped drive still greater acceptance and adoption of this significant paradigm shift. These findings, especially if additional research confirms them, are likely to support continued scaling of whole health within VA and its spread across other health care system systems.

inspired leadership if VA is to achieve the desired health outcomes for veterans and optimal efficiencies for its system.

While VA's WHS rollout has generally been welcomed, a recent study of staff perceptions of VA WHS implementation identified some barriers to scaling, including

- Cultural barriers, including the absence of a flexible, progressive culture;
- Leadership barriers, including a lack of perceived authority to implement change;
- Administrative barriers, including excessive lags in hiring which, in part, reflect a failure to develop appropriate position titles, and credentialing standards;
- Resource barriers, including inadequate allocation of space and funding;
- Clinical barriers, including a failure to factor in the challenge of managing large, complex caseloads which, in turn, limit the length and frequency of whole health appointments; and

- Policy and procedural barriers, including unclear policies regarding when certain interventions or services are permitted (e.g., increasing medical staff membership of integrative medicine providers in VA medical centers and when and how integrative practices may be provided either through in-house consultation or by outsourcing to qualified community providers) (Haun et al., 2021).

These concerns led employees to recommend that VA hire more staff to support WHS activities and, in particular, institute a faster hiring process so that facilities could keep pace with the demand for the new and broader range of services associated with whole health (Haun et al., 2021). VA employees also recommended establishing WHS as its own service line reporting directly to the facility director; improving systems for whole health workload capture and credit; and developing templates for better documentation and for tracking the delivery and outcomes of whole health services. VA employees working at WHS test sites also recommended developing communication networks that build facility capacity to identify and coordinate the full range of WHS services within a community. This aligns with the committee's discussion in Chapter 4 that VA's current WHS implementation does not fully address all of the committee's five foundational elements. Local networks could enhance collaboration between VA facilities and their surrounding region, while national communication networks identify and align WHS services nationwide.

Given the wide range of VA settings, there is no single cookie-cutter solution that can address these issues at enterprise scale. Such concerns can, however, be effectively addressed by encouraging and supporting the creativity and flexibility of local teams and leaders through application of one of the four health delivery innovation models described earlier in this chapter and also demonstrated by the many whole health systems described throughout this report. In any effort, it is essential to balance efforts at the macro and meso levels (e.g., leadership support from top VA officials and policy guidance from VA program offices) with a "boots on the ground" understanding and opportunities at the micro level.

Need for Increased Emphasis on Upstream Factors within VA WHS

As Chapters 4 and 5 discussed, the VA WHS does address upstream factors through its Circle of Health model, but it is unclear how it operationalizes the model with practical services that veterans can use, nor is it clear how effective the model is at addressing social needs. While other VA WHS assessment tools such as the Personal Health Inventory (VA, 2022e) and My Personal Health Plan Wallet Card (VA, 2022c) inquire specifically about certain upstream factors, including social support, housing safety, and nutrition, they are less explicit in assessing the effect of other key social determinants of health, including known obstacles to accessing health care such as reliable access to transportation (Health Research & Educational Trust, 2017) or a need for child or elder care services to ensure a veteran's ability to take part in gainful employment, clinical appointments, or other important activities of daily life. These assessment tools also fail to identify important life transitions such as becoming a parent or preparing for healthy aging. The lack of a more comprehensive assessment consistent with its own foundational Circle of Health concept undercuts VA's WHS approach and constitutes a barrier to scaling WHS across VA (VA, 2021a).

While a full discussion of this issue is beyond the scope of this report, VA's National Center for PTSD has helped develop a tool—the Well-Being Inventory (WBI)—that could be useful for broadening WHS assessments of upstream factors (Vogt et al., 2019). This multidimensional assessment tool was specifically designed to measure veterans' status, functioning, and satisfaction within the four life domains of vocation, finances, health, and social relationships. In total, there are 21 sections of the WBI and 126 questions/statements with anchored responses scored using a five-point Likert scale. Measures within each domain may be extracted for use as separate entities depending on the purpose of the assessment. While the concept of well-being is not entirely congruent with that of whole health, the WBI is a psychometrically sound set of measures that could be useful for deepening and contextualizing VA's whole health assessment. Given that it is already part of VA's toolbox, VA could integrate it easily into its WHS. In addition, researchers at VA are currently developing and validating a Well-Being Brief measure (VA, 2021b). Periodic application of the WBI or similar measures within the WHS would be of unique value because such measures of well-being provide a common language in which patients, clinicians, researchers, administrators, and policy makers can converse and come together to define shared values, goals, and actions (VHA, 2021).

De-Siloing VHA and VBA Services to Address Upstream Factors As Chapter 1 described, VA is officially a single entity, yet in many ways it operates as three separate entities: the Veterans Health Administration (VHA), which oversees VA health care, including WHS; the Veterans Benefits Administration (VBA), which provides a broad array of benefits and services, including financial, educational, vocational, and mortgage assistance to veterans and their dependents; and the National Cemetery Administration. Each has a distinct mission and receives a separate budget allocation. As a result, these three administrations have a natural tendency to be unaware of one another's initiatives, even as they often compete with one another in addressing specific issues. For example, both VHA and VBA have programs to support veterans on college campuses: VHA's Veterans Integration to Academic

Leadership Program addresses veterans' clinical needs (VA, 2020e), while the VBA's VetSuccess on Campus administers their VA benefits (VA, 2022i). Both programs have significant value, yet important opportunities for synergy are lost because they employ different staff with different training and, for the most part, operate on different campuses and in isolation from one another.

Enhanced integration or coordination of VHA and VBA efforts could achieve veteran-centered synergies in support of VA's WHS scale and spread because a large portion of VBA's portfolio addresses issues relevant to the upstream factors that are foundational to whole health. For example, as Chapter 1 describes, VBA has a variety of programs that provide direct financial compensation for service-connected disabilities, employment benefits, educational benefits, low-interest home loans and mortgage delinquency assistance, financial management assistance, independent living assistance, and other means of support that directly address the social determinants of health (VA, 2022h). Because many of these benefits align well conceptually with whole health approaches, the integration of VHA and VBA's efforts has the potential to maximize the efficacy of VA's WHS while also reducing health inequities among veterans (NASEM, 2019a).

While VA has implemented a number of systems-level changes since its inception, it is a large government agency, and the challenge of de-siloing programs across VHA and VBA is formidable. There are precedents for success, however. For example, in the course of a high-priority VA campaign, VBA, VHA, and other federal, state, and local agencies, including the Department of Housing and Urban Development, collaborated to achieve a significant decrease in homelessness among veterans (VA, 2022k). Given equal priority, many VHA and VBA services could potentially meld within a single, integrated system to privilege the whole health needs of individual veterans above VA's venerable organizational structures and processes. It is beyond the scope of this committee to assess the operational complexity and feasibility of better VHA–VBA integration, but as VA's WHS expansion continues, VA could consider strengthening the integration between the two administrations to potentially bolster, streamline, and better integrate its whole health efforts.

In fact, VA has already begun efforts to better integrate its internal systems to some degree. The mission of the recently established Veterans Experience Office (VA, 2022g) is to "coordinate across the department to meet the health and benefits needs of our veteran customers by establishing community-level, public and private partnerships to bridge gaps in services, foster knowledge exchange, and conduct outreach with underserved communities to support Veterans experiences." VA could apply these same principles and strategies to better integrate the efforts of VHA and VBA. Though this de-siloing effort would be ambitious, it is a fundamental step that VA could take to overcome internal barriers to WHS implementation.

Whole Health and the Transition between the Department of Defense and VA

Like all life transitions, adjustment from military to civilian status is associated with potential health risks (Montgomery et al., 2022), but this particular transition (Derefinko et al., 2019) also provides a unique opportunity for new veterans and their families to acquire a whole health perspective and engage VA's WHS. Unfortunately, current transition practices fail to incorporate a whole health approach. This limits the opportunities for veterans and their families to participate in proactive, preventive whole health efforts that could have significant value for individuals, families, communities, and government agencies at multiple levels. It also represents a critical barrier to scaling WHS across VA and facilitating its spread it across the rest of U.S. health care.

More than 200,000 service members exit the military every year (DoD, 2022). As part of that process, they receive substantial training on VA programs and benefits through the VBA's Transition Assistance Program (TAP) (VA, 2022j). Recognizing that women veterans may be less likely to enroll for services (Newins et al., 2019), VA has developed a Women's Health Transition Training to engage them. Despite these efforts, many veterans still fail to enroll for VA services at the time of separation. VA's Office of Public Health reports that only 62 percent of service members who deployed to combat areas after September 11, 2001, had accessed even one VA health service by June 2015 (VA, 2020c). The RAND Corporation reported that although about 60 percent of U.S. veterans are eligible for VA care based on length of service, service-connected injuries, service in designated combat theaters, and income, fewer than half use VA health benefits (Farmer et al., 2016).

Enrollment in VA health and benefits programs is not automatic: new veterans must opt in at the time of separation. Unfortunately, many veterans report being put off by rumors that VA is difficult to engage and believe that the effort is not worth the payoff (Crawford et al., 2015). Having spent years receiving their training, occupational assignments, location, housing, medical care, and even their clothing and meals from the military, new veterans are often unprepared for the challenges of civilian life. By the time that many come to realize they need better access to health care or assistance with housing, education, or employment, they have often lost track of their VA options or a designated period of eligibility has expired (5 years for those who have deployed to combat operations in Afghanistan or Iraq). This is particularly important regarding mental health needs. According to VA's Office of Public Health, more that 58 percent of recent combat veterans who presented to VA as of June 2015 received at least one mental health diagnosis. In addition, RAND's longitudinal Deployment

Life Study concluded that addressing psychological problems at the time of military separation could help avoid serious long-term impairments such as increased morbidity, homelessness, unemployment, or substance use (Meadows et al., 2016). Failure to engage VA health care in the course of separation could carry severe consequences for such veterans.

Recent efforts to enhance transition assistance at the time of separation from the military may help. VBA's new Solid Start Program[7] inaugurated a series of three telephone contacts with every newly separated service member during their first year of civilian life (VA, 2020d). Through this new system, specially trained VA benefits representatives update contact information, review the new veteran's progress toward goals developed at the time of separation, and offer help ranging from obtaining a home loan, accessing physical or mental health care, or pursuing academic studies, technical training, or occupational opportunities. Through these and other efforts, Solid Start incorporates VA whole health principles by engaging a population of veterans who might otherwise be lost to follow-up during a vulnerable state of transition. Incorporating the Well-Being Inventory (described above) or a brief, validated measurement such as VA's Well-Being Signs (Vogt et al., 2019) into the Solid Start program could augment this approach. The Well-Being Signs tool asks veterans to consider the most important things that they do or wish to do in their daily lives. This might include having a job, spending time with family and friends, participating in leisure-time activities, or managing one's health or finances. Ideally, veterans would take a baseline measure of well-being during the TAP weeks or, preferably, months before termination and be followed over the course of Solid Start.

VA's proactive investment in engaging these new veterans could produce downstream advantages for veterans, their families, and for VA itself. These advantages could be multiplied if Solid Start were to include "fast track" enrollment in VA's WHS that engaged new veterans in comprehensive whole health care early enough in their civilian careers to have maximum impact on their well-being and social determinants of health. The simple act of orienting new veterans and their families to whole health principles and practices—whether or not they chose to enroll in VA care—could have the added benefit of increasing awareness of and demand for whole health practices in non-VA health systems.

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[7] Additional information is available at https://benefits.va.gov/transition/solid-start.asp (accessed February 14, 2023).

Engaging Veterans Who Seek Care Through Non-VA Health Systems in WHS

More than half of the 19 million living U.S. veterans do not receive health care through VA. Of the 9 million who enroll in VA health care, many receive at least some portion of their care in non-VA systems. This is important because most health care systems fail routinely to ask or record the response to a basic question: "Have you or someone you care about served in the military?" (Kilpatrick et al., 2011).

While it is true that, for most of the nation's history, fewer than 1 percent of its citizens served in the military (Segal and Segal, 2004), the combined number of service members, veterans, and their dependents who are potentially eligible for military or VA benefits today approaches 60 million people, or one in five U.S. citizens. Any of these individuals is a potential point of engagement with VA WHS, and a failure to ask about and document veteran status is a major yet avoidable barrier to that engagement. Furthermore, when veterans who are enrolled in VA care choose to seek care in non-VA settings, they may not be recognized as potentially eligible to participate in VA's Community Care program. This could significantly disadvantage both the patient and the health system and contribute to discontinuity of care.

One reason that clinicians in non-VA settings routinely fail to ask about veteran status may be indicated by a RAND Corporation study which found that non-VA health care providers generally lack the necessary clinical and cultural competence required to understand and respond to the health needs of veterans. In addition, non-VA providers may lack the necessary understanding of the significant health and social resources that may be available to military-related populations (Tanielian et al., 2014).

Veterans are at higher risk than the average patient for a number of important health risks, including PTSD, traumatic brain injury, exposure to toxins and tropical diseases, and physical trauma. As such, they may be eligible through VA for a unique set of important health resources, including access to specialty and subspecialty care, sophisticated diagnostics, pharmaceuticals, surgical procedures, inpatient services, and long-term residential and rehabilitation services—but only if their non-VA health care providers identify them as veterans. In fact, both veterans and their non-VA providers stand to benefit if they realize that they may be eligible for reimbursement and coordination of care through VA's Community Care program. Relevant to the spread of whole health across non-VA systems and given VA's ongoing scaling of its WHS, improved coordination of care between VA and non-VA providers could serve as a valuable driver of whole health culture, principles, and practices in non-VA settings. In short, it makes good medical sense for non-VA health care systems to identify veterans under their care.

The MISSION Act and Coordinating Care between VA and Community Care

Implementation of the bipartisan John S. McCain III, Daniel K. Akaka, and Samuel R. Johnson VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018,[8] which built on the preceding Veterans Access, Choice, and Accountability (Veterans Choice) Act of 2014,[9] illustrates the complex process of integrating services between VA and non-VA systems. Upon its implementation in June 2019, the MISSION Act established a new community care program designed to improve access to non-VA care for eligible veterans. The statement of task (see Chapter 1) asked the committee to consider ways in which VA can accelerate clinical integration with community services to expand whole person care to veterans who receive their care outside VA through the VA MISSION Act provisions.

The MISSION Act permits VA-enrolled veterans to receive care in the community if they meet any of the following six eligibility requirements:

- A veteran needs a service not available at any VA medical facility.
- A veteran lives in a U.S. state or territory without a full-service VA medical facility. Specifically, this would apply to veterans living in Alaska, Hawaii, New Hampshire, and the U.S. territories of Guam, American Samoa, the Northern Mariana Islands, and the U.S. Virgin Islands.
- A veteran qualifies under the "grandfather" provision related to distance eligibility under the Veterans Choice program.
- VA cannot furnish care within certain designated access standards pertaining to
    - drive time, as calculated using geo-mapping software, of greater than a 30-minute average drive time for primary care, mental health and noninstitutional extended care services or a greater than 60-minute average drive time for specialty care or
    - appointment wait time of 20 days from the date of request for primary care, mental health care, and noninstitutional extended care services, unless the veteran agrees to a later date in consultation with his or her VA health care provider, and 28 days for specialty care from the date of request, unless the veteran agrees to a later date in consultation with his or her VA health care provider.

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[8] John S. McCain III, Daniel K. Akaka, and Samuel R. Johnson VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018, Public Law 182, 115th Congress, 2d sess. (June 6, 2018).

[9] Veterans Access, Choice, and Accountability Act of 2014, Public Law 146, 113th Congress, 2d sess. (August 7, 2014).

- The veteran and the referring clinician agree it is in the best medical interest of the veteran to receive community care based on defined factors.
- VA has determined that a VA medical service line is not providing care in a manner that complies with VA's standards for quality based on specific conditions.

The MISSION Act also established a new urgent care benefit that eligible veterans can access through VA's network of urgent care providers in the community (VA, 2019).[10]

During the Veterans Choice program era, over one-third of VA-enrolled veterans used community care (Mattocks and Yehia, 2017), and in 2020 the MISSION Act authorized more than 2.3 million veterans to seek care from community providers (CRS, 2021). The most common referrals to community providers have been for physical therapy, chiropractic care, orthopedics, and acupuncture, with the latter being an integrative service often included as an element of whole health systems, providing an important precedent for including other whole health services under the MISSION Act. Such referrals likely reflected the VA's increasing focus on non-pharmacologic treatment for pain care (Mattocks et al., 2021). In addition, from June 2019 to February 2020 nearly 140,000 veterans, or 2.4 percent of eligible veterans, made over 175,000 urgent care visits under the new MISSION Act urgent care benefit, costing VA over $23.3 million (Vashi et al., 2021). During the same period, 7.3 percent of eligible veterans visited a VA emergency department or urgent care clinic.

As part of its effort to operationalize the MISSION Act, VA established the Community Care Network (CCN) (VA, 2022a). CCN is meant to link VA with community providers to ensure that veterans receive timely, high-quality care by applying industry-standard approaches and guidelines to administer services, pay for services promptly, and manage the network to its full potential. Included are medical, surgical, complementary, and integrative health services, durable medical equipment, pharmacy, and dental services for eligible veterans. At present, CCN comprises five regional networks covering all U.S. states and territories and is being deployed in a phased approach (VA, 2022a). Once fully implemented, CCN will be the preferred national network VA uses to purchase care for veterans in their communities. VA has awarded contracts to Optum Public Sector Solutions, Inc., part of UnitedHealth Group, Inc., and TriWest Health Care Alliance to serve as third-party administrators, with each responsible for different geographic regions across the country. In most cases other than urgent or

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[10] Additional information is available at https://www.va.gov/opa/pressrel/pressrelease.cfm?id=5264 (accessed December 2, 2022).

emergency care, veterans need a VA referral through a local VA medical facility community care office before they may visit an enrolled community provider.

Currently, there are limited data regarding whether the availability of the MISSION Act's community care options is improving veterans' access to care, quality of care, or health outcomes. One review of wait times for over 1.1 million veterans who received care from community providers under the Veterans Choice program between fiscal year (FY) 2015 and FY 2018 found that while average wait times for both rural and urban veterans and for all services had decreased over that time, average wait times for most services were longer for community care than for care at VA facilities (Gurewich et al., 2021).

In terms of quality of care, a systematic review (IOM, 2001) found that VA facilities compared favorably with non-VA facilities across many dimensions of quality (O'Hanlon et al., 2017). For example, in 22 of 34 studies of safety and 20 of 24 studies of effectiveness, VA facilities demonstrated the same or better quality compared with non-VA facilities. VA facilities performed similarly or better in most, but not all, studies comparing morbidity and mortality. VA facilities also had similar or superior quality to non-VA facilities with respect to preventive, recommended, and end-of-life care as well as managing medications (O'Hanlon et al., 2017). Given these findings, it is important to ensure that when veterans receive community care, the quality of that care is at least equal to that provided by VA.

Even if well intentioned, the Veterans Choice program and the MISSION Act have not yet succeeded in their stated purpose of improving access to care for veterans or guaranteed a uniform quality of care. In fact, the significant challenges that VA has encountered in implementing the MISSION Act's requirements portend substantial difficulties in any future effort to integrate whole health services delivered in non-VA settings under the Act's provisions. For example, on July 14, 2022, nine senators wrote to Department of Veterans Affairs Secretary Denis McDonough to raise concerns regarding access to community care as authorized by the MISSION Act (Daines et al., 2022). According to the letter, constituents have voiced frequent concerns and have provided evidence that VA is not always following its own guidelines regarding access to community care and in some cases has denied care to eligible veterans. There are also reports that VA is rescheduling care without the veteran's consent, that internal VA training materials are pushing to reduce community care, and that VA administrators are, in some cases, overruling decisions by VA doctors who wish to send their patients to community providers (Castellano, 2021).

VA leaders may have good reason to be concerned about the cost of implementing the MISSION Act. A December 2021 report from the VA Office of the Inspector General (OIG) found that community-based care has made veterans' care significantly more costly. High costs were, at least in part, attributed to a lack of financial controls under the MISSION Act. A VA OIG review team found that in FY 2020 more than 37,900 community providers billed and were paid nearly $40 million for significantly more high-level evaluation and management codes compared to their peers in the same specialties (OIG, 2021). In addition, VA paid out another $37.8 million to 45,600 providers who billed for evaluation and management services that were already covered by bundled payments. According to the OIG report, some 38 percent of the 218,000 participants in the VA Community Care Network created under the MISSION Act have engaged in the fraudulent billing practice known as upcoding.

The VHA operates with a fixed allocation from Congress, so excessive expenditures in community care reduce support for in-house VHA staffing, services, and facilities. Critics of the Choice and the MISSION Acts have raised an alarm that, despite the avowed purpose of improving access to care for veterans, these acts would cripple VA and open the door for complete privatization of veterans' health care (Lemle and Gordon, 2021).

According to the Congressional Budget Office, VA spending on community care has grown sharply, both in terms of dollars spent and as a portion of VA's total spending. In 2014, VA's Community Care program accounted for $7.9 billion, or about 12 percent, of VHA's budget. By 2021 the cost of community care programs had more than doubled to $17.6 billion, representing approximately 20 percent of VHA's budget (Bass et al., 2021). When the committee was writing this report, VA's Community Care program accounted for one-third of VA's total health care expenditures, a 26 percent year-to-year increase.

One major barrier in implementing the MISSION Act has been difficulty enrolling community providers in community care networks. A survey of VA facility directors identified the following major impediments to enrolling community providers: delays in reimbursement, low Medicare reimbursement rates, and confusing VA rules for prior authorization and bundled care (Mattocks et al., 2021). Furthermore, 35 percent of VA facility leaders surveyed could not identify sufficient capacity to deliver non-VA mental health, orthopedic, dermatology, or neurology services within their geographic area. Nearly 30 percent of these VA leaders reported that community providers practicing within their area were not accepting new patients and that almost 45 percent of community providers in their area were unwilling to take VA patients. In addition, as Chapter 1 described, wait times for services at VA facilities tend to be similar to, and in many cases shorter than, those in the surrounding community, suggesting that veterans seeking community care because of wait times at their local VA facility may not fare better elsewhere (CRS, 2021).

Several studies have found that care across VA and non-VA facilities is often not well coordinated (Charns et al., 2022; Mohr et al., 2019; Vanneman et al., 2022; Zulman et al., 2022). One study reported system failures with the potential to significantly undermine patient safety and veteran satisfaction (Schlosser et al., 2020). For example, only 5 percent of community clinicians reported that they always or very often received notification that their patients were receiving VA care, whereas 44 percent of VA clinicians reported that they always or very often received such notification (Schlosser et al., 2020). Providers in both VA and the community reported difficulty in communicating medication changes, sharing laboratory and imaging results, communicating with specialists, sharing discharge summaries, and managing medication renewals between systems of care. One study (Benzer et al., 2020) found that the lack of interoperable EHRs between VA and community care systems, combined with "bureaucratic and opaque procedures," created significant obstacles to care coordination. The authors of that study recommended that VA implement enhanced monitoring of patients' experience of care coordination, surveys of referring and consulting clinicians, and pilot testing and evaluation of interventions to improve care coordination (Benzer et al., 2020).

In a recent cross-sectional study of community health informational exchanges and access standards set forth in the MISSION Act, investigators identified important barriers to shared information (Martin et al., 2021). Some barriers stemmed from technical limitations among the many different platforms deployed across the nation (Chapter 7 will discuss the pressing need for interoperability among health information technologies). The investigators found that only 37.8 percent of the health care systems that responded to their survey reported current active exchange of information with any of VA hospitals within their coverage area. Another concern that this study identified was the lack of a uniform national standard to establish consent to share information. Some states require a veteran to actively opt in for exchange of records, while others only offer an opportunity to opt out, resulting in an uneven patchwork quilt of policies and procedures from state to state and within individual VA networks. In addition, non-VA health care systems are generally unable to identify veterans within their own caseloads, which limits their ability to create and use databases to further understand potential veteran populations in order to enhance their access to MISSION Act services. Such databases could also serve to identify eligible veterans in non-VA care systems who could benefit by enrollment in VA's WHS.

Many of these same problems make transitions between community-based hospitals and follow-up VA care inefficient and potentially unsafe. Investigators have found that transitions from medical hospitalizations to VA primary care outpatient follow-up were often delayed because providers at community hospitals were unable to identify patients as veterans or notify the VA primary care clinician that they had discharged the veteran (Ayele et al., 2019). In addition, community providers at non-VA hospitals were unable to write orders for VA formulary medications that veterans could fill at VA pharmacies, to transfer non-VA medical records to the veteran's primary care clinician, or to arrange for follow-up appointments for veterans with the VA primary care clinician. Because the study's authors could not identify standardized processes for these transitions, they suggested that VA create a liaison position to provide care coordination and educate veterans about the transition process.

A systematic review of care coordination across VA and community facilities for rural veterans highlighted many of these same coordination challenges. In addition, this review also identified other barriers as well as potential facilitators for coordination across systems (Garvin et al., 2021). For example, care coordination was more successful between VA and community settings when organizational policy and administration practices, such as credentialing, contracting, authorization, scheduling, performance measurement, reimbursement, and eligibility, were clear, closely aligned, or agreed upon between VA and community care systems. An organizational culture that was characterized as bureaucratic, insular, and risk averse was a perceived barrier to coordination, especially when present at VA. Timely, bidirectional information sharing was often a problem between VA and community settings, forcing veterans to bear responsibility for carrying their own records back and forth between systems. Cultural facilitators for coordination included VA's commitment to people-centeredness, interprofessional teams, CIH, and cultural sensitivity. The authors concluded that VA leadership responsible for care coordination can learn from best and worst practices to continuously improve both processes and culture.

In summary, the MISSION Act was developed to boost veterans' access to timely, high-quality health care through integration of the VA and community health systems. However, for a variety of reasons outlined above, many of which are outside VA's control, VA has struggled to meet its intended purpose. While many of the new collaborations between VA and community systems and services developed through the MISSION Act could potentially accelerate scaling of whole health care to enrolled veterans receiving health services outside of VHA facilities, these same challenges apply.

Another key question for VA's WHS is whether the MISSION Act, which specifies its focus on hospital care, medical services, and extended care services to covered veterans through health care providers, would even cover services that address upstream factors of health and well-being that are critical to scaling and spreading a whole health approach but that are typically delivered outside traditional clinical settings. If VA wants to scale and spread whole health for veterans receiving care through MISSION Act eligibility, it will likely have to clarify if community providers under current MISSION Act rules can provide all whole health services, particularly those that address the upstream factors that contribute to health and well-being.

While resolving these difficult issues is beyond the scope of this committee, these are barriers that VA must confront in scaling whole health services for veterans eligible for VA care. Integrating across systems is particularly challenging because each VA site of care must deal with a wide range of procedural, communication, data sharing, and interoperability issues specific to its community and region while simultaneously managing local differences in population demographics and needs. (See Box 6-2 for information on communication networks to facilitate linkage to whole health services.) Addressing these issues calls for new flexibilities in forming partnerships, sharing space, expediting hiring processes (possibly including the option to jointly hire staff who can operate between systems), setting reimbursement schedules, and ensuring prompt and appropriate payment. Third-party administrators should be held to national standards that ensure that veterans have robust access to integrated primary/mental health and specialty care within their communities via physical or virtual means.

Success in overcoming these barriers will require effective coordination across dozens of disparate programs and services, each of which is staffed with people accustomed to doing things their own way. VA itself will need to overcome challenges with the interoperability of its EHR (see Chapter 7), as will other health systems, small practices, and independent providers. As required by the MISSION Act, community partners must achieve the cultural competence and knowledge of VA programs and benefits necessary to effectively serve veterans and coordinate care with VA. It is imperative that VA makes the process of integration attractive and efficient for community providers while also ensuring that financial abuse of the system is minimized.

Until such progress is made, VA's clinical integration with community services to expand whole person care to veterans receiving care outside VA through the VA MISSION Act will remain elusive. This is unfortunate because successful implementation of the MISSION Act could serve as a powerful driver of whole health spread across the nation.

INTEGRATING SERVICES TO SCALE AND SPREAD WHOLE HEALTH

Along with systems change and structures and processes required for scale and spread, achieving whole health at scale will require services to be integrated. Integrated health care is care coordinated across professionals, facilities, and support systems; that is continuous over time and between visits; and that is tailored to personal and family needs, values, and preferences

BOX 6-2
Communication Networks to Facilitate Veterans' Linkage to Whole Health Services

The North Carolina Governor's Working Group on Service Members, Veterans, and their Families (NCGWG),[1] established in 2006, offers a robust model of a local communications network (North Carolina Governor's Working Group, 2022). The NCGWG is a coalition focused on improving health and wellness, job creation, workforce enrichment, legal and financial assistance, caregiver support, and other services and benefits for veterans across North Carolina's 100 counties. By organizing at the state level, the NCGWG can build upon the existing expertise, resources, and communications systems of state departments and programs—including veterans affairs, mental health, housing, education, labor, commerce, and education—along with VHA and VBA programs within the state, state chapters of veterans service organizations, military bases within the state, and the state National Guard, among many other entities and organizations. In taking a big tent approach to public–private partnership, the Governor's Working Group builds bridges that connect veterans with health care and a wide range of social services within and beyond VA for problems such as homelessness, educational needs, underemployment, and justice involvement.

Following a no-wrong-door approach, NCGWG has helped state and community agencies identify veterans within their programs and develop the cultural competence and system knowledge required to provide optimal coordination of services. Advocates, agencies, and organizations within NCGWG have gained expertise in connecting veterans with VA services and benefits, while VA staff have identified a significantly larger directory of supportive community services, each with a liaison through NCGWG (Straits-Tröster et al., 2011). As it continuously builds and integrates in both top-down and bottom-up processes, NCGWG provides a replicable model which other states can build upon in support of whole health.

Military OneSource[2] is another an example of a national communication network to help veterans receive needed services including and beyond health care (Military OneSource, 2022). Funded by the Department of Defense, it serves new veterans and their families for a full year after separation from service by connecting them with an extensive array of services and assistance, including setting goals, engaging VA services and benefits, exploring education opportunities, and preparing to join the civilian workforce. Assistance is available by phone or chat for support with issues ranging from mental health problems to how to balance a checkbook or change a tire. Those seeking to assist service members, veterans, and their families can also call for help in connecting them with needed services in their own communities. Although a national program, Military OneSource has developed an extensive menu of local, regional, and national services—including virtual services—capable of meeting veterans on their own terms and wherever they may be. While not explicitly involving VA's WHS, Military OneSource offers a model upon which a national communications system could be built to support whole health for everyone in the United States.

In July 2022 the National Suicide Prevention Lifeline transitioned to the three-digit number 988 (SAMHSA, 2022). The federal government has invested unprecedented resources in scaling this communication network of over 200 locally operated and funded crisis centers around the country. The 988 Suicide and Crisis Lifeline requires close collaboration between the Substance Abuse and Mental Health Services Administration (SAMHSA) and hundreds of public- and private-sector partners, state, territory, and tribal leaders, families with lived experience, mental health and substance use providers, community advocates, and others. The vision is of a robust national system that links callers to community-based services which, while primarily focused on crisis care, also connects them with upstream tools and resources to help prevent future crises. Call center systems are organized on state/territory and tribal levels. Each is at a different starting point, and each faces challenges. Nonetheless, the new 988 system is on a trajectory to help all citizens, including veterans, their families, and the health care providers and systems that serve them, connect with an individualized set of health and social services essential to achieving whole health. As such, it is also positioned to serve as a national information backbone for whole health transformation.

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[1] Additional information is available at https://ncgwg.org/ (accessed August 2, 2022).

[2.] Additional information is available at https://www.militaryonesource.mil/ (accessed August 3, 2022).

(Singer et al., 2011). It is not the same as integrative health or integrative care, also known as complementary and integrative health, which is best described as medical practice that retains many of the characteristics and strengths of conventional medical care while also embracing more holistic, complementary concepts and methods whose theory and practice may not be part of traditional western biomedicine (Rakel and Weil, 2003). While delivering whole health requires the integration of biomedicine and CIH, integration applies to the health system broadly. Effectively spreading whole health services requires enabling integrated services within and among interprofessional care teams, delivery systems, and health ecosystems. It also requires integrating services across clinical and nonclinical services that support the foundational elements of whole health and that may or may not exist within a given health system as well as integrating services over people's lifespans (Singhal et al., 2020).

Integrating within organizational boundaries is challenging, albeit often less challenging than integrating beyond them. Research suggests that integration was better within practice sites than within physician organizations and within health systems and that it was lowest for care provided outside health systems (Singer et al., 2020b). In determining how it will deliver whole health, each health system will need to assess its own capacity and strengths and determine the array of services it will provide itself; the rest it will need to outsource by acquiring those capacities from other organizations that offer them through some form of contracted relationship. These "make-versus-buy" decisions will have significant implications for health systems' ability to integrate whole health care. Considerations will include physical, functional, and financial challenges in creating necessary clinical space; availability of partners with the necessary capabilities, capacity, and quality; proximity and accessibility of potential partners for patients and referral sources; tax implications of different arrangements; implications for potential return on investment; availability of reliable, secure, and interoperable EHRs and data systems; and the challenges of effectively integrating new partners/contract workers into existing systems (Calnan, 2008).

Enabling integrated services in practice, within or across organizational boundaries, requires consideration beyond ownership arrangements between health care entities (Blumenthal, 2020). This committee adopts the comprehensive theory of integration (Singer et al., 2020a), which suggests that integration encompasses organizational components, including both structural features and clinical and administrative functions, as well as social components, including norms and interpersonal relationships, that together facilitate the integration of clinical processes, which result in integrated care (Singer et al., 2020a; Valentijn et al., 2015). Research indicates that integration becomes harder to achieve outside of existing health systems (Singer et al., 2020a) and that both organizational and social aspects of integration are important for providing truly integrated services (Kerrissey et al., 2022; Singer et al., 2020a). Integration thus calls for more than mere co-location or coordination; it requires creating a unified whole among disparate parts through shared programs, processes, and ways of thinking, as the examples presented in Chapter 4 convey.

To achieve whole health, different individuals will require different combinations of integrated services. Patients with multiple chronic conditions may receive care from multiple specialists as well as from home- and community-based services, while young families in socioeconomic distress may primarily require coordination between primary care, mental health, assistance with housing, and access to good nutrition. The processes that support integration must also be able to adapt to the values and needs of a diverse population with different preferences as to where and how to receive care, whether individuals access care in person or virtually, or whether they access care individually or with family or caregivers.

The array of services needed to support scaling and spreading whole health includes clinical services offered within health systems as well as support services that address upstream factors that contribute to health, such as housing, vocational assistance, childcare, and well-being programs that are not customarily considered part of patient care. As the *Implementing High-Quality Primary Care* report details (NASEM, 2021), these services are best anchored in the framework of primary care. That report suggests—and whole health requires—that high-quality primary care includes

- Collaborative engagement through longitudinal relationships;
- Co-located, coordinated mental health care;
- Access to substance use interventions;
- Efficient handoff procedures to more specialized care in both ambulatory and inpatient environments;
- Reliable, affordable access to rehabilitative services when needed;
- Practice agreements that return patients to lower levels of care as acuity and severity improve; and
- CIH services such as acupuncture, yoga, mindfulness, and meditation.

Successful, high-quality or high-value organizational integration of clinical services in any setting, VA or otherwise, requires that systems have supportive structures in place and that they act to scale and spread in accordance with the 10 key principles described earlier in this chapter. Overcoming barriers to scaling and spreading whole health requires integration across all services and settings as well as consideration of changing needs and preferences at different life stages as valued by individuals, families, and communities. In the following sections the committee highlights some key areas where enhanced integration could substantially improve movement toward whole health at scale. These include the integration and spread of

- Primary care with behavioral health care;
- Conventional medical care with complementary and integrative health;
- Social needs assessment and care with clinical care; and
- Health coaches, community health workers, peer specialists, and care coordinators.

After that, the committee considers mechanisms for integration. At the micro (patient with providers and care teams) and meso (within and across teams) levels, the committee suggests that developing, scaling, and spreading new health roles, including health coaches, peer-support specialists, care coordinators, and community health workers, could significantly enhance integration. At the macro level (integration within and across health systems), the committee suggests that by building on past achievements and its ongoing mission and responsibilities, the Health Resources and Services Administration could play a key role in integrating services to scale and spread whole health.

Integration and Spread of Primary Care and Behavioral Health Care

Of all the clinical integration efforts throughout U.S. health care, the evidence in support of integrating behavioral health with primary care is the strongest, with documented benefits of better health outcomes, better quality of care, lower costs, lower rates of emergency department visits, and lower rates of hospital admissions (NASEM, 2021). Within VA, integrated behavioral health and primary care is already the norm, with veterans assigned to a primary care team that includes an integrated mental health component of varying size and complexity appropriate to local needs and capabilities. VA's Primary Care–Mental Health Integration program is a good example of integration that has increased veterans' access to and use of mental health services (Johnson-Lawrence et al., 2012; Leung et al., 2017, 2019; Possis et al., 2020). At the national level, VA's Center for Integrated Health provides a broad menu of clinical, research, and administrative resources upon which other health care systems can build.

Integrated primary care and mental/behavioral health programs assist patients across a wide range of health and wellness domains, such as prevention, assessment, and treatment. When needed, integrated primary care and mental/behavioral health programs can refer patients to more complex levels of service provided by a diverse array of specialty and subspecialty mental health and substance use services, including inpatient and residential treatment. Treatment plans are developed in partnership with the patient and family and may include ways to help with stress, maladaptive behaviors, and other problems that interfere with daily life and pose short- and long-term threats to overall health. Examples include smoking cessation (Ebert et al., 2014), weight management (Ma et al., 2019), exercise/behavioral activation (Coenen et al., 2020; Gros and Haren, 2011), and enhanced coping skills such as mindfulness and problem-solving therapy for depression and anxiety (Leung et al., 2017; Zhang et al., 2018). Integrated primary care and mental/behavioral health programs play a particularly important role in addressing complaints frequently encountered in primary care settings, including sleep problems (Goodie et al., 2009), high blood pressure (Leung et al., 2022), diabetes (Chwastiak et al., 2017), asthma (Gait et al., 2019), and substance use (Karapareddy, 2019; Sterling et al., 2011), and are particularly valuable in addressing chronic pain either without opiates or by managing the risk for opioid dependence (Gleadhill et al., 2021; Leasure and Leasure, 2017). Studies have also found that consumers view integrated primary care and mental/behavioral health care favorably (Rollins et al., 2017; Tabvuma et al., 2022). Despite research that demonstrates significant value for patients and their health systems through integrated primary care and mental and behavioral health services (Huffman et al., 2014; Reed et al., 2016; Reiss-Brennan, 2014), these modalities remain separate within many if not most systems of care.

The Department of Health and Human Services (HHS) recently released its Roadmap for Behavioral Health Integration (Bagalman et al., 2022), which details policy solutions to help integrate mental health and substance use care into large health care systems. This approach is founded on three pillars: (1) strengthening system capacity by developing a diverse workforce that is prepared to practice in integrated settings, many of which operate outside of traditional health care settings such as hospitals or clinics, and investing in new infrastructure; (2) taking advantage of health financing arrangements, including efforts to fully realize the potential of mental health parity; and (3) making new investments in behavioral health promotion, upstream prevention, and recovery.

Collaborative chronic care models improve the outcome of multiple mental health conditions, such as major depression, when they are treated in a primary care setting (Archer et al., 2012; Bauer et al., 2019). In collaborative care, primary care physicians work with a care manager—often a psychiatric nurse, social worker (Chang et al., 2013), or psychologist—and a consulting psychiatrist to proactively identify, treat, and monitor people with mental health conditions. Key elements of collaborative care include population-based patient identification, continual symptom monitoring using an electronic registry, measurement-based care to track treatment response and identify patients who are not improving, and a stepped-care approach to systematically adjust treatment for patients who are not meeting targets (Katon, 2012). The benefits of this approach to care are seen not only in adults but also in children and adolescents (Asarnow et al., 2015; Ougrin et al., 2015).

Research has found that implementing collaborative care can be challenging because it is a complex intervention. A meta-analysis of studies on collaborative care for depression and anxiety identified a number of barriers to and enablers of successful implementation (Overbeck et al., 2016). The engagement of the primary care team lead and psychiatrist was a critical enabler for successful implementation (Curran et al., 2012; Eghaneyan et al., 2014), while a lack of such engagement, resulting from time pressures, competing priorities, worries about clinical autonomy, and discomfort diagnosing and treating mental health conditions, was a significant barrier (Coupe et al., 2014; Eghaneyan et al., 2014; Knowles et al., 2013; Wozniak et al., 2015).

Several studies indicate that co-location of the primary care team and a care manager is an important enabler (Knowles et al., 2013; Oishi et al., 2003). Face-to-face communication between care managers and primary care clinicians in evaluating new patients as well as the level of professional and social skills of the care manager were associated with enhanced outcomes (Whitebird et al., 2014). One study concluded that the most important factor in implementing collaborative mental health care in primary care settings was having time to spend with patients (Curran et al., 2012). Other important enablers included the quality of training for clinical staff, having a physician champion for the collaborative model, supportive leadership (Sanchez and Adorno, 2013), and appropriate funding for team operating costs related to collaborative care (Whitebird et al., 2014).

Policy changes needed to spread primary care–mental health integration include changing the physical architecture of primary care clinics to accommodate co-located mental health team members, providing financial incentives for multidisciplinary team formation and functions, and increasing accountability for patient outcomes, which includes assessing and addressing the social determinants of health (McGinty and Daumit, 2020).

Integration and Spread of Complementary and Integrative Health

Many health care systems routinely integrate CIH into standard clinical models to better address their patients' whole person needs (Singer and Adams, 2014), yet while research suggests that primary care clinicians are generally familiar with many CIH therapies and often discuss them with their patients (Schwartz et al., 2021), these services tend to be delivered in settings other than primary care and are often provided by consultants external to the primary care team or the health care system itself. Such treatments and their outcomes may not be tracked reliably because of a lack of interoperable EHRs and the paucity of procedural terminology codes, which are used for billing purposes, for many CIH therapies (Zeliadt et al., 2020). These factors combine to frustrate efforts to understand the type and intensity of services rendered, assess their clinical benefit, inform future treatment or policy decisions, and better integrate whole health approaches.

According to the National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH, 2021),[11] examples of CIH interventions include

- Nutritional, including special diets, dietary supplements, herbs, and probiotics;
- Psychological, including mindfulness techniques;
- Physical, including massage and spinal manipulation; and
- Combinations of the three, such as yoga, tai chi, acupuncture, dance or art therapies, and nutritional, such as mindful eating.

VA WHS has focused its efforts on six evidence-based CIH therapies: acupuncture, chiropractic, massage, tai chi, mindfulness, and yoga, all of the which HHS's National Pain Strategy and the American College of Physicians' low back pain clinical practice guidelines recommend as non-pharmacological pain therapies (Schwartz et al., 2021).

Research and clinical experience demonstrate that many patients find CIH approaches empowering because they provide them with a sense of personal control and achievement in managing their own health (Taylor et al., 2018). Veterans often advocate for access to forms of care that they both value and for which they can take personal responsibility. By providing access to such services, health systems lay the groundwork for their own cultural change and demonstrate a willingness to collaborate with patients, in keeping with the whole health model. As clinical staff become more familiar with CIH and its positive impact on patient health, they become increasingly competent and confident in integrating these practices into care plans. Patients, clinicians, and the health care system all gain from such integration.

VA's concerted efforts to scale CIH interventions across its system provide a roadmap for spreading CIH across other health care systems. One study identified nine key factors that facilitate CIH integration and implementation: (1) organizing individual CIH approaches into one program instead of spreading them across several departments, (2) developing CIH

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[11] Additional information is available at https://www.nccih.nih.gov/health/complementary-alternative-or-integrative-health-whats-in-a-name (accessed August 3, 2022).

strategic plans and steering committees, (3) identifying and empowering enthusiastic CIH program leads and practitioners, (4) building leadership support, (5) encouraging positive attitudes about CIH among clinicians, (6) paying attention to patients' attitudes toward CIH interventions, (7) sharing research evidence of CIH effectiveness, (8) identifying CIH champions, and (9) effectively marketing CIH practices at multiple levels (Taylor et al., 2019). This study also identified common challenges to spreading CIH, including difficulties in hiring trained staff, insufficient and inconsistent CIH funding, lack of patient access to CIH approaches, difficulties in coding and documenting CIH use, insufficient or inappropriate space in which to deliver CIH services, insufficient allotment of staff and provider time, and adverse cultural and geographic environments.

The authors of this study shared several successful strategies in supporting CIH integration, such as facilitating the process for recruiting CIH practitioners. Until recently, a lack of national qualification standards for many CIH specialists hampered recruitment. In response, VA's Integrative Health Coordinating Center recently developed nationally classified position descriptions for acupuncturists, yoga and tai chi/qi gong instructors, and massage therapists (VA, 2022b).[12] Non-VA health care systems could employ these descriptions to accelerate their CIH integration efforts. VA's efforts to develop CIH coding and tracking infrastructure and guidance provide ready models that non-VA health systems can apply to document CIH implementation and track health outcomes. Because health care workers may lack confidence in their ability to make appropriate CIH referrals, some VA facilities have appointed a clinical lead to review and advise on all CIH consultations. In this way, CIH services are better used, and clinicians are afforded new opportunities to gain competence and confidence in CIH implementation. Non-VA health care systems could replicate this same arrangement.

Unlike many systems, VA's WHS has successfully integrated CIH therapies into its EHR system, allowing for real-time information monitoring of CIH activities in the same way that VA tracks other clinical activities (Schwartz et al., 2021). This has enabled administrators to better document and monitor WHS activities and inform top leadership responsible for clinical policy and resource decisions.

Research has found that initial steps to implement and integrate CIH practices within a health care system can enhance their spread through a virtuous cycle. One report found that multiple levels of consideration drove leaders' decisions to provide or withhold support for CIH integration. These

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[12] Additional information about the Integrative Health Coordinating Center is available at https://www.va.gov/WHOLEHEALTH/professional-resources/IHCC.asp (accessed August 3, 2022).

considerations included their individual attitudes/knowledge, perceptions of evidence, and personal experiences; their interpersonal interactions with trusted brokers, patients, and loved ones/colleagues/staff; organizational concerns surrounding relative priorities, local resources, and metrics/quality/safety; and system-level policy, bureaucracy, and interorganizational networks (Bolton et al., 2021). Sound strategic planning that results in building critical infrastructure; appropriate, sustainable funding; and recruitment of qualified, respected CIH staff provides the basis for robust integration and spread of CIH within health care systems.

Integration and Spread of Social Needs Care into Health Care

As the 2019 report *Integrating Social Needs Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health* states, improving overall health depends on addressing social needs and vulnerability (NASEM, 2019a). Social needs are integral upstream factors of health—one of the committee's five foundational elements of whole health—and include access to safe housing, food, and transportation; education, job opportunities, and employment; clean and safe built and natural environments; and financial security, among other factors. While some of these relate to overall community conditions for which local and national policy makers are accountable, such as the natural and built environments of a community, others fall within the purview of clinical and social services. For a whole health system of care to adequately address the upstream factors of health, it must integrate assessing and attending to social needs into its overall care delivery system. The degree to which social needs are integrated into health care delivery, can, however, vary across systems and settings, ranging from

- Screening for social needs in clinical settings and then referring to and relying on other organizations to provide needed services, to
- Developing formal partnerships between health care and social needs organizations to facilitate coordination and more seamlessly deliver and track social needs care, to
- Fully integrating social needs care and health care by addressing the majority of health and social needs within a single, integrated system (Kreuter et al., 2021).

Integrating Social Needs Care into the Delivery of Health Care: Moving Upstream to Improve the Nation's Health details five fundamental activities through which health systems can integrate social needs care into their delivery systems. Specifics will vary depending on the level of integration and availability of resources, but in general will include

- **Awareness** activities to identify the social needs of patients, such as through either structured or informal assessment;
- **Adjustment** activities to alter care based on specific social needs, such as by shifting to telehealth services for people who face challenges in arranging leave from work or childcare required to appear for an in-person visit;
- **Assistance** activities to connect people with services and resources to address social needs and reduce social risk, such as by providing transportation vouchers or other assistance to connect people to services that may not be physically integrated;
- **Alignment** activities to understand and match social needs with available resources and partner and develop alliances that address population needs, such as by assessing local food bank resources and establishing a partnership or referral system with them; and
- **Advocacy** activities to promote policies that increase the access, availability, and quality of services that address social needs, such as by working with local social needs organizations, policy makers, and other stakeholders to change local, regional, or national policy to strengthen social needs services and integration.

Several systems that this report highlights demonstrate how integration can be operationalized in different settings to meet distinctive sets of social needs. The Program for All-Inclusive Care for the Elderly (PACE), for example, integrates social needs care into its care model for older, nursing home–eligible adults who want to age independently at home. Social workers are integral members of the PACE interprofessional care team and help ensure that participants' social needs are met. Mary's Center is another model that partners with and facilitates connection with social services resources in the surrounding community as needed. Mary's Center also provides adult and early childhood educational services through partnership with a local public charter school. As an added benefit of integration, the school also serves as a point of entry into other health care services.

At VA, social workers are core PACT members who operationalize social needs–clinical care integration. In 2016 VA began implementing its Social Worker PACT Staffing Program, which increased the number of social workers in rural VA PACTs to help improve access to VA care and services (VA, 2020a). Social workers coordinate a range of services for veterans, including transportation, housing needs, financial needs, and in-home support. They also help identify and address family stress social isolation, mental health issues, substance use issues, and other upstream needs that could negatively affect well-being. While not formally part of VA's WHS, this program is collaborating with the VA Office of Patient-Centered Care and Cultural Transformation to incorporate more whole health concepts into its practice. An evaluation of the program found that it slightly reduced emergency room visits and hospitalization among high-risk veterans (Cornell et al., 2020).

As described earlier in this chapter, VA could further integrate social needs care into its WHS by strengthening integration between WHS and VBA services. VA has already achieved success through partnerships with other federal agencies. As an example, a partnership among the Departments of Defense, Labor, and Veterans Affairs established the National Resource Directory (NRD) (NRD, 2022), a resource website that connects wounded warriors, service members, veterans, their families, and caregivers to programs and services that support them. Information in the NRD comes from federal, state, and local government agencies; veteran and military service organizations; nonprofit and community-based organizations; academic institutions; and professional associations.

Another example is the U.S. Department of Housing and Urban Development–VA Supportive Housing (HUD-VASH) Program (VA, 2022d,f), which pairs HUD's Housing Choice Voucher rental assistance with VA case management and supportive services for homeless veterans. These services assist homeless veterans and their families in finding and sustaining permanent housing and accessing the health care, mental health treatment, substance use counseling, and other supports necessary to help them in their recovery process and with their ability to maintain housing in the community.

Recently, VA initiated a new approach to developing veteran community partnerships (VCPs). VCPs are organized partnerships through which local VA facilities connect with state and local community services and agencies to address the social needs of veterans. Each of these innovations makes it easier for veterans—and those who serve them—to connect with needed support within their own communities and on their own terms.

VA established programs such as the NRD, HUD-VASH, and the VCPs to assist local communities in identifying and, when necessary, developing their capacity to address the committee's five foundational elements. Unfortunately, many communities continue to face significant challenges (Kreuter et al., 2021) including

- Sustainability—programs are most often grant funded with uncertain futures, making long-term planning, budgeting, and staffing difficult;
- Measurement and outcomes—programs often lack the capacity to measure direct success in terms of defined goals, indirect success in terms of downstream effects, or cost-effectiveness, which can make future funding more difficult to secure and limits their ability to maximize effectiveness through continuous learning;

- Shared savings—programs often lack the ability to leverage shared savings;
- Data and technology—many programs struggle to integrate data from disparate sources, creating coordination challenges among partners; and
- Evidence-based guidance—similar to the case with measurement and outcomes, program leaders may have limited knowledge and skills base or may not be aware of accepted best practices guidance available to programs entering cross-sector partnerships (Amarashingham et al., 2018).

Chapter 7 will describe how many of these challenges reflect the importance of sound structural elements. Examples include supportive payment systems, robust metrics and data analysis, interoperable technology, and systematic diffusion of innovation and best practices.

Integration of Health Coaches, Peer-Support Specialists, Community Health Workers, and Care Coordinators

Health coaches, peer-support specialists, community health workers, and care coordinators all play an integral role in a whole health approach. Although these professionals and peers may have overlapping roles in at least some settings, including VA's WHS, each tends to take on specific tasks as part of a whole health care team. Health coaches, for example, are expert in empowering patients to articulate and act on their personal health values and preferences in collaboration with their loved ones, clinicians, and community resources (Collins et al., 2015). Peer specialists often work with behavioral health issues and substance use disorders, sharing their own recovery stories, providing encouragement, instilling a sense of hope, and teaching skills (Gaiser et al., 2021). Community health workers are well positioned to build trust and develop collaborations with community partners that help address social determinants of health (Braveman and Gottlieb, 2014; Deng and Shih, 2020; Magnan, 2017). While most health systems tend to at least give lip service to such functions, they are often overlooked in actual practice.

Health Coaches

Health coaches help patients acquire the internal motivation, confidence, and tools they need to adopt and sustain behaviors that can prevent or manage chronic disease and improve overall health and well-being. VA, a leader in using health coaches in mental health and primary care settings, has developed a new workforce of health coaches to promote whole health attitudes and practices for patients and care team members based on the realization that primary care and mental health professionals rarely have the time needed to sit with patients for discussing possible life changes that could help prevent or mitigate chronic health problems (Wolever et al., 2017). VA's development of health coaching and the innovative tools and record systems that support their day-to-day function are key support structures in its progressive scaling of whole health. Having been developed by the federal government, these job descriptions, practices, and coding systems are also available to facilitate the spread of whole health principles and practices across the rest of health care.

In non-VA settings, there is evidence that health coaches can improve health outcomes by motivating behavior changes that improve the management of chronic conditions (Kivelä et al., 2014; Willard-Grace et al., 2015). Other examples in the literature demonstrate that interprofessional teams in primary care settings are generally open to integrating health coaches into their practice and value their contributions (Adelman, 2005; Reich et al., 2022). There is evidence that health coaching via telephone can be scaled to a broad population of patients with multiple health conditions (Scuffham et al., 2019; Thom, 2019).

A variety of studies have identified barriers and facilitators to integrating health coaching into health care teams. Research suggests, for example, that to be successful members of the care team, health coaches require extensive training in motivational interviewing, careful caseload management, and structured guidelines to address setting boundaries (Adelman, 2005). One study found that training health coaches to take the initiative and identify patients likely to benefit from coaching without requiring a referral from a provider increases clinician acceptance of health coaches as members of the care team (Reich et al., 2022). Important facilitators for integrating health coaches include instituting effective communication channels between health coaches and clinicians and providing clinicians with information on how health coaches can benefit health care team functioning (Liddy et al., 2014).

Peer-Support Specialists

VA defines a peer-support specialist as a veteran with mental health experience who is actively engaged in their own recovery and that has been trained and certified to help other veterans (VA, 2018). VA peer-support specialists were initially integrated into mental health services but are increasingly being embedded in primary care PACTs, where they encourage veterans to play a more active role in managing their own health and health care. Peer specialists often share their own experiences in dealing with mental health conditions, including PTSD and depression, and in using VA health resources. They may also assist veterans in identifying and achieving specific life and recovery goals in accordance with whole health principles.

VA has developed a national certification program for its peer-support specialists. Peer-support specialists function in other health settings as well, but certification requirements and identified roles vary across the states, as do pay rates and options for employment. Mental Health America maintains a peer-support center (Mental Health America, 2022b) that describes the core functions of peer support, reviews its research base, and provides information about training programs across the country.

A study examining barriers and facilitators to integrating peer support into health care teams as a means of improving patient health and well-being cited a failure to clearly define and communicate the role of the peer-support specialist within the organization overall and the care team specifically as barriers to implementation (Cabral et al., 2014). Supervisors also reported that when there was a lack of clarity on peer-support roles, it caused confusion in terms of how to train them.

A qualitative study of peer-support specialists in VA primary care–mental health settings, but not VA's WHS, also found that integration was challenging when peer-support roles were poorly defined. Supervisors reported that while VA resources supporting peer-support implementation were extensive, they were often confusing (Shepardson et al., 2019). Study participants, including the peer-support specialists themselves, stressed that the program lacked the flexibility needed to tailor services to the specific needs of the local veteran population. Team cohesion, stakeholder buy-in, support from leadership, adequate administrative support, and staff education were facilitators to successful integration. In addition, matching peer-support specialists with veterans who share similar lived experiences or who were managing similar conditions facilitated the building of rapport and engagement between the veteran and the peer-support specialist. Study participants reported they believed that evidence of success facilitated maintaining the peer-support program.

Community Health Workers

The American Public Health Association defines a community health worker as "a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery" (APHA, 2021). Community health workers are expert listeners with lived experience who can bridge culture, language, and literacy to reach people where they are comfortable and promote linkages to resources, health education, and care coordination. The major areas of community health worker practice include preventive services, outreach to patients with chronic conditions, and connecting individuals to community resources that can address the social determinants of health (Barnett et al., 2018; Larkey et al., 2012; O'Brien et al., 2010; WestRasmus et al., 2012).

VA has implemented the Individualized Management for Patient-Centered Targets (IMPaCT) model, a standardized, scalable, evidence-based program that uses community health workers' knowledge of the community and lived experience to help patients deal with complex social and behavioral needs, improve chronic disease control, increase access to care, and reduce costs (Kangovi et al., 2018, 2020). After its initial implementation at the Corporal Michael J. Crescenz VA Medical Center in Philadelphia, researchers found that it took only 6 months to develop an IMPaCT program capable of serving 2,000 patients a year. In VA's experience, IMPaCT produces a 2:1 return within the fiscal year of investment by improving health and care among vulnerable veterans (Kangovi et al., 2018).

In its Community Health Worker Toolkit, the Centers for Disease Control and Prevention (CDC) has compiled a substantial evidence base to support the effectiveness of community health workers. According to the CDC, "this toolkit also includes information that state health departments can use to train and further build capacity for community health workers in their communities, as well as helpful resources that community health workers can use in their communities" (CDC, 2016). The developers of VA's IMPaCT model have outlined a step-by-step approach for implementing and sustaining a community health worker program at an academic medical center (Morgan et al., 2016). The process begins with identifying high-resource organizations in the community that lose money when community members have poor health outcomes. The next step is to identify champions within those organizations who can define problems that community health workers can address along with metrics for assessing success. After identifying the at-risk population and learning from the perspectives of those at risk, qualitative data are used to evaluate the intervention and quantitative data to calculate the return on investment. Success depends on hiring the right people for the job, ensuring fidelity to the standardized model, and integrating community health workers into the care team through patient referrals, data infrastructure, team huddles, and effective communication via the EHR.

One study that reviewed successful efforts to integrate community health workers into patient-centered medical homes identified four themes as facilitators: the presence of leaders with knowledge of community health workers who championed the model, a clinic culture that favored piloting innovation rather than maintaining established care models, clinic prioritization of patients' non-medical needs, and leadership perceptions of sustainability (Rogers et al., 2018). Other studies recommend promoting an understanding of the community health worker's role on the care team, adapting workflow to increase collaboration, and adopting compatible and user-friendly information technology tools for community health worker use (Lloyd and Thomas-Henkel, 2017; Payne et al., 2017).

Integrating community health workers into the workflow can be challenging. Research indicates that tension may arise about who is responsible for supervising this new workforce and about how to document their work (Garfield and Kangovi, 2019). Community health workers are most often hired, trained, and supervised by nurses, but it may be more effective to assign a social worker with established experience in community engagement to serve as program coordinator and supervisor. Another issue is the lack of policies to ensure that community health workers are reimbursed for their contribution to team-based care (Gutierrez and Campbell, 2014).

Care Coordinators

The CDC defines care coordinators as members of the health care team who manage client caseloads, conduct intake assessment and reassessment, facilitate conversations among interdisciplinary care team members, and expedite client services referrals (CDC, 2022). Many care coordinators are registered nurses, community health workers, or social workers. Some care coordinators have bachelor degrees and have undergone specialized training and supervised clinical experience, while others have a bachelor-level degree-plus and specialized training, including supervised clinical experience. Their main function is to help individuals manage their health throughout the care spectrum, simplify access to care, facilitate improved compliance with treatment plans and prevention measures, and, ultimately, improve care outcomes (Adamson, 2011; Fortuna et al., 2021). Care coordinators can help address barriers related to language and culture, communication, transportation, bias, and fear.

A recent systematic review of 45 articles reporting on 36 studies on the effectiveness of nurse care coordinators concluded that their impact on patient-reported and health service outcomes was inconsistent. However, this review did find an indication from higher-quality studies that nurse care coordination roles were more likely to result in improved patient and health service outcomes where they involved frequent, in-person interactions, had ongoing follow-up with monitoring of disease status, and involved transition care and the application of behavior change principles (Conway et al., 2019).

A survey of care coordinators identified barriers and facilitators to care coordination in patient-centered medical homes which fell into three categories: organizational/system, interpersonal, and individual (Friedman et al., 2016). Organizational/system barriers included challenging caseloads, a lack of needed functionality in EHR systems, the need to establish alternate communication methods among care team members, and difficulty identifying community resources. Other studies have also documented challenges that care coordinators face managing health informatics, often with incomplete or insufficient health information, poor health IT usability, and lack of interoperability across systems and platforms (Alyousef et al., 2017; Carayon et al., 2012, 2019). Organizational/system facilitators included having strategies for identifying key resources and having onsite patient resources. At the interpersonal level, barriers included clinician and patient resistance and resistance from other health care facilities, while facilitators included developing strong relationships with clinicians and staff at outside organizations and having time to listen to patients and build trust. On the individual level, a barrier to coordination was a lack of attention to self-care and difficulty maintaining appropriate boundaries with patients. One facilitator was to create a forum for social networking and support to reduce care coordinator stress.

THE ROLE OF THE HEALTH RESOURCES AND SERVICES ADMINISTRATION IN SCALING AND SPREADING WHOLE HEALTH

A significant challenge in spreading whole health principles and practices beyond VA and across the United States is the lack of an identified national champion for whole health. As noted above, VA is uniquely qualified to implement a whole health system at enterprise scale because it already incorporates broad health care (VHA) and benefits (VBA) components. Few non-VA health systems are designed to address the full range of whole health needs and, despite the success of programs that Chapter 4 describes and others, most systems in most settings do not have the incentives or resources to adopt a whole health approach of their own. Transformation beyond VA will require leadership at a national level, coherent messaging, standardized metrics, and the capacity to monitor access to and quality of care across the United States. Ideally, a federal agency with close ties to policy makers, intimate experience in health care innovation, and experience in starting up successful national programs capable of changing the health care landscape would take on these tasks.

In considering potential candidates for this role, the committee focused on HRSA as an ideal lead agency for whole health implementation and spread. HRSA pursues a mission to “improve health outcomes and achieve health equity through access to quality services, a skilled health workforce, and innovative, high-value programs” (HRSA, 2022a), and it coordinates more than 90 programs and more than 3,000 grantees. While many of its programs focus on ensuring equitable health care for people who are geographically isolated and economically or medically vulnerable, HRSA was created to support the entire nation's health infrastructure and foster a health workforce capable of meeting the nation's current and emerging needs (HRSA, 2021). Its vision statement of "Healthy Communities, Healthy People" succinctly expresses a core principle of whole health.

As described in HRSA's 2019–2022 strategic plan, the agency works to achieve health equity, enhance population health, and improve health outcomes by enhancing community partnerships with entities across diverse geographic areas (HRSA, 2022a). HRSA accomplishes this by using local advisory councils to better understand community requirements, integrating public health practices and primary care services, using evidence-based decision making to address health disparities, and promoting illness prevention and healthy behaviors (HRSA, 2022a). By developing and supporting community-based partnerships, HRSA identifies and enhances vital linkages between individuals and communities in need and the services and resources that improve population health. In doing so, it supports community actions that address the social determinants of health and improve health-related infrastructure.

HRSA has demonstrated the ability to accomplish its goals by establishing innovative health systems at national scale. For example, every state in the nation has HRSA-funded maternal and child health programs providing infant screenings and prenatal care; residents receiving care and treatment services through HRSA's Ryan White HIV/AIDS Program; a HRSA-funded state office of rural health; and services provided by HRSA's regional telehealth resource centers (HRSA, 2022b).

Of particular relevance, HRSA is the government agency responsible for developing the Health Center Program, which now includes almost 1,400 health centers operating more than 13,500 service delivery sites across every state (HRSA, 2022b). As Chapter 3 discussed, health centers, including FQHCs, provide primary medical, dental, mental health, and substance use services, as well as access to hospital and specialty services, to nearly 29 million people. This constitutes health services for 1 of every 11 people in the United States, including one in three people in poverty, one in seven members of racial and ethnic minorities, one in five people on Medicaid, and one in five of the uninsured (NACHC, 2022). Health centers provide comprehensive services, including preventive health services, on site or by arrangement with community partners. They also arrange transportation as necessary to ensure access to care. Each FQHC has an ongoing quality control system (HRSA, 2020) that requires HRSA Health

Center Program awardees and look-alikes[13] to report a core set of information annually, including data on patient characteristics, services provided, clinical processes and health outcomes, patients' use of services, staffing, costs, and revenues as part of a standardized reporting system known as the Health Center Program Uniform Data System. Each HRSA health center operates under a community-based governing board of directors, a governance model that would be especially helpful in developing whole health approaches appropriate to the resources and needs of local communities. In summary, the nationwide system of HRSA-established health centers creates a node in virtually every community capable of spreading whole health principles and practices.

Two of the systems that Chapters 4 and 5 feature—Southcentral Foundation's Nuka System of Care in Alaska and Mary's Center in Washington, D.C.—are both FQHCs, and both illustrate how a whole health approach is compatible and aligned with the overall FQHC mission and certification requirements. While not all FQHCs currently have the resources and infrastructure necessary to meet the whole health needs of their communities, the examples cited in this report demonstrate that the national FQHC model is highly compatible in both mission and policy with a whole health approach. Given progressive development in policy and resource allocation, HRSA's Health Center Program could fully incorporate the five foundational elements of whole health into its certification requirements.

HRSA was also responsible for starting up area health education centers (AHECs) across all 50 states. The purpose of the AHEC program is to develop and enhance education and training networks within communities, academic institutions, and community-based organizations (HRSA, n.d.). In turn, these networks seek to increase diversity among health professionals, broaden the distribution of the health workforce, enhance health care quality, and improve health care delivery to rural and underserved areas and populations. As such, the national AHEC system is well positioned to drive dissemination of whole health principles and practices across America.

FINDINGS AND CONCLUSIONS

This chapter has addressed key contextual conditions required for whole health scale and spread within VA and across the nation. In doing so, the committee emphasized the need for transforming mindset, culture, structure, and processes, and it reviewed models for systems change and social movement. The committee also identified numerous barriers, including barriers to integrating care, and strategies for overcoming them.

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[13] Health center look-alikes meet all of the requirements of a certified health center but do not receive Health Center Program funding.

The shift to whole health will demand top-down (macro and meso) and bottom-up (micro) engagement, support, and buy-in as well as a realignment of venerable infrastructure, policy, and payment systems (see Chapter 7). Change will require recognition that current systems of care are not equipped to deliver desired health outcomes or the bold initiatives that are necessary to achieve them. These are heavy lifts for established programs, but once systems adopt whole health as a core value, they will not need to do everything at once to establish momentum. Health systems are more likely to avoid unintended negative consequences when the gears of top-down and bottom-up change are well meshed. Success will depend on a shared recognition that all members of society are the stakeholders and future beneficiaries of whole health.

Committed leaders need to realign and, in some cases, retool existing structures and processes, and health systems will have to recognize interprofessional teams and integrated delivery systems that balance biomedical and social interventions as core elements of the whole health care ecosystem. Learning from early adopters will illuminate promising paths for whole health dissemination. Health systems can avoid pitfalls by adopting established health delivery innovation frameworks and applying them flexibly to address local conditions.

Although VA has long provided clinical care through the VHA while simultaneously addressing upstream factors through the VBA, it cannot succeed in scaling its WHS in a way that fully addresses all foundational elements of whole health or provide a compelling model for national whole health without greater integration of programs and services that promote education, employment, financial security, and other social determinants of health within VA's WHS.

Because so many of the services needed to support whole health currently exist in isolation from clinical programs, VA and non-VA health care systems alike should create and strengthen collaboration with community care, social service, and public health systems at local, regional, and, when appropriate, national levels. Communication networks such the new 988 Suicide & Crisis Lifeline will be needed to provide veterans and their health care providers with the information backbone needed for whole health transformation.

Equally important will be integrating mental health and substance use services within primary care clinics through either physical or virtual co-location and maximizing access to CIH services such as acupuncture and yoga. Research has shown that engaging health care personnel in whole health principles and practices improves their resilience while driving diffusion across systems.

Veterans and the non-VA health care programs and systems that serve them are both disadvantaged by a failure to identify patients with a history of military service. Identifying veterans in non-VA health settings and analyzing databases that describe their numbers and needs can significantly improve the use of whole health resources, reduce the likelihood of redundant and possibly dangerous interventions, and generate new revenue for non-VA health care systems through the provisions of the MISSION Act. Furthermore, enhancing care coordination between VA and non-VA systems could accelerate the spread of whole health.

The lack of a uniform national standard for establishing consent for health information exchange between VA and non-VA health systems, with some states requiring veterans to actively opt in while others only offer an opt out, creates a significant barrier to the safe and effective coordination of care. This could be solved if non-VA systems made it a standard practice to ask each identified veteran for consent to share health information with VA.

VA should extend its whole health approach to older veterans, women's health, maternal health, family health, LGBTQ+ health, chronic disease management, and healthy aging. VA and non-VA systems should incorporate a longitudinal approach to whole health across each person's life and health trajectories. Whole health care should be tailored to the community it serves, and each community needs to assess and address gaps which limit access to clinical and social services.

Because physical, mental health, social, and financial problems at the time of separation from the military are associated with long-term adjustment problems among veterans, the VA should incorporate assessment and early intervention strategies within its transition assistance program. Early identification of readjustment challenges, whether physical, mental, social, occupational, or spiritual, would facilitate veterans' engagement with VA whole health and create significant downstream advantages for veterans, their families, and VA while also accelerating the scaling of WHS across VA.

Congress framed MISSION Act language specific to hospital care, medical services, and extended care services. These provisions are intended to enhance access to standard medical care, but it is unclear whether they also allow VA to extend WHS to veterans by taking advantage of community care through the MISSION Act. To ensure optimal access to WHS for all veterans served by VA, it will be necessary to clarify VA's authority to purchase such services.

The most significant challenge in spreading whole health principles and practices beyond VA is the lack of a designated national champion for whole health. Transformation beyond VA will require leadership at a national level, coherent messaging, standardized metrics, and the capacity to monitor access to and quality of care across the country. Ideally a federal agency with close ties to policy makers, intimate experience with health care innovation, and experience in starting up successful national programs capable of changing the health care landscape would take the lead is this effort. The committee has concluded that HRSA is the ideal lead agency for whole health implementation and spread because of its mission to improve health outcomes, equity, and quality with a focus on the undeserved. HRSA has demonstrated its ability to support and enhance the nation's health infrastructure and foster a health workforce capable of meeting current and emerging needs. Its success through its Health Center Program and area health education centers speaks to its readiness to take on the task of national whole health spread.

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[14] The reference list was updated after a prepublication version of the report was provided to VA.

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7

Infrastructure for Scaling and Spreading Whole Health

Chapter 6 described the contextual conditions needed to scale and spread whole health, including systemic change and social movement, advances in structures and processes, and enhanced integration of services. New health ecosystems can only be created and sustained if a strong foundational infrastructure supports and promotes these conditions (see Figure 6-1 in Chapter 6). Health informatics, workforce training and education, the measurement of whole health for learning and accountability, and financing are pillars of health care at the national level. For that reason they are often the focus of debate on health care reform. Changing them will not be easy or quick, but it is equally clear that, with inspired leadership and appropriate resources, change is possible. Meaningful advances to these infrastructural elements can occur through the public policy process. Advances can also come from the private sector, particularly in the case of payment reform. This chapter describes the infrastructural elements necessary to scale and spread whole health throughout the United States.

HEALTH INFORMATICS

A substantial share of clinical and personal health information now lives online or in electronic platforms. While paper records persist in many small practices, most larger practices and provider organizations in the United States now use electronic medical records. In this era, health informatics is part of the foundational infrastructure for supporting the scale and spread of whole health. Health informatics act as the train tracks upon which information flows among clinicians, managers, planners, payors, and researchers as well as from the health care system to public health, community programs, and social services. It also supports the patient, interprofessional care team, delivery system, and broader care ecosystem. Existing health informatics functionality can be part of delivering whole health, but improvements in functionality are needed for whole health to fully succeed. The changes that are needed extend far beyond simple technical advances and will need to include changes to core functions, data governance, human factors design, and even definitions concerning who is included in the care team that has access to data and information systems (Gamache et al., 2018). To help people, families, and communities achieve whole health, health informatics will need to support all five foundational elements of whole health—being people-centered, comprehensive and holistic, upstream-focused, equitable and accountable, and grounded in team well-being (see Chapter 2 for a detailed description of the committee's five foundational elements of whole health).

This committee agrees that implementing the two health informatics–related recommendations from the 2021 report, *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care*, would help meet the needs of whole health systems. These recommendations were (1) to develop the next phase of digital health certification standards that support relationship-based, continuous, people-centered care; simplify user experience; ensure equitable access; and hold vendors accountable; and (2) to adopt a comprehensive aggregate patient data system usable by any certified digital health tool (Krist et al., 2021; NASEM, 2021). Over the past decade the National Academies of Sciences, Engineering, and Medicine have repeatedly called for needed informatics changes. These changes also need to be implemented to support whole health care. Examples of reports include *Health IT and Patient Safety: Building Better Systems for Better Care* (IOM, 2012), *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being* (NASEM, 2019), and *Building Data Capacity for Patient-Centered Outcomes Research: Priorities for the Next Decade* (NASEM, 2022).

While these advances are necessary to support primary care, they are not sufficient for effectively scaling and spreading whole health because whole health care will require more robust, people-centered tools that gather and sort information about what matters most to individuals, families, and communities and mapping progress toward their goals; extending the use of technology to all whole health interprofessional team members; supporting teamwork through communication, collaboration, and coordination tools; addressing upstream determinants of health which are currently segregated from clinical record systems; promoting accessible and proactive care through virtual technologies and automated functions; and ensuring that technology facilitates care team well-being by being user friendly and capable of synthesizing and presenting data that supports, instead of adding to, clinicians' work. Both the Department of Veterans Affairs (VA) and the broader health care system nationally will need to make changes in their health informatics infrastructure to promote whole health. Changes should span conventional medical settings, comprehensive and integrative health settings, community settings, and social care settings. VA health information systems will need to include Veterans Benefits Administration (VBA) services as well as community and social care systems that care for veterans across systems of care.

Health Informatics Infrastructure at VA

VA has long been an early adopter and leader in health informatics (VA, 2022a). It began researching electronic health records (EHRs) in the 1970s; made the Veterans Health Information Systems and Technology Architecture (VistA) content open source in the 1980s; developed information exchanges between VA, the Department of Defense, and the Indian Health Service in the early 2000s; launched its My HealtheVet patient portal in 2003; led electronic prescribing in 2009; and pioneered information sharing in 2010 with Blue Button functionality and additional information exchanges (Hogan et al., 2014; Klein et al., 2015). In recent decades, as the rest of the health care system struggled with a fragmented ecosystem of health informatics platforms, clinicians often regarded the VA EHR as exemplifying a high-functioning system that contains standardized health care information for patients and that clinicians from any VA facility nationwide can access. Looking to the future, VA can continue to be a leader and transform health informatics to better support whole health.

VA's legacy EHR system, VistA, consisted of over 170 clinical, financial, and administrative applications which supported millions of veteran medical encounters per year at VA facilities nationwide (Rose et al., 2021). Several modernization initiatives have led to more than 130 unique iterations of VistA, requiring sequential "patches" which needed to be installed, tested, and adjusted at facilities across VA's national system. While VistA led the field for decades, it also created challenges in standardizing processes, coordinating care across medical facilities, and information sharing with other health care providers. To address this, VA is transitioning its legacy systems to a commercial EHR, Cerner. The first deployment of the system-wide transformation occurred in October 2020 and is slated to be completed in 2028. While this transition may better support seamless care across health care settings that span active duty to veteran status and include community health partners, it will also introduce new health informatics challenges associated with commercial products and vendors (Colicchio et al., 2019; Marwaha et al., 2022).

VA has laid out its proposed digital transformation with a clear roadmap that will modernize and consolidate digital tools into an enterprise-wide, self-service platform accessible from a single place on the VA website (VA, 2020). The roadmap includes support to prioritize the delivery of comprehensive and integrated whole health care, which includes functions such as capturing, managing, and sharing personalized health plans. VHA's Health Information Strategic Plan (HISP) for 2022–2026 defines the direction for the future informatics environment. Although whole health is not mentioned in HISP as a driver, meeting the plan's goals and objectives will provide some of the infrastructure needed to spread and scale whole health, including enterprise-wide data and information standardization, secure information exchange, and new agility in meeting the health care needs of a diverse veteran population. As the strategic plan is updated, it will be important for the HISP to ensure that all five foundational elements of whole health are being addressed (VA, 2021a).

National Health Informatics Infrastructure

Most health care systems, clinical practices, and patients have adopted EHRs and patient portals. In 2017, 86 percent of all office-based physicians and 95 percent of health systems in the United States reported using an EHR (ONC, 2019a,b). In a 2022 survey of physicians, nearly all clinicians (93 percent) reported that technology enabled them to provide better care for people (AMA, 2022). Research has shown that EHRs improve patient care overall, increase clinician access to patient information, identify potential medication errors, alert teams to critical laboratory values, remind patients and clinicians about recommended care, improve the ordering of appropriate tests, and improve patient–clinician communication, among other things (King et al., 2014; Krist et al., 2012, 2017).

Despite these advantages, health informatics has yet to live up to its full potential for advancing health for several reasons. Health informatics systems remain siloed; patient access is often limited and non-transferable; information exchanges between systems are rudimentary; there has been insufficient attention to usability and making users' lives easier; systems have not incorporated many of the technological innovations available to improve functionality; and EHR vendors and health systems can maximize market power by limiting or even blocking the flow or exchange of health information (Everson et al., 2021; ONC, 2015; Vest and Kash, 2016). Clinicians commonly cite EHRs as a primary driver of burnout, as they often add to workload and detract from connecting with patients (NASEM, 2019). As clinical data amasses in a person's health record, the risk of data overload increases. Most EHRs currently lack tools to help make sense of clinical information and trend data, and they have only basic mechanisms to sort and filter information (Furlow, 2020; Krist et al., 2021; Singh et al., 2013). Patient engagement tools have not advanced much beyond patient portals that mainly allow patients to email clinicians, schedule appointments, and see their test results. Functions to help patients understand their health information and activate and engage patients as partners in care are only just beginning to emerge (Krist and Woolf, 2011; Odendaal et al., 2020; Sawesi et al., 2016).

Recent policies will support the health informatics transformation needs for whole health. Specifically, the 21st Century Cures Act mandates that health informatics systems adopt standardized application programming interfaces (APIs), which will allow individuals to access structured electronic health information using smartphone applications securely and easily (ONC, 2022a). The Cures Act also mandates implementation of Trusted Exchange Framework and Common Agreement interoperability standards to ease information sharing across networks, and it penalizes health systems and EHR vendors for blocking information. This policy can improve information sharing among clinicians and patients, which is essential to creating an infrastructure that will support whole health systems of care. Similarly, the United States Core Data for Interoperability is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange, and it is now required as part of the new API certification criterion (ONC, 2022b). Among its data classes that could apply to whole health are patient demographics, smoking status, health concerns, patient goals, and assessment and treatment plans. These data classes and constituent data elements will need to be expanded to fully support whole health care.

People-Centered Tools

As described throughout this report, whole health is fundamentally people-centered. It starts by identifying what matters to people and tailoring care to a person, family, and community's needs, preferences, and goals. This type of information is not routinely part of the conventional medical record. Some EHRs have started to include a new field to record "what matters most to people," but this is not yet integrated as an essential, structured, or sharable element of the EHR. Furthermore, EHRs lack processes to identify and create care plans and goals or to track how people are doing with respect to these goals. There are emerging applications to support goal setting and guide teams in supporting people to achieve their goals, but more is needed (Glasgow et al., 2019; Krist et al., 2020b).

Moreover, scaling and spreading whole health will require that people have access to their personal records and that people's records follow them over time, regardless of the clinician or organization providing health services. As people move between providers and locations, enhanced interoperability will enable systems to communicate with each other and clinicians to understand each individual's history, data, and health and well-being priorities.

Another important people-centered health informatics need for scaling and spreading whole health is more people-facing supports and tools. These are necessary for engaging and activating people as partners in their care. VA has developed several digital tools to support its whole health efforts, including a mobile application and web-based resource library (VA, 2022b). Additional resources developed by VA include the #LiveWholeHealth self-care blog series, links to the My HealtheVet online personal health record, and a mindfulness podcast series (Box 7-1). Other integrative health resources that VA integrative health coordinating centers offer include websites; videos; audio/podcasts; journals; online classes for yoga, meditation, Pilates, and tai chi; biofeedback experiential resources; and meditation/guided imagery experiential resources.

Digital health and the move to people-centered care has also been accelerated since the COVID-19 pandemic. While gaining experience in developing digital health platforms, a new emphasis has been placed on seeking out digital health tools developed by trustworthy sources. The Defense Health Agency offers a wide variety of free apps and podcasts grounded in clinical research and vetted to ensure quality and safety (Apple Inc, 2022a,b). Furthermore, telehealth has been expanded, promoting virtual access to clinical

BOX 7-1
VA Mobile Apps and Online Tools Available to Support Whole Health

VA mobile apps and online tools appear useful for supporting whole health, but beyond publications about the use of the patient portal, there are no published data on the use, acceptance, or impact of these initiatives on a person's whole health journey. In general, more mobile health (mHealth) apps are emerging and being used by people and clinicians to support health and wellness goals, although their use is often limited due to a perceived lack of relevance, limited functionality, poor integration with care, and technical difficulties (Vaghefi and Tulu, 2019). User-centered design principles for automating data collection, making data entry simple, improving interfaces, ensuring good fit for use, and enhancing decision making are needed to scale and spread mHealth applications as part of routine whole health care (Gottgens and Oertelt-Prigione, 2021).

and social services (Perlin et al., 2004). These innovations are components of an accelerating shift from developing information technology (IT) applications that address the needs of health care providers and institutions to a rapid propagation of patient-centered applications.

Including All Interprofessional Care Team Members and Promoting Teamwork

As this report has emphasized, it takes an interprofessional team to deliver whole health services and care. Team members span clinical and community care settings and include conventional medical care, new medical services, integrative health approaches, and social services delivery. Veterans may receive whole health care services in both VA and civilian settings. Technology is needed to share information, support communications, coordinate services, and promote teamwork across all interprofessional team members and in all settings. This can occur partially through the interoperability of health informatics systems and real-time health information exchange. While there have been significant advances in interoperability, creating complete and real-time health information exchanges remains an ongoing challenge across the health care system.

Mandates to use the Substitutable Medical Applications and Reusable Technologies on Fast Health Interoperability Resources (SMART on FHIR) have helped with data sharing. FHIR provides a common format for sharing health information, allows medical applications to run unmodified across different health informatics systems, and facilitates data flow across otherwise incompatible systems (Mandel et al., 2016). The Centers for Medicare & Medicaid Services (CMS) has further reinforced the national movement toward promoting interoperability with its proposed rule to move the health care ecosystem in the direction of interoperability and commitment to the 21st Century Cures Act's mandate to improve the quality and accessibility of information for people to make informed health care decisions (HHS, 2020). In addition, health care providers, health informatics developers, and health systems have been prohibited since April 2021 from information blocking and face substantial fines if they cannot electronically share on demand patient demographics, smoking status, health concerns, patient goals, assessment and plan of treatment, social needs assessment, encounter information, clinical notes, and vital signs (ONC, 2020).

For its part, VA has published its strategic plan to create seamless and secure interoperability and health information exchanges of veterans' health information among VA, the Department of Defense, and the community (Office of Information and Technology, 2020). The strategic plan includes developing and implementing the FHIR data architecture, the use of APIs and cloud technologies, and the incorporation of cybersecurity and privacy tools. The goal of the strategic plan is to enable veterans to access their secure personal health information in any setting. To scale and spread whole health, health systems can use this infrastructure to support the entire interprofessional team.

In May 2021 the Office of the National Coordinator for Health Information Technology (ONC) engaged the public to gather input on measurable health interoperability outcome statements for 2030 (ONC, 2021). ONC is the principal federal entity charged with coordinating nationwide efforts to implement and use the most advanced health information technology and exchange health information electronically. If these outcome statements are implemented effectively, they would further advance the interoperability of health informatics functions needed to support whole health in VA and nationally (Box 7-2).

There are unique challenges to including community and social service providers—essential whole health care team members—in health information exchanges that interoperability alone will not solve. Community and social service providers often use information and communication systems that are different from those used by health care providers. In general, these community and social informatics systems do not exchange information

BOX 7-2
Office of the National Coordinator 2030 Interoperability Strategic Goals

Individuals will have tools available to set preferences and control how, with whom, and for what purposes their electronic health information is shared.

Individuals will be able to use internet-based tools, apps, and other connected devices to track and share electronic health information with their health care providers about their health and lifestyle.

Prior to administering care, an individual's care team will have ready access to updated electronic health information that reflects the latest changes in their health and care.

All referral and transition of care data will be electronic.

Care teams will be able to seamlessly integrate electronic data from inside and outside the health care system as part of their workflows.

The health system will enable evidence-based precision care that accounts for the social and health conditions of each patient, including links between health and human services.

SOURCE: ONC, 2021.

with health informatics platforms. Adding to this siloing of care and information, community and social service providers do not have access to health informatics systems for their clients, and health care providers do not have access to the community and social services information systems.

VA has made some initial advances to break down the silos between the health care information system and the community and social services information system. The VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018 (see Chapter 6) included language aimed at improving the sharing of previously protected health information between VA and the community partners. The MISSION Act's focus is primarily on providing veterans access to community *health care* partners, including those that provide integrative health approaches, but not to community and social services providers. VA Direct is a secure system that allows the exchange of select health information to and from community partners. For the most part this system has been used for communication between conventional medical providers, but it could be used for community and social services providers (VA OIG, 2020). The fact that the VHA's health informatics systems and the VBA's benefits information systems are not integrated and do not communicate—a capability essential for coordinating the delivery of whole health care—exemplifies the scope of this problem within VA.

Nationally, there have been multiple efforts to integrate social determinants of health into EHRs (Cantor and Thorpe, 2018; IOM, 2014, 2015). Most health informatics efforts to date have focused on collecting and documenting social needs as part of conventional care, although developers have created and tested several closed-loop referral and communication systems, including CommunityRx, Unite US, and HelpFinder (Curt et al., 2021; Help Finder, 2022; Lindau et al., 2019; Tung et al., 2020; Unite US, 2018). Studies have shown that these closed-loop referral systems are feasible, increase referrals, improve patient knowledge and confidence in addressing needs, and fulfill social needs. Yet without further investment in the social programs themselves, creating these informatics linkages may not be scalable or sustainable. The eHealth Exchange, a network of networks, has also proven successful in seamlessly sending millions of COVID-19 testing and diagnoses reports between health care and public health settings (eHealth Exchange, n.d.). This exchange extends to a broader range of whole health providers not participating in current health information exchanges. A number of systems have also used accreditation through DirectTrust to determine which partners with whom they will share health information securely (DirectTrust, n.d.).

Beyond the first step of data sharing, technology is needed to promote teamwork. Historically, health information technologies have been primarily designed to support the tasks of individual people—individual clinicians and individual patients. Whole health care is team based and relies on a coordinated and effective interprofessional team. Technologies will need to continue to support task work but also support teamwork with communication, collaboration, and coordination tools (Carayon and Hoonakker, 2019; Walker and Carayon, 2009).

Health Informatics that Supports New Whole Health Services

Health informatics are needed to support whole health services that extend beyond conventional medical services, such as personal goal setting and care planning tools, wellness programs, health behavior change support, community and social services delivery, educational resources, home-based biometric/telemedicine monitoring systems, and complementary and integrative health services and programs. A key health informatics feature will be to include the interprofessional team members that will deliver these services, but health informatics is also needed to alert and inform clinicians and patients that these services may be of benefit, make these services more accessible, and coordinate the delivery of these services. Existing alert, reminder, and care gap type functionality within health informatics systems can be harnessed for some of these new functions. In addition, patient portals can be entry points for patients to get educational materials and access new services.

The Office of Disease Prevention and Health Promotion of the U.S. Department of Health and Human Services has developed the Healthy People 2030 objectives to set data-driven national objectives to improve health and well-being over the next decade (ODPHP, 2022). A small subset of high-priority objectives, focused on upstream measures such as risk factors and behaviors, were selected to drive action toward improving health and well-being. Information technology was identified as a key driver of change, and the Healthy People 2030 objectives can serve as a roadmap for new needed informatics functions.

An added complexity is that new services also require new data architecture. Standardized coding terminologies serve as universal languages for health informatics, and multiple coding standards are built into health informatics systems, such as SNOMED Clinical Terms, LOINC, ICD-10, CPT, NDC, RxNorm, and others (AHRQ, n.d.; NLM, 2016). These standardized codes address conventional medical elements such as diagnoses, medications, allergies, tests and procedures, and they are accepted as a common global language for health terms in over 50 countries. Similar value sets need to be created and standardized on a national and international level to support new whole health functions (NLM, 2021). Without an agreed-upon standard coding terminology, it will not be possible to longitudinally track, analyze, or share whole health information across systems and settings.

Health Informatics that Supports Accessible Proactive Care

To support the whole health foundational element of equity and accountability, health informatics needs functionality to make care delivery more accessible and more proactive. The COVID-19 pandemic highlighted health informatics' potential for making care more accessible with the rapid adoption and implementation of virtual care (Ferguson et al., 2021; Krist et al., 2020a). It is likely that not every community will have all the programs necessary for whole health, and remote access can allow people to get services from their home that would not otherwise be available, extending care beyond the traditional office visit. During the COVID-19 pandemic, VA was able to rapidly transform many of its whole health services, such as the Taking Charge of My Life and Health program, into virtual group sessions. These programs were found to be as effective as the in-person programs and were widely accepted by participants and clinicians (Anderson et al., 2022; Dryden et al., 2021). VA and most health systems' EHRs and patient portals currently include functionality to support virtual visits, but this functionality will need to be extended to more of the unique whole health services, such as goal setting, yoga, tai chi, or health behavior change classes; include more community and social service providers; and be delivered from more settings, such as community programs.

Access to the internet is a prerequisite for access to virtual care. Unfortunately, 15 percent of veteran households do not have access to an internet connection (FCC, 2019). The Federal Communications Commission reports that 6 percent of the entire U.S. population (approximately 19 million Americans) continue to lack access to fixed broadband service at threshold speeds. In rural areas, nearly one-fourth of the population—14.5 million people—lack access to this service. In tribal areas, nearly one-third of the population lacks access (FCC, 2012). Even in areas where broadband is available, approximately 100 million Americans still do not subscribe. In summary, many older, poor, rural, and other vulnerable populations lack access to high-speed internet and even lack the hardware needed for virtual care (Chiou et al., 2020).

Local governments, community and veterans' organizations, and industries continue to work in underserved and rural areas to bring affordable broadband, digital skills courses, and computers to people in need. Virtually 100 percent of public libraries in the United States provide free broadband to members of the public, including rural and low-income veterans (Bertot et al., 2006). One VA program provided qualifying veterans with cellular-enabled iPads to access telehealth services. Veterans who received tablets reported high levels of satisfaction with care, were less likely to miss appointments, and found it easier and more convenient to access VA care (Zulman et al., 2019). These findings have profound implications for a whole health model that seeks to use telehealth touchpoints to serve a patient's physical, emotional, spiritual, and environmental needs. Many efforts are under way to break down digital literacy and relevance barriers and thereby spurring broadband adoption, but considerable progress must be made before virtual care is accessible to all.

Whole health care includes a large breadth of services provided to entire communities. Effectively delivering these services requires telehealth and remote monitoring for people to access care but also other virtual technologies that have not been well developed or utilized in health care. Examples include but are not limited to virtual group meetings, interactive sessions to support health behavior changes, and novel strategies to deliver high touch complementary and integrative health services.

For health systems and clinicians delivering whole health care, health informatics is needed to both define the community that the system is accountable for and to proactively identify needs. Existing functionality such as registries and electronic alerts that have been shown to improve the delivery of recommended conventional medical care can be applied to new whole health needs (McNeil et al., 2010; Nelson et al., 2016; Shojania et al., 2010), but they will need to be framed and applied differently. For example, registries will need to include not just the individuals seen in the system, but also the people and communities that the system should be accountable for, that are not being seen, and that need care. Similarly, electronic alerts can be reconfigured from conventional medical services, such as the need for colon cancer screening, and applied to whole health services as supports for achieving a patient goal. This will require new triggers and algorithms to identify needs, which will likely be more complex than delivering a simple medical service.

Usability

Given that the use of health informatics applications—EHRs in particular—is the leading factor that clinicians cite as contributing to burnout, it is important to ensure that health informatics applications are easy to use, if not time saving for clinicians, and that they improve the care delivery experience (Muhiyaddin et al., 2022; Robertson et al., 2017). Using human-centered design (HCD) principles can help to ensure the usability of health informatics applications for clinicians and patient-facing health informatics tools as well as promote the whole health concept of team well-being (GSA, 2018; Melles et al., 2021; Zahid et al., 2021). Ensuring that systems are easy to use and intuitive will promote their uptake and also better engage patients in their care (Vaisson et al., 2021).

HCD is a methodology and a best practice that puts the end user of the provided service at the center of the design efforts. VA currently uses HCD in its digital modernization strategy, and some health informatics vendors have used it in their development processes (VA, 2019). The basic HCD process includes research to genuinely understand user needs and behaviors, design and prototyping of solutions to meet those needs, and iterative testing for usability with representative users (Seftel-Kirk, 2019). HCD should consider a diverse group of users, including veterans, families, caregivers, clinicians, and community partners, and it should also consider social risk factors, race, gender, trust in health care, and comfort with using technology. Machine learning, artificial intelligence, and data science approaches also offer promise for enhancing user experience and patient care by improving information representation and decision-making capacity.

Training interprofessional team members to use health informatics systems will also be essential to ensure that they are using the tools as efficiently and effectively as possible, further reducing burnout and improving team well-being. What can happen when this is not done is exemplified by the experience with an automated texting system to support patient self-management that VA implemented in 2016. Onboarding the texting system was difficult, the staff implemented and used it inconsistently, and there was a lack of clarity on staff roles and responsibilities. While VA thought the new functionality had potential to further engage patients and expand access to care, additional support and training was needed before the system could have the desired effect (Yakovchenko et al., 2021).

Health informatics systems can promote team member well-being and improve care delivery experience by saving time. Possibilities for making health informatics systems time-saving include automating documentation of clinical activities, synthesizing large quantities of data across inputs and over time to assist with, e.g., monitoring patients' condition, detecting when clinical activities deviate from treatment plans, predicting patients' clinical course, and assisting with clinical decision making.

WORKFORCE

Successful scaling and spreading of whole health will depend on a workforce that is available, accessible, and supported in its effort to meet the needs of the population it serves. Achieving this, both within and outside of VA, will require strengthening the clinical and allied workforce in both individual and organizational competencies and capacities.

Ensuring that such a workforce receives the necessary training and support to think holistically and care for populations using a whole health approach will require contributions from the policy side and the health care delivery system. Policy makers will need to expand opportunities for training primary care clinicians, nurse practitioners, physician assistants, social workers, health coaches, integrative health providers, community health workers (CHWs), and other allied health professionals to deliver care through a team-based whole health approach. Provider organizations can build and nurture high-performing interprofessional teams designed to meet the specific needs of the communities that they serve while maintaining an orientation toward whole health of the population rather than health care services rendered. One important aspect of this is ensuring that interprofessional teams represent the populations they serve with respect to cultural characteristics, socioeconomic status, and shared life experiences as such teams will be more likely to exhibit enhanced patient communication, better patient satisfaction, and improved clinical outcomes (Cooper and Powe, 2004).

Training team members to work effectively within a whole health system is a necessary but not sufficient component of scaling and spreading whole health. As described in Chapter 6, team members—clinicians and nonclinicians within and outside health care settings—will need to embrace the paradigm shift represented by whole health. This will require a culture change in the workforce itself as well as innovations in team-based care design by systems leaders. Scaling and spreading whole health will require a willingness to change and the necessary investment of resources. Because of the unique, overarching approach of whole health from the community and societal perspective, the consumers of health care, their families, and their communities should be part of this process.

Human Resources

Although not unique to whole health, health systems of all types and sizes currently face challenges related to hiring, retention, professional shortages, and over- and under-representation of clinicians across race and ethnicity. The COVID-19 pandemic, which has led to clinician burnout and turnover, has exacerbated many of these challenges. VHA employs more than 371,000 employees across nearly 1,300 facilities, making it the largest health system in the United States (VA, 2022c). This is, however, just a fraction of the nation's 22-million-person health care workforce.

Today, the nation faces a health care workforce shortage (ASPE, 2022a). While the acute need to staff the nation's hospitals during the pandemic has lessened somewhat since its peak, the size of the health care workforce today remains below expected levels. Shortages in nursing care and elder care remain particularly striking, and outside of hospitals the return of women to the health care labor force has lagged behind that of men (Wager et al., 2021). Moreover, the mental health workforce is currently meeting only 28 percent of mental health needs nationwide, with wide variability by state (Kaiser Family Foundation, 2021). Projections indicate that the situation in the future many be even more dire. The shortage of low-wage health care workers is predicted to reach three million by 2027, with a shortage of between 200,000 and 450,000 registered nurses predicted by 2025 as well as a shortfall of up to 140,000 physicians by 2033 (Berlin et al., 2022; HHS, 2022). Although the country overall has struggled, VA has maintained consistent growth of its health care workforce throughout the COVID-19 pandemic (Bur, 2020; VA, 2021b, 2022d).

While burnout and its effects on the health care workforce threaten our nation's ability to scale and spread whole health, whole health has the potential to address burnout. A 2021 health care workforce survey found that 55 percent of the workforce reported feeling burned out and 29 percent reported having considered leaving their profession because of burnout (Kirzinger et al., 2021). A separate survey found that nearly one in five health care workers quit their jobs between February 2020 and October 2021. Of those who stayed, 19 percent said they were considering leaving the health care profession altogether (Galvin, 2021). These pressures on an already fragile health care workforce will be difficult for any health system to manage, whole health or otherwise. However, integration efforts (see Chapter 6), diversifying the workforce, and team-based approaches that engage more professionally diverse teams (see below) can improve delivery efficiency and reduce worker burnout, which has the potential to make a career in health care more attractive and help mitigate some of these strains on the workforce.

Diversity and Equity in the Workforce

It is imperative that any effort to scale and spread whole health be careful to attend to diversity and equity in the whole health workforce. While diversity and equity issues are not unique to whole health, having a diverse workforce that reflects the population that it serves can improve health equity, reduce health care disparities, improve access to care, improve health outcomes, strengthen patient communication, and improve patient satisfaction in underserved communities (COGME, 2016; Cohen et al., 2002; Cooper and Powe, 2004; Muhiyaddin et al., 2022; Poma, 2017; Robertson et al., 2017; Wakefield, 2014). As the *Implementing High-Quality Primary Care* report states:

> Health profession education is a common good, so programs should be expected to supply graduates prepared to care for their immediate and regional communities. To the extent that they fail to do this, they are

> failing their public mission. Health disparities are a long-standing, well-recognized problem in the United States, perpetuated by a health care workforce that does not come from, represent, or commit to the population it purports to serve. (NASEM, 2021, p. 201)

In a 2021 study looking at representation across 10 health care professions, Black individuals, Hispanic individuals, and Native Americans were under-represented in all 10 professions compared with the overall population. While the trends indicate that the education pipeline is more diverse than the current workforce and that some professions had better representation than others, the authors concluded that ensuring that the workforce has more equal representation across race and ethnicity for the health care professions will require additional policy supports (Salsberg et al., 2021). A 2017 Health Resources and Services Administration (HRSA) report found similar trends, revealing that white workers represent the majority of all 30 health professions studied and were over-represented in 23 of the 30 professions relative to their representation in the overall U.S. workforce (HRSA, 2017). A report by the Association of American Medical Colleges about Black men in medicine concluded that persistent structural racism and stereotyping that leads to widespread implicit and explicit bias can create exclusionary environments and de facto segregation, limiting the effectiveness of efforts to diversify the workforce pipeline. Many minority medical students who do make it into the medical training pipeline report experiencing racial discrimination, prejudice, and feelings of isolation during training (NASEM, 2021). Students who reported these experiences were more likely to have burnout, depressive symptoms, and lower quality of life than those who did not (Dyrbye et al., 2007).

These racial and ethnic representation issues are symptoms of long-standing systemic racism which is unfortunately woven into the fabric of the United States and is present in all sectors of society. Even with the most supportive and thoughtful policy supports, it could take decades of intentional and persistent efforts to build a workforce that reflects the diversity of populations at the local level throughout the United States. Health care systems, however, can rapidly expand opportunities for some professions, such as CHWs, health coaches, care coordinators, and health educators, all of which are generally more diverse professions, require less training than clinical professions do, and play key roles in the scaling and spreading of whole health (IOM, 2003; Jackson and Gracia, 2014). CHWs, for example, are a diverse reflection of underserved populations: 65 percent are Black or Hispanic, 23 percent are white, 10 percent are American Indian or Alaska Native, and 2 percent are Pacific Islander (Arizona Prevention Research Center, 2015). They primarily serve the local communities they reside in and can carry out a number of roles relevant to whole health, including care coordination, case management, health coaching, health education, health assessment and screening, resource linking, medication management, remote care, patient follow-up, and social support (HRSA, 2017).

Making recommendations to address these pressures on the U.S. health care workforce is beyond the committee's charge. However, any effort to scale and spread a whole health system of care will have to work within this reality and consider these factors when building interprofessional teams to implement whole health systems.

Preparation

Training the health care workforce is unlikely to lead to sufficient cultural transformation if the workforce does not offer informed commitment and ongoing support at all levels of the organization or if health care delivery organizations are not committed to act on whole health principles when the initial training is rolled out. This includes readiness to engage the population it serves as well as its own workforce. In addition, the way in which the vast majority of health professionals train today is not well aligned with interprofessional team-based approaches to care. Although most health care professions require some level of interprofessional competency as a graduation requirement (Health Professions Accreditors Collaborative, 2019), most trainees in the United States spend most of their time within their profession—physician trainees train with other physicians, nurses with nurses, social workers with social workers, and so on. This arrangement is counter to the team-based approach of whole health models and other team-based approaches. To prepare a workforce to adequately deliver a whole health approach to care, team members will have to learn how to function and perform in integrated, team-based settings and to integrate, communicate, and coordinate with community-based team members that may not be physically co-located within their employer organization.

There are four major core competencies of interprofessional practice: values and ethics, roles and responsibilities, interprofessional communication, and teams and teamwork (Schmitt et al., 2011). However, it is difficult to incorporate these competencies into classroom instruction, experiential learning, and, ultimately, practice (Goldman et al., 2018). Additional challenges arise in that most clinical settings today are not functioning within a team-based model, particularly as training moves online and to simulated platforms, limiting the availability of interprofessional training opportunities. Often, students receive an introduction to the core competencies of interprofessional training in the classroom but then move on to clinical training settings that are not interprofessional. Lacking reinforcement, the students are unable to truly develop the practical experience of working on teams, collaborating across professions, and engaging with community services (NASEM, 2021).

As the single largest educator of the health care workforce in the United States, VA is well positioned to shift its approach to health care workforce training to focus on interprofessional practice as it concurrently spreads and scales the Whole Health System (WHS) throughout VA. Upward of 120,000 clinical trainees receive at least some of their training at a VA facility every year. Ninety-five percent of medical schools and 100 percent of schools of osteopathic medicine have VA training collaborations. VA also has partnerships with 18 nursing schools. About 1,800 colleges and universities have VA affiliations, including many historically Black colleges and universities as well as many Hispanic-serving institutions. In addition, VA provides training across more than 40 clinical health profession education programs (Sells and McQuaid, 2021). Because so many health professionals train within VA's walls, it is an ideal setting to fully embrace interprofessional training as the organization concurrently scales and spreads whole health. Doing so should strengthen the interprofessional workforce within and outside of VA.

VA is maximizing its status as the largest health care workforce educator in the country through its learning health system (LHS) training programs. These span VA programs for health services research, quality improvement, implementation, and training. Through LHS, real-world data are continuously transformed into new knowledge which, in turn, generates best practices to address community problems (Kilbourne et al., 2022). As a national health care system answerable to and actively informed by policy-maker, clinical, and consumer priorities, VA is focused on developing and applying advanced methods to address the organization, financing, delivery, and quality of its care. Its emphasis on addressing real-world problems through training in organizational acumen, informatics, implementation, quality improvement, and effective engagement of multiple interested parties offers a powerful driver for WHS principles and practices. LHSs facilitate ongoing input and engagement from interested parties who are brought into a learning community which determines the prioritization, design, and communication of research and its impacts. For example, VA's Senior Innovation Fellowship augments the ability of established leaders to leverage the efforts of internal and external interested parties throughout VA, other governmental bodies, academia, and industry. Fellows engage in experiential learning in core competencies including communication strategies, storytelling, building and expanding professional networks, developing a business case, and systems thinking which helps them to develop and scale innovative initiatives and practices at the national level. VA's LHS programs are also designed to reach beyond clinical settings to increase the diversity of the health care workforce and address persistent gaps in health outcomes among populations that have been historically marginalized. Participants without terminal degrees are eligible to participate in some programs, reducing economic and academic barriers for many. For these reasons, VA's LHS is a helpful model for the scale and spread of whole health by improving health care research, training, and implementation both within and beyond VA itself.

Experience to date in VA's scaling and spreading its WHS illustrates the importance of ensuring that, before formal training even begins, clinicians, administrators, and system executives have already developed and tested the tools required to implement whole health practices (Bokhour et al., 2020). Having programmatic, administrative, and clinical champions can facilitate implementation. All VA staff members, including clinicians and other professionals, should be familiar with a whole health approach to caring for the veteran population. This requires developing new courses and supporting materials designed to reorient staff toward delivering whole health care, from clinic- and clinician-centered care to patient-centered and patient-driven care. Local adaptations in training programs, such as whether training occurs all at once or over multiple sessions and at what level of detail, are required to ensure that programs address the training needs of different cohorts. If the staff members are not provided with adequate preparation, a significant lag may ensue between them being trained and their having the ability to act on lessons learned, which may blunt their enthusiasm and decrease their confidence in applying what they have learned.

Supporting Workforce Well-Being

As Chapter 3 described, whole health systems need a healthy, interprofessional, team-based workforce to ensure that they address the five foundational elements of whole health. Toward that end, systems should actively foster conditions to enable individuals—both employees of the system and those who seek their services—to achieve their personal whole health and well-being goals. As Chapters 4 and 5 describe, VA's WHS, as well as most of the other systems the chapters highlight, have developed employee well-being components in their whole health approaches. However, most program components addressing employee well-being are individual-level programs and interventions designed to help employees improve their personal well-being through stress management techniques, town hall meetings, and other activities. This emphasis on individual-level intervention and action, while effective to some degree, is not as effective as organizational interventions and approaches to build well-being systems and to prevent employee burnout by addressing the systems-level causes of it (NASEM, 2019; Panagioti et al., 2017). Systems-level causes of workforce burnout (see Chapter 3) include excessive job demands, administrative burden, inefficient workflows, time pressure and encroachment on personal time, poor usability of health IT, moral distress, and patient factors (NASEM, 2019).

Two systematic reviews looked at both individual-level interventions, such as mindfulness, stress management, and small group discussions, and organizational-level interventions including changes in duty hour requirements and practice-based delivery changes, to better understand their effect on reducing or preventing burnout. One review found that both individual and organizational-level interventions can reduce burnout but did not specify which particular interventions might be most effective for different populations (West et al., 2016). The second review found that while both types of interventions had value, the systems-level interventions have a greater impact on reducing burnout and symptoms of burnout (Panagioti et al., 2017).

Most research on health care workforce well-being examines interventions designed to prevent or reduce burnout, rather than interventions designed to promote individual well-being. The published literature is also fairly unclear regarding which systems-level interventions hold the most promise for reducing burnout or strengthening well-being (NASEM, 2019). Recognizing this, the 2019 National Academies report *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being* (NASEM, 2019) created guidelines to help health care organizations integrate well-being systems into their overall care delivery system (Box 7-3). The values, systems approach, leadership, and implementation aspects of these guidelines align well with the processes supporting the scale and spread of whole health (see Chapter 6). The evidence in the well-being section of Chapter 3 supports these work system redesign guidelines.

Team Well-Being Lessons from the Pandemic

VA's roll out of its WHS coincided with the emergence of the COVID-19 pandemic, but rather than slowing implementation, the heightened stress that both patients and health system employees experienced during that crisis actually helped promote whole health. One study found that because patients and staff came to embrace whole health principles and practices as means of a support, they "leaned into [w]hole [h]ealth rather than retreating to former processes and practices" (Dryden et al., 2021, p. 7). Similarly, medical center leadership at multiple levels recognized the value of whole health activities in addressing stress among their employees and actively modeled and encouraged whole health activities in response. For example, facility leaders began to open staff meetings with "mindful moments" aimed at better managing stress and anxiety; daily employee newsletters and emails from leadership regularly included endorsements of whole health principles and practices; and town hall meetings focused

BOX 7-3
Guidelines for Designing Well-Being Systems

Values, Systems Approach, and Leadership

- Align organizational structures and processes with organizational and workforce values (respect, justice, compassion, diversity of views).
- Use a systems approach to proactively improve professional well-being while supporting patient care.
- Engage and commit leadership at all organizational levels to address clinician burnout and improve professional well-being.

Work System Redesign

- Enhance the meaning and purpose of work and deliver value to patients.
- Provide adequate resources and environment (e.g., staffing, scheduling, workload, opportunities to learn, greater job control, usable technologies, adequate physical environment) to support clinicians' work.
- Design work systems that encourage and facilitate relational care (teamwork), collaboration, communication, and professionalism.

Implementation

- Build an infrastructure for a well-being system that has adequate organizational resources, processes, and structures; that continually learns and improves; and that is accountable.
- Design reward systems that align with organizational and professional values to support professional well-being.
- Nurture (establish and sustain) organizational culture that supports change management, psychological safety, vulnerability, and peer support.
- Use human-centered design processes (see Chapter 2) to co-design, implement, and continually improve solutions and interventions that address clinician burnout.

SOURCE: NASEM, 2019.

on how whole health was as relevant for health center employees as it was for the patients they served. While there is documented value in these approaches to enhance well-being and to mitigate burnout, and while there was clearly an urgent need to do something as COVID-19 was sweeping rapidly through the health care workforce, systems-level interventions to promote well-being and to manage burnout may be more effective than individual-level interventions (Lebares et al., 2021; Montano et al., 2014).

Nevertheless, these efforts at VA, combined with the universal perception of a pressing need, the availability of high-quality whole health training programs and materials, and the concerted efforts of health coaches, peer-support specialists, clinical champions, mental health professionals, chaplains, employee health workers, and facility leaders helped to advance robust whole health implementation at VA facilities where earlier efforts had stalled. Still more impressive, flagship sites within at least some VA regions took the initiative of exporting whole health principles and practices to their neighbors and networks in response to the burden of the pandemic. One study of VA employees found that those involved in the VA's WHS were more engaged and less likely to experience burnout than their colleagues (Jonas and Rosenbaum, 2021). Clinical staff working in the WHS were also less likely to resign from VA. As a group, these employees reported that they had better leadership, had higher levels of intrinsic motivation, and felt more engaged in their mission.

Such benefits of whole health are not confined to VA health care systems. The Southcentral Foundation's Nuka System of Care (see Chapter 4) reported that following its transition to a relationship-based, whole health approach, staff turnover decreased by 15 percent (Eby and Ross, 2016). A 2019 study of 1,298 family physicians in ambulatory outpatient settings found that physicians who perceived that they were able to meet their patients' social needs were less likely to experience burnout, suggesting that care settings in which clinicians are able to address some upstream factors of health may have a positive effect on clinician burnout (De Marchis et al., 2019).

As concern about burnout among health care workers rises within medical circles and among the public at large as a result of the COVID-19 pandemic (Jalili et al., 2021), whole health transformation may become increasingly attractive across different sectors of society and, in particular, among health care system employees and leaders. As a 2021 study observed, whereas large health system transformation often has negative effects on employees, engagement in VA's WHS has had a positive effect on employees (Reddy et al., 2021). The study's authors suggest that this benefit springs from an alignment between the principles of whole health and core values held by health care employees regarding the importance of providing individualized, people-centered care. As experience during the pandemic has demonstrated, benefits may also derive from the uptake of whole health practices among health care employees in the face of marked workplace stressors. Ironically, the greatest medical crisis of the century may become a powerful driver of whole health scale and spread across the nation.

Policy Considerations

While individual health care delivery systems may choose to transform to whole health, workforce development at the national level will require action at the federal level. More primary care clinicians are needed to anchor whole health systems (NASEM, 2021). Residency training positions are largely funded by CMS, and there have been minimal changes in the number of positions it has funded for the last several decades. When CMS added more positions 10 years ago, primary care physician leadership groups such as the American Academy of Family Physicians requested that CMS allocate the new slots to primary care disciplines and met significant resistance from groups representing subspecialists (Kaufman and Alfero, 2015). The HRSA-supported Teaching Health Center initiative funded by the Affordable Care Act authorized ambulatory organizations to sponsor primary care residencies, but the frequent reauthorizations required by this initiative stand in contrast to the more stable CMS funding for residency training (HRSA, 2022). More recently, VA allocated 1,500 new residency positions devoted to primary care, although at first it mandated that trainees in these positions spend 100 percent of their time in VA space. When it subsequently provided flexibility in how these positions were structured, that allowed VA to recruit more family medicine residents, who have mandatory requirements for pediatric and obstetrical experiences that are not available in VA. These challenges in increasing the capacity to train primary care physicians and other primary care clinicians need to be addressed by legislation at the federal and state levels.

Policy makers may also consider increasing the number of residency training slots in U.S. teaching hospitals for certain physician specialties that are critical for whole health but currently face rather large shortages (AAMC, 2021b). Given recent declines in the number of U.S. medical graduates who choose a career in primary care, geriatrics, infectious disease, and other less-well-paid specialties, investing in training slots would be a long-term strategy for preparing the workforce to be ready to deliver whole health. For example, CMS could fund an increase in primary care or geriatrics positions (Lester et al., 2020; West and Dupras, 2012). Outside of changing the number of training slots, policy makers could also use incentives to encourage U.S. teaching hospitals to train more physicians in needed specialties. Such incentives could take the form of positive or negative financial incentives tied to the percentage or number of physicians in such specialties (Song et al., 2015).

MEASUREMENT, LEARNING, AND ACCOUNTABILITY FOR WHOLE HEALTH

To scale and spread whole health, measuring progress and outcomes will be central to the learning and adaptive process for health care organizations and policy makers. Measurement has long been a core goal of health systems and payers, with several decades of history and empirical study focused on measuring health care quality and the implications of quality measures on clinician behavior and patient outcomes.

The foundation of measurement in health care is rooted in the seminal Donabedian framework (Blumenthal, 1996). Among other key contributions, this framework distinguished structures, processes, and outcomes as distinct targets of measurement (Donabedian, 1980, 1988). Structural measures include counts of necessary inputs for delivering care, such as physical infrastructure, as exemplified in safe and accessible facilities. Process measures—by far the measure that insurers use most commonly—focus on whether clinicians delivered guideline-based services and include appropriate tests at appropriate intervals for chronic disease monitoring (e.g., annual kidney function tests in patients with diabetes) and age-appropriate cancer screening. Outcome measures, in turn, are arguably most important, as they address the outcomes faced by patients. To date, these have included intermediate outcomes such as blood pressure levels in patients with hypertension and cholesterol levels in patients with high cholesterol as well as defined end points such as functional outcomes and mortality. Economic outcomes, including overall per capita and population spending and benefit-to-cost ratios, are also important outcomes to consider in the context of the new spending required to scale and spread whole health. In particular it will be important to demonstrate the benefits that accrue in return for additional spending in order to overcome skepticism about whole health.

Over the past 30 years, numerous quality measurement programs and incentives have been implemented and studied. The mission of the federal Agency for Healthcare Research and Quality (AHRQ) is to produce evidence to make health care safer, higher quality, and more accessible, equitable, and affordable and to work within the U.S. Department of Health and Human Services and with other partners to ensure that the evidence is understood and used. AHRQ receives funding from the Office of the Secretary's Patient-Centered Outcomes Research Trust Fund to disseminate evidence to practitioners (ASPE, 2022b). Other national bodies such as the National Committee for Quality Assurance and the National Quality Forum have taken leading roles in designing and approving quality measures. A large body of literature is aimed at understanding both the state of performance on quality measures and to what extent financial incentives can improve the quality of care. In general, the quality of care delivered in the United States has been suboptimal, with adults and children receiving only about 50 percent of recommended care (Mangione-Smith et al., 2007; McGlynn et al., 2003). Efforts by insurers to improve quality through financial incentives have led to some improvements in performance on quality measures, but have also introduced important unintended consequences (Berwick, 1989; Rosenbaum, 2022b). Among the latter have been measures of fatigue among clinicians, the nearsighted focus on quality measure performance at the cost of intrinsic motivation and unmeasured dimensions of quality, and the exacerbation of racial or ethnic inequities through pay-for-performance incentives (Rosenbaum, 2022a).

Learning and accountability are different and potentially unaligned processes; yet scaling and spreading of whole health require both. Learning systems—those that provide data comparing the efforts and outcomes of peers over time—help providers, teams, organizations, and systems understand how to move from whole health aspirations to effective operations at mico, meso, and macro levels. Accountability systems—those that assess the adequacy and completeness of whole health activities—can motivate providers and systems to embrace and achieve whole health. They can also promote communication and cooperation among stakeholders (Berwick and Shine, 2020), enabling local adaptation to recommended approaches, the evaluation of scale and spread over time, and adaptation in response to changing conditions. Accountability systems complement but do not replace professional norms and values that lead to high-quality outcomes for patients (Kanter et al., 2013; Starr, 2017).

Learning and accountability may sometimes be at odds, as when widespread under-reporting (necessary for learning) confounds efforts to measure human error (for purposes of accountability) (Edmondson, 1996). For providers to be willing to report errors from which a team or organization may learn, they must believe that the group is safe for taking interpersonal risk and that reporting will lead to change (Edmondson, 2019). Attempting to use such measures for accountability risks undermining providers' sense of psychological safety, which results in under-reporting. In addition, because learning processes take time, they often cause delays and short-term performance decrements (Repenning and Sterman, 2002). For this reason, the costs of learning (e.g., error identification) may be initially more visible than its benefits (Singer and Edmondson, 2008). Holding providers accountable for required learning that is not yet completed can therefore be unhelpful. Unintended consequences of accountability tied to incentives can include motivating inappropriate levels of effort toward achieving rewarded metrics while ignoring other desired outcomes for tasks that may be more difficult to measure (Holmstrom and Milgrom, 1991) and turning quality measurement into a box-checking exercise that promotes burnout instead of motivating improvement (Berenson, 2016; McWilliams, 2020; NASEM, 2019, 2021; Phillips, 2020; Philips et al., 2019). For these reasons, the process of identifying and developing metrics and measurement systems to assess progress toward whole health should be pursued with sensitivity to the differences between learning and accountability goals.

While specifying a standard set of learning and accountability metrics for whole health is beyond the scope of this report, the committee emphasizes that identifying such measures should occur through a coordinated process involving key stakeholders, including community members. Such efforts should seek to identify existing measures that reflect whole health foundational elements as well as important gaps that may require new measures for advancing whole health. Public and private systems fielding a whole health approach need to evaluate how to implement and adapt whole health care and its outcomes, which will require partnerships with academic health researchers. Learning from this kind of evaluation is needed to inform continual adaptation and improvement, and this learning should be disseminated so it may inform others who are also implementing or considering implementing a whole health approach.

A set of core principles should drive the process of defining effective metrics for whole health. However, most existing health care quality metrics focus on *specific* components of health care, such as hemoglobin A1c levels in diabetes control, and thus are poorly suited to measuring whole health systems, which emphasize *the integration of multiple components of care*; many of these components exist beyond what is traditionally considered the domain of medical practice or responsibility (NASEM, 2021; Stange et al., 2014).

The principles that the committee recommends for promoting the scale and spread of whole health systems and improved performance on dimensions of whole health are largely consistent with those that the 2021 National Academies report *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care* describes. Modifying the criteria (using brackets to identify differences) established by the Starfield Summit for superior primary care measures (Etz et al., 2017) and reported in the *Implementing High-Quality Primary Care* report, the committee suggests that superior whole health measures

- Are meaningful—to patients, families, [communities], health systems, policy makers, and clinicians.
- Assess [whole health] as defined, practiced, experienced, and cocreated between patients, [families, communities,] clinicians, and teams.
- Assess the intended outcomes of [whole health] (e.g., achievement of health and health goals, illness prevention and health promotion,

healing, avoidance of unnecessary pain and suffering, equity, [and overall health spending]).

- Balance the tensions endemic to [whole] health care: standardization alongside customization, predictability alongside ambiguity.
- Are flexible—adaptive to setting (from the individual to national levels), lifespan (infant to elderly), health state (changing health status), and individual differences (context, family, and preferences).
- Provide evaluation and improvement information actionable at the local, regional, and national levels.
- Support self-assessment, self-learning, and aspiration.
- Are feasible, reliable, and without undo data collection burden.
- Point out and establish the importance of things that cannot yet be counted.
- Inform evaluation of a broad vision that understands health and illness exist within a social and cultural framework.
- Reflect the complexity of the [system]—the whole is more than an additive sum of parts. Embrace interconnectivity, reject reduction to cause and effect of individual elements, assess and support emergence—where just adding up what happens to parts (diseases, individuals) does not equal the whole (people, populations).

In addition, effective measurement systems should

- *Account for people-centered needs, not just patient-centered needs.* Beyond readily available measures of disease control and life expectancy, whole health measures should address how individuals live and evaluate their own life experiences. This will likely require greater use of a broader range of patient-reported assessments as well as the inclusion of new measures (e.g., of well-being, happiness, and/or flourishing) not often addressed in clinical settings.
- *Distinguish measures valuable for learning from those intended for accountability.* As explained, comingling measurement objectives will undermine both learning and accountability. Instead, these must be distinguished. To encourage accurate reporting, learning-oriented measures must protect reporters from potential punitive repercussions and should be accompanied by organizational capacity for taking action based on results. Safety climate is an example of a learning-oriented measure. What's important is that a team or organization receives information that allows improvement. If used for accountability, such a measure could be easily gamed and its value for improvement would be lost.
- *Address macro, meso, and micro levels and balance individual, family, and team-based, and community accountability for whole*

health. Achieving whole health requires cooperation and integration across multiple levels, including individuals' primary providers, care teams, whole health delivery systems, payers, and community resources. Measurement for accountability should therefore address multiple levels, for example, through report cards comparing individual, team, and organizational performance against peers. While delivering whole health requires collaboration and integration across teams, team- and community-level accountability do not diffuse individual accountability, including that of individuals' primary providers, who are ultimately accountable for patients' care.

- *Include few measures*. Parsimony is a critical goal of effective and efficient measurement. Frugal, well-focused measures increase focus, reduce burden and burnout, and promote alignment across payers, patients, clinicians, health systems, and communities.
- *Where possible, draw on measures that have been previously developed and tracked, which relate to the foundational elements of whole health*, either directly or indirectly.
- *Be flexible in reflecting people and populations' needs and goals*, keeping individual, community, and cultural values in mind.
- *Anticipate, whenever possible, potential unintended, unproductive consequences of proposed metrics* (given that systems tend to get the results that they measure for).
- *Encompass both clinical and social outcomes* such as homelessness, occupational, financial or nutritional insecurity, and level of family stability and social support.
- *Balance objective and subjective outcome measures* when available, including validated process and patient experience measures.
- *Be easily understood* by the target audience, and consistent over time.

Scaling and spreading whole health will require new measures that better reflect the five foundational elements of whole health, but these measures may need to be developed over time within iterative quality improvement and translational science processes. Consideration should be given to structural and processual measures, such as team-based care and care integration; cognitive measures, such as trust (Lynch, 2020); measures of the quality of the therapeutic relationship (Greenhalgh and Heath, 2010); and measures of well-being (Vogt et al., 2019), in addition to clinical outcomes. Equity is also an important goal of whole health, for which measures should be developed, as should measures appropriate for specific subpopulations.

Evaluations should be prospective and longitudinal, use a mix of methods, include information on how to achieve whole health, and not be overly burdensome on clinicians or people receiving care. Because whole health centers around people and their communities, the committee anticipates that illuminating progress toward certain foundational elements will require population and member surveys as well as focused community assessments, such as the American Census Bureau's American Community Assessment (NRC, 2007). Findings should be shared openly and transparently using narratives and numbers, with details to assess the strengths, limitations, and potential biases so that all can learn and adapt approaches based on the results. These evaluations should focus on learning and be separate and distinct from evaluations used to ensure accountability and quality whole health care.

Action to scale and spread whole health based on new measures of learning and accountability will be required at both organizational and systemic levels. Systemic action requires policy change, especially to ensure that action promotes health equity. Given their expertise, clinicians can be effective advocates for change at both organizational and systemic levels, particularly when they combine empirical evidence of outcomes based on validated measures with compelling stories of the difference whole health makes in the lives of individuals.

FINANCING AND PAYMENT FOR WHOLE HEALTH

The concept of whole health extends beyond health care and the institutions that deliver health care. As Chapter 3 details, the holistic health and well-being of individuals and communities often depend more on upstream factors outside of the health care system than those within it (Bradley et al., 2013, 2016; Willard-Grace et al., 2014). Nevertheless, the health care system itself—including not only the human capital necessary for delivering care but also the physical and now increasingly virtual structures of care delivery—retains an important role in determining whether and how a vision of whole health can be achieved. Notably, this role is shaped by the policies and markets that govern or are embedded within the health care system.

In the context of a health care system, how care is financed and paid for goes a long way toward determining how patients and communities access care and what services they ultimately receive (Chandra et al., 2011; Cutler, 2005; Newhouse, 2002). Not only do professional ethos and cultures of medical practice matter, economic incentives and regulatory structures also matter, often even more so. Financing and payment for care are related, but they are not the same. Financing refers to the way that society raises the funds to pay for health care and is often linked with health insurance. From a public perspective, financing occurs through key mechanisms such as taxation, general revenues, and deficit spending or borrowing. These mechanisms largely fund public programs including Medicare, Medicaid, the Indian Health Service, Tricare, and the Veterans Health Administration (VHA). In the private sphere, the financing of health care comes from business revenues and the insurance premiums that employees pay, which largely come out of their wages (Baicker and Chandra, 2006; Clemens and Cutler, 2014). The private financing of health care also includes philanthropy, a substantial source of revenue for many health care institutions, and extends to the personal and family resources of individual patients (AAMC, 2021a). Although philanthropic spending accounts for only about 7 percent of overall health spending (Shaw-Taylor, 2016), the historical examples of the Rockefeller Foundation's support for the National Committee for Mental Hygiene and the Carnegie Foundation's support for the Flexner Report (as described in Chapter 6) demonstrate that strategic philanthropy can exert a powerful influence on the trajectory of health care concepts and programs. For those with health insurance, public and private financing mechanisms typically establish the pool of resources that makes insurance coverage possible. In turn, insurance protects people from the financial risk of needing health care (Cutler and Zeckhauser, 2000), although it is not free for individuals or for society. Whether one considers a universal, single-payer model of providing insurance or a decentralized, multipayer scenario like in the United States, the fundamental fact that health care needs are, to a significant degree, difficult to predict renders some system of health insurance necessary.

Payment refers to the mechanisms that reimburse (or sometimes prospectively pay) health care providers—including clinicians, facilities, hospitals, post–acute care providers, and other entities—for delivering health care services. Payment models include reimbursement for each service rendered according to a fee (or price) schedule, often known as "fee-for-service"; bundled or episode-based payments determined prospectively by a target or budget for a defined set of services over a period of time; and payment determined prospectively for all services across the spectrum of care for a defined population over a period of time. The latter approach of prospective payment is often referred to as global payment, global budget, capitation, risk contracts, or accountable care organization contract models. Within health care organizations, whether paid through fee-for-service or prospective payment, individual clinicians can receive payment via salary (a form of prospective payment) or volume-based "productivity" incentives (a form of fee-for-service), although many salary models are mixed with productivity incentives based on the number of services rendered. Outside of these main payment mechanisms, health care providers may also receive payments for quality of care, sometimes called pay-for-performance or performance-based bonuses. Years of evidence have demonstrated that each type of payment incentive affects clinician behavior with intended and unintended implications for health care use, spending, and patient outcomes.

The following section discusses the financing of care in VA and evidence pertaining to various payment models that may be appropriate for whole health both within VA and scaled to environments beyond VA. In response to the statement of task, the committee also describes payment and financing models used in the private sector that could facilitate value-based, whole person care within a population health orientation beyond VA.

Financing and Payment in the VA

VA delivers care through its VHA at 172 medical centers and more than 1,100 outpatient clinics. Federal budgetary appropriations finance this integrated delivery system, which comprises 18 regional Veterans Integrated Service Networks (VISNs) which contain medical centers. Congress makes these appropriations through four major categories or “accounts:” (1) Medical Services, which covers health care services; (2) Medical Community Care, which comprises services provided by community providers; (3) Medical Support and Compliance, which covers administration and research activities; and (4) Medical Facilities, which addresses the operation and maintenance of physical infrastructure. From fiscal year 2015 to 2019, federal appropriations to the VHA increased from $56 billion to $81 billion a year, financing care for roughly 7 million veterans (GAO, 2019a).

The statement of task asked the committee to examine how the Veterans Equitable Resource Allocation (VERA) system could facilitate the transformation to whole health within VA and inform models in the private sector. The federal government appropriates a budget to the VHA every 2 years. In turn, the VHA uses the VERA system to allocate about two-thirds of its funding ($49 billion in 2019) to VISNs and medical centers for general patient care—called “general purpose funds”—based on patient workload (GAO, 2002). VHA allocates the remaining third of its funds ($23 billion in 2019) to specific program offices—termed “specific purpose funds”—through the Medical Center Allocation System (MCAS). Such programs include those focused on prosthetics, hepatitis C drugs, homelessness, medical residency education, and community care. These program offices, in turn, pass on the funds to medical centers based on their own financing models, which could also be workload based.

The largest share of specific purpose funds (46 percent) goes to programs for community care, which through the MISSION Act (see Chapter 6) enable veterans to receive care outside of VA when care would be challenging to receive because of wait times, long travel distances, or the unavailability of a service inside VA. While the rules of the MISSION Act govern the current iteration of community care, it represents a longstanding mechanism for the VA to purchase care from providers outside of VA, which it has done since the 1940s. In recent years, however, spending on community care has steadily grown, prompting VA to request additional appropriations—$1.2 billion and $2.2 billion in fiscal years 2017 and 2018, respectively—to pay for that care (GAO, 2019b).

VA aims to titrate financing based on measures of need as reflected through clinical use. The VERA and MCAS allocation systems differ in how they adjust financing to patient workload. The VERA model considers the number of veterans served, the types of veterans served as defined based on use patterns, the complexity of services, and geographic factors such as local labor costs. The MCAS model uses a workload measure called "patient-weighted work" which is derived from patient volume, case mix, and specialized services. Both models adjust funding based on usage, the complexity of services, and patient characteristics. In essence, this reflects a form of risk adjustment, whereby medical centers that demonstrate plausibly greater need could receive additional funding. Throughout the year, VA monitors the status of funds, and it has the authority to redistribute funds toward needs that arise.

Payment in VA

Once funding has been appropriated and allocated, VA hospitals are essentially paid based on a budget, and clinicians are generally salaried. In this way the VA's hospitals and clinicians are paid in a more prospective manner than are most community providers in the broader health care system today, who remain paid through a largely fee-for-service system that incentivizes volume. By paying its hospitals according to a budget and its clinicians via salary, VA has a basic foundational payment infrastructure that encourages its delivery system to care for patients holistically and that emphasizes prevention, as additional use does not immediately garner additional revenue.

Paying hospitals and clinicians in a more budgeted or prospective manner aligns with the philosophy behind value-based payment models that emphasize prevention, primary care, and reducing low-value care. Fundamentally, if VA could avoid morbidity and expensive care, it would have a better chance to stay within its federally allocated budget. This would ease the pressure on the federal budget and help relieve some of the fiscal pressure generated by the growth in health care spending of recent decades. Paying for the health care of defined populations prospectively also resonates with the ethos of whole health, which emphasizes attention to upstream risk factors and opportunities to affect health, including addressing the social determinants of health. For example, within a budget, health systems would be better able to prospectively invest in housing, transportation, or social services to keep patients healthy and maintain spending under the budget. In such sense, VA is an ideal fertile ground for the development and advancement of a whole health approach to caring for populations.

Within the structure of an overall budget, however, volume incentives are not absent in VA. This is because the volume of care and complexity of care are key inputs into the workload adjustment used to determine future funding allocations in the VERA and MCAS systems. Therefore, increases in volume in one year could lead to a larger budget allocation in future years. In this way, a meaningful volume incentive still exists, even though it is a less direct and less immediate incentive than traditional fee-for-service. Moreover, if a medical center spends less than its allocated budget, VA could redistribute its funds to other needs that arise, creating an incentive for every VA medical center to use the full extent of funding it receives.

Financing and Payment Outside of VA

Most health care services delivered outside of VA are reimbursed on a fee-for-service basis. Fee-for-service arrangements reimburse clinicians and health care professionals at a negotiated price or an administratively set price per unit of health care service rendered. At its core, fee-for-service rewards volume of care, rather than explicitly paying for quality, appropriateness, or outcomes (De Brantes et al., 2009; Rosenthal et al., 2004). Moreover, fee-for-service payment is likely a key contributor to the fragmentation of the U.S. health care delivery system, as it does not directly reward patient co-management or coordination of care among clinicians (Ginsburg, 2012; Laugesen and Glied, 2011). As a result, fee-for-service rewards the development and proliferation of technologically intensive and higher-priced services, which are often in the domain of procedural specialties, rather than encouraging clinicians and other health care professionals to actively prioritize whole health. For example, there is no defined fee for instilling empathy into a relationship, building community for a patient, or preventing an illness from occurring. There is a fee, however, for treating the illness once it has emerged.

In recent years, both private and public insurers, including Medicare and Medicaid, have begun to move payment arrangements away from fee-for-service and toward "prospective" or "alternative payment models" that provide clinicians and health care delivery organizations a spending target or budget for a set of services or the care of an attributed population of patients (Burwell, 2015; Emanuel et al., 2012; Rajkumar et al., 2014). The Center for Medicare and Medicaid Innovation has tested about 50 alternative payment models in its first decade (Smith, 2021); meanwhile, states, including California, Massachusetts, Oregon, and Washington, have started to use 1115 Waiver authority to innovate away from pure fee-for-service payment.

Such alternative payment models include bundled and episode-based payment models that give clinicians and hospitals a prospectively estimated target or budget for a defined episode of care, such as 30 days after a joint replacement or 6 months after the onset of chemotherapy (CMS, 2022a,b; Press et al., 2016; Song and Colla, 2016). Alternative payment models also include global budget or accountable care organization (ACO) contracts which provide health care delivery organizations a prospective, risk-adjusted spending target or budget for the entire continuum of care of a defined population of patients (Pham et al., 2015; Rajkumar et al., 2015; Song and Lee, 2013). In these models, provider organizations including physicians, hospitals, and other providers, such as post–acute care providers, have financial accountability for the quality of care and spending within a prospectively determined spending target or budget. By 2021, about 40 percent of U.S. health care spending flowed through such alternative payment models (MITRE Corporation, 2021; Health Care Payment Learning & Action Network, 2022).

Spending Target (or Budget) vs. Accountability

Central to the whole health approach is a health care system that takes accountability for the health outcomes of its population and how scarce resources are allocated to achieve those health outcomes. Payment via a prospectively determined target or budget is a necessary, but not sufficient, condition for this accountability.

Accountability for quality of care is generally established through quality measures, with financial incentives tied to performance on those measures. While imperfect and sometimes with notable unintended consequences on provider behavior (Rosenbaum, 2022a,b), quality measures generally seek to capture how well clinicians and hospitals perform on process measures (e.g., appropriate intervals of testing for patients with chronic diseases), outcome measures (e.g., intermediate health outcomes such as blood pressure, cholesterol, or hemoglobin A1c levels), and patient experience.

Accountability for spending occurs through providers bearing financial risk for spending, which typically occurs in two ways. First, “upside risk,” a type of financial carrot, rewards providers with a share of the savings if actual spending on health care in a contractual period is less than the prospectively set budget or spending target. Second, “downside risk”—a financial stick—penalizes providers by omitting payment (or a percentage of payment) for any spending that exceeds the budget or spending target.

In the extreme, this downside risk can be "full" risk, where providers are not paid for any services billed for in excess of the budget. In most cases, however, the risk is shared between the payer and providers, whereby the payer reimburses the provider for a portion of excess spending (referred to as "shared risk"). A payment model based on a spending target or budget with only upside risk is often denoted a "one-sided" alternative payment model, whereas a model with both upside and downside risk is often dubbed a "two-sided" alternative payment model. Figure 7-1 provides an illustration of the spending target and implications of one-sided and two-sided financial incentives for providers.

Moreover, these financial incentives can be linked. For example, the magnitude of shared savings or shared risk faced by the provider organization could be conditioned upon a certain level of performance on quality measures. In such a way, better quality could earn the provider a larger share of any savings, should there be savings, and a smaller share of any risk, should there be excess spending. Accountability could also be reflected through non-financial incentives to deliver higher-value care, including clinicians' intrinsic sense of professionalism, peer pressure, or organizational leadership or culture (McWilliams, 2020). These non-financial incentives could also move clinical decision making toward higher-value care and may be more effective than financial incentives in certain situations.

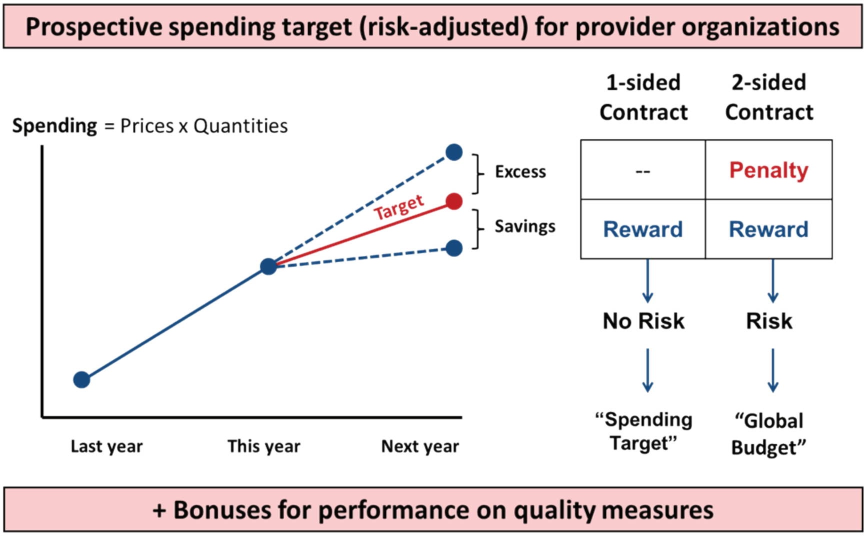

FIGURE 7-1 The relationship between payment models, bonuses, and penalties.
SOURCE: Song, 2014.

Recent Evidence from Traditional Medicare

To date, the Center for Medicare & Medicaid Innovation (CMMI) has designed and tested over 50 payment and delivery models intended to improve the value of care—an effort directionally aligned and substantively consistent with the philosophy of whole health. To date, nearly all of these models have been voluntary for providers to consider and join. In the first decade, about a handful of these CMMI models have generated what appears to be net savings in health care spending (McWilliams et al., 2019; Smith, 2021). Net savings can be understood as savings generated for the payer or society after accounting for incentive payments to providers, which include the shared savings, quality-based performance bonuses, and other non-claims-based or per-member-per-month payments to providers to help them adapt to the new payment model (e.g., lump-sum care management fees or investments to help providers establish electronic health records). In Medicare, where the prices of care are generally similar across the country, changes in volume or use explain the savings. Evidence to date suggests that in many Medicare alternative payment models, savings have come out of post–acute care (Barnett et al., 2019a; McWilliams et al., 2013, 2017). Some of these Medicare models appear to improve the quality of care without savings.

The Medicare Shared Savings Program, the largest Medicare ACO program and one that uses a mostly one-sided incentive model, has demonstrated modest, though meaningful savings to date (McWilliams et al., 2018, 2020; Trombley et al., 2019). The Medicare Pioneer ACO program, which used a two-sided model, also demonstrated modest savings in the initial years, although participation waned due to the financial consequences of downside risk (McWilliams et al., 2015; Nyweide et al., 2015; Trombley et al., 2022). In these ACO models, provider organizations are attributed to a defined population of Medicare beneficiaries for whom it is accountable for total spending and quality. This attribution can either take place prospectively—before a contract year, whereby an organization knows the roster of covered lives it is responsible for—or retrospectively based on where beneficiaries received most of their primary care in a given year. These ACO models provide an example for the VA context, in which additional accountability for whole health may be integrated into the budgets allocated to the medical centers.

Other examples for the VA context include federal payment models that were similarly designed to improve the quality of care, slow spending, or both. In primary care, the federal Comprehensive Primary Care initiative featured lump-sum payments to primary care practices that were designed to support care management. In the first few years, the model was associated with fewer emergency department visits. However, the monthly payments to primary care practices exceeded savings on emergency department visits, and no net savings were evident (Peikes et al., 2018). In fact, during years 1, 2, and 3, the model was associated with reductions of $16, $10, and $2 per beneficiary per month, respectively; however, the $16 care management fee, on average, exceeded those savings on claims (Peikes et al., 2016). The more recent Comprehensive Primary Care Plus model, which began in 2017 and also provided lump-sum payments to practices to support care management, similarly did not reduce net Medicare spending after accounting for the care management fees, although it was connected to improvement on some quality measures (Swankoski at al., 2022).

Outside of primary care, Medicare's largest mandatory bundled payment model, the Comprehensive Care for Joint Replacement Model for hip and knee replacements, demonstrated modest savings on claims in the first 2 years which were driven by changes in post–acute care, but those savings were largely offset by incentive payments (shared savings and quality bonuses) paid to participating providers (Barnett et al., 2019b; Finkelstein et al., 2018; Haas et al., 2019). Medicare's Oncology Care Model, an episode-based model that gives providers a prospective spending target for 180 days of care after starting chemotherapy, was associated with some reductions in spending on claims in the first 3 years, which were offset by its monthly payments for enhanced oncology services, resulting in no net savings; there were no associated changes in the quality of care or patient experience (Brooks et al., 2019; Keating et al., 2021, 2022). The Maryland All-Payer model, a unique state-based global budget model for hospitals, also did not demonstrate clear evidence of changes in use or savings in the first 3 years attributable to the payment model (Roberts et al., 2018a,c), although some debate remains over its effect (Emanuel et al., 2022; Roberts et al., 2018b; Sharfstein et al., 2018).

Recent Evidence from Medicare Advantage

The Medicare program features another type of prospective financing, Medicare Advantage, which now enrolls about half of the Medicare population (Freed et al., 2022). Commercial insurers issue Medicare Advantage plans, and these plans accept a prospective, risk-adjusted payment from the federal government to offer the Medicare insurance benefit in U.S. counties of their choosing. The plans can modify the base Medicare benefit within regulatorily defined bounds, based on how much in government subsidies it needs. By requiring fewer subsidies than those that CMS is willing to offer, a plan can add additional benefits—for example, vision, dental, or hearing coverage, or lower premiums for Part B or prescription drug coverage—to the base Medicare benefit, which may appeal to Medicare beneficiaries. To control spending, plans can restrict enrollees to a narrow network of providers, in contrast to traditional Medicare. Plans can also use managed care strategies such as prior authorization and usage review. Beneficiaries can choose to enroll in traditional Medicare or a Medicare Advantage plan, based on the plans available in their county of residence.

By accepting a prospective payment, Medicare Advantage plans have a strong financial incentive to adopt a whole health philosophy in their population health management. Every unnecessary medical service averted is potential savings in the budget, and evidence suggests that Medicare Advantage plans indeed contain service use more effectively than traditional Medicare (Duggan et al., 2018; Schwartz et al., 2021), in part through their use of narrow provider networks and managed care strategies such as prior authorization. Studies have also found that Medicare Advantage beneficiaries receive more recommended preventive services and report higher scores for some patient experience measures than traditional Medicare beneficiaries (Meyers et al., 2022). However, whether Medicare Advantage plans deliver better value overall for taxpayers and the country relative to traditional Medicare remains less clear. Medicare Advantage patients often receive care from lower-quality providers, including hospitals and nursing homes, compared to traditional Medicare patients (Meyers et al., 2018). Quality of care in certainly clinical situations have been modestly better in Medicare Advantage than traditional Medicare (Landon et al., 2022), although non-random selection by Medicare beneficiaries into Medicare Advantage plans have complicated some of these comparisons to traditional Medicare (Agarwal et al., 2021). However, what is more clear is that Medicare Advantage plans often attain generous additional federal subsidies through intensive coding of clinical diagnoses, which has led to substantial overpayments through risk adjustment (Jacobs and Kronick, 2021; Kronick, 2017). At present, definitive evidence on whether a whole health approach is better suited for private insurers administering a public benefit relative to public insurers administering the benefit remains elusive.

Despite this lack of clarity in the evidence, physician groups—notably primary care physicians—have increasingly entered the Medicare Advantage market (Song et al., 2022). Some have chosen to bear the financial risk of the prospective payment from CMS—by purchasing that risk from the insurer—enabling physicians themselves to keep the savings if care is managed effectively within the budget. Others have chosen to join or form larger cooperatives of practices that receive support from a private convening company, which supports the member practices and guides them toward savings under the budget through population health management, coding support, utilization management, or other strategies aimed at high- and low-value services. Still other physician groups have become Medicare Advantage plans themselves, mirroring the trend of larger health systems launching their own Medicare Advantage plans. Behind this evolution is the idea that a prospective, risk-adjusted budget creates the incentives for managing population health rather than maximizing volume. At the same time, the strong financial incentive to retain any savings generated under a risk-adjusted budget that is susceptible to coding intensity must also be recognized as a salient motivation (Gilfillan and Berwick, 2021; Ginsburg and Lieberman, 2022). The risk of inappropriate rationing of care, if budgets are not sufficient to support necessary services or if the focus on generating savings under the budget is inappropriate, also remains a concern (GAO, 1996).

Recent Evidence from Commercial Insurers

Analogous alternative payment models, notably ACO contracts, have also proliferated between commercial insurers and provider organizations. One of the largest examples is the Blue Cross Blue Shield of Massachusetts ACO model called the Alternative Quality Contract (AQC), implemented in 2009. In the commercial insurance context, savings could arise from reductions in use, as in Medicare, or reductions in prices given the differences in the prices of care commanded by different providers resulting from their market power relative to commercial insurers. This latter reality affords providers in the commercial context an alternative avenue for pursuing savings—referring patients to lower-priced providers or settings. In theory, this ability to shift referrals, an important lever in the pursuit of higher-value care (Song et al., 2014b), could encourage price competition among providers (especially specialists) in a given market, as organizations in the AQC had an incentive to reconsider their patient referral patterns.

Evaluations of this model revealed modest savings on claims in the first 2 years which were driven by changes in referral patterns—a price effect rather than a usage effect—although these savings were similarly offset by incentive payments (shared savings and quality bonuses) to the provider organizations. However, by year 4 and through year 8, net savings emerged after accounting for incentive payments; these savings began to be increasingly explained by lower use in areas such as high-cost drugs, emergency department visits, imaging, and tests. This was accompanied by improvements in some quality measures (Song et al., 2014a, 2019). Evaluations of other commercial ACO contracts have also demonstrated some meaningful changes in provider behavior (Zhang et al., 2019, 2021). To date, rigorous evidence on the effects of alternative payment models on patient experience is lacking (Graham et al., 2021).

Paying for Whole Health

Consistent with the vision of whole health, alternative payment models have been developed with the goal of improving quality and efficiency in health care delivery while moving clinicians toward higher-value decisions and less wasteful care. With the reality that health care spending society-wide is one of the most important drivers of persistent budget deficits and national debt, much promise has been put on payment reform. Slowing the growth of health care spending, as is the hope by public and private payers, will enable society to invest in other valuable services, both health and non-health related. Taken together, evidence to date suggests that payment reform models have likely led to modest savings, including some evidence of net savings after incentive payouts to providers after the first few years, along with some improvements in the observable quality of care as measured by performance on mostly claims-based process measures. The general dearth of net savings from alternative payment model programs to date could be explained by the following.

Providers generated savings on claims that were fully offset by incentive payments, including shared savings, quality bonuses, or up-front payments (Peikes et al., 2018). Inflated spending benchmarks (or spending targets), implementation challenges, and voluntary provider participation have also contributed (McWilliams et al., 2019). Some models may not have changed provider behavior enough to reduce usage, likely because programs affect a small portion of the provider group's patient panel.

Despite the modest savings, however, the evidence on payment reform to date suggests that financial incentives can be effective in modifying clinician or provider organization behavior toward an orientation of improved efficiency and quality as reflected through available quality measures. Even though the estimated effects have been modest, from a societal view a more prospectively designed or value-based approach toward provider payment appears to be clearly preferable to than pure fee-for-service. A decade into payment reform, health systems are still learning to adapt to the evolving payment landscape. Moreover, even as improvements in the quality of care in such models to date have focused on process measures—with less evidence on improvements in patient experience or hard outcome end points—there has generally been no evidence of decreases in quality or stinting on high-value or necessary care. Therefore, financial incentives for quality within the context of payment reform appear not to have negatively affected quality.

Public and private payers hope that as payment reform eventually slows the growth of health care spending while improving the quality of care, more of society's resources will be liberated for other needs—from housing and food to wages and social services that are important for health. Indeed, provider organizations and some payers, including Medicare Advantage plans, that operate under a global budget model have increasingly contemplated or sought to invest in such social services. For example, some hospitals have invested directly in housing to support homeless populations in their catchment areas. Some Medicare Advantage organizations have invested in transportation as a social determinant of health (Powers et al., 2016). Such activities resonate with the vision of whole health.

Despite some encouraging evidence and examples to date, much work remains to design and implement payment models that best support whole health. Global budget and other prospective payment models can be improved from a contract design perspective in several ways. First, on the dimension of quality of care, such models could measure and track observable whole health activity, as laid out in the earlier section on Measurement, Learning, and Accountability for Whole Health. Second, a payment model that supports whole health could prioritize financial incentives toward such measures that are most related to whole health, either in addition to or in place of traditional process measures. Given that payments for quality measures offset any savings on claims generated through changes in clinician behavior, the financing available for quality, from a fiscal perspective, is naturally constrained. Moreover, evidence suggests that payments for quality measures (an extrinsic incentive) may suppress more important internal motivation (intrinsic incentives) of health care providers to improve quality and patient outcomes (McWilliams, 2020). For both of these reasons and as described in the Measurement, Learning, and Accountability for Whole Health subsection above, the design and implementation of quality measures require careful thought and judgment of tradeoffs.

Third, from the financial risk perspective, prospective payment models that support whole health could enable provider entities within VA, such as hospitals and clinics, to assume more accountability for quality and spending that veterans incur within their federally allocated budget. This accountability could include incentives for providers to retain savings under the budget. To reduce the risk of shortfalls in the quality of care, a larger proportion of shared savings could be earned by the hospital or clinic conditional on a certain level of quality performance (a carrot), or else a larger proportion of shared risk could be borne by the providers should quality performance be lower than desired (a stick).

Fourth, a prospective payment model could build in larger incentives for the patient. For example, rather than providers keeping all savings under the budget or quality bonuses, a model could require that patients receive a share of the savings or quality bonuses. After all, patients' own health behaviors may be crucial for reducing unnecessary usage, such as via adherence to chronic disease medications, and for improving performance on quality measures, such as by obtaining guideline-based preventive care. By sharing savings with their patients, hospitals and clinics may also better align their financial incentives with patient health behaviors (improved diet and exercise, for example). This patient share could be placed in a health savings account, which the patient could draw on for out-of-pocket costs or other health-related services, such as yoga, food, or even housing, within the framework of whole health.

FINDINGS AND CONCLUSIONS

Following the previous chapter's description of contextual conditions necessary for scaling and spreading whole health, this chapter described four types of foundational infrastructure, critical for creating and sustaining those conditions. The four elements of foundational infrastructure are (1) supportive health informatics, (2) workforce training and education, (3) the measurement of whole health for learning and accountability, and (4) the financing of whole health. Recognizing the need for these elements is not new; in fact, the committee draws on several previous reports to describe the state of and recommendations for these foundational elements. However, the need to scale and spread whole health care underscores their urgency.

Advancing infrastructure related to health informatics will require developing systems that are more patient centered; enable data sharing among interprofessional team members and end users; foster teamwork through communication, collaboration, and coordination tools; support data collection for whole health services beyond conventional medical services; support more accessible and proactive care, including care at home, through virtual technologies and automated functions; foster team well-being; and improve the care delivery experience for patients, families and communities. Interoperability across all information systems is essential. VA systems need to develop the ability to interact with non-VA systems and national mandates to continue to support interoperability need to be enforced. Health informatics systems need to develop new data entry fields that identify and track social care needs and whole health services as part of electronic medical records.

Developing a whole health workforce that is available, accessible, and supported in its efforts will require strengthening individual and organizational competencies and capacities for both clinical and social services across VA and non-VA systems. Workforce shortages that affect health care will affect the nation's ability to scale whole health with the diversity required to improve health and equity outcomes. Current forms of training do not reflect a commitment to whole health and are not aligned with interprofessional team-based approaches to care. To successfully field whole health teams, training centers will need to train groups of professionals from diverse disciplines *as* teams, emphasize all foundational elements of whole health, and reinforce training by creating care settings that rely upon interprofessional teams. The appropriate approach for training whole health teams will vary, depending on the size, needs, and resources of communities they serve, but all should foster conditions that enable workforce well-being. Federal actions, such as increasing training slots and using incentives to direct trainees to needed positions, will be required to develop sufficient workforce capacity to support whole health.

Measuring progress and outcomes is essential to the learning and adaptive process for scaling and spreading whole health. Health care organizations and policy makers need measures that enable both learning and accountability; such measures should address mico, meso, and macro levels and must remain distinct from one another in order to achieve either goal. The committee has recommended a set of principles and guidelines to help ensure that measurement promotes whole health transformation rather than devolving to a tick box exercise. Scaling and spreading whole health will require new measures that capture and track the five foundational elements of whole health. Making progress toward the goal of whole health will depend on the ability to measure change in response to new efforts, investments, and innovations.

As the evidence clearly shows, the manner in which health care is financed and paid often determines how patients and communities access care and which services they receive. The financing and payment processes found in most systems, especially fee-for-service systems with no accountability for spending or quality, fail to support the whole health continuum of services and often incentivize the delivery of low-value health care services. Prospective payment models, including bundled and global payments that aim to improve the value of care, align better with the philosophy of whole health. However, substantial evidence suggests that the savings are fairly modest and that the observed quality improvements are generally limited to process measures rather than improvements in health outcomes. Despite some encouraging examples of global payment models, providing support for whole health will require further improvements in the design and implementation of financing and payment models. In particular, the MISSION Act as currently implemented remains difficult for veterans, VA staff, and community networks to navigate, and its spiraling costs threaten to destabilize funding for VA's in-house health care programs. Putting these critical elements of foundational infrastructure in place will require experimentation and incremental change, combined public- and private-sector initiative and collaboration, and resources and leadership at multiple levels, ranging from the macro levels of the regional health systems and state and federal government to the micro levels of individuals, families, and communities. If the past truly is prologue, even seismic change on this scale is possible with persistent, coordinated, and thoughtful efforts across sectors.

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8

Conclusions and Recommendations

***Whole health* is physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities.** Having whole health is fundamentally different from being healthy in a biomedical model, which misses much of what matters most to people about their health. Whole health is a resource for everyday life to enable people and communities to achieve their life aspirations and cope with change. Achieving whole health starts with care systems understanding what matters to people and then building the environment, resources, and support to help people and communities achieve their life goals. All people and all communities have a right to whole health—it is a common good and it should be the desired goal and outcome of any effective health care system.

While rethinking the biomedical definition of health is not new, there has been a recent surge of health systems that are trying to implement whole health models of care. The Department of Veterans Affairs (VA) is among the leaders of this movement, initially implementing its Whole Health System (WHS) in 18 flagship and design sites with a primary focus on people with chronic pain, mental health needs, and disabilities. VA has since extended elements of this program across all VA medical centers, with plans to scale and spread its WHS system widely and expand the scope of services it offers and conditions that it addresses. VA's unique financing and organization make it a logical setting to field and test a whole health approach to care because

- It serves as both an insurer and care provider.
- It delivers both health and social care through the Veterans Health Administration (VHA) and the Veterans Benefits Administration (VBA).
- It has data, resources, a supportive payment system, and policy mandates to innovate and study what it means for people to have whole health and how systems can best deliver whole health care.
- It provides care for the many veterans who have health impacts from their service and who demand and deserve whole health support and care.

In addition to VA's WHS, the committee found many examples of whole health care in the United States and internationally. These approaches were built around health systems, people with specific health conditions, and defined regions and communities. The whole health systems that the committee identified had many commonalities, such as being built on a foundation of high-quality primary care and prevention; identifying how people, families, and communities define health and well-being; incorporating cross-sectoral approaches and interprofessional teams; and spanning clinical and community settings where people receive care, work, play, learn, grow, and live. Most importantly, the examples the committee highlighted aligned well with the five foundational elements that the committee identified as being necessary to deliver whole health care. These are being (1) people-centered, (2) comprehensive and holistic, (3) upstream-focused, (4) accountable and equitable, and (5) grounded in team well-being. Each of these foundational elements has a rich body of evidence supporting its value in whole health care delivery and improving whole health outcomes for people and communities. The committee was not able to verify that any of the individual examples of a whole health approach that were identified fully and robustly implements every foundational element, but all foundational elements were represented when the examples were considered in total.

As this report has described, a whole health approach requires integration across sectors, some of which, especially those that address upstream factors, typically operate outside of health care systems today. Although this report is primarily focused on how VA health care and other U.S. health care systems can scale and spread whole health, similar reports could be written from the perspective of social services, community programs, public health, or education systems and how they can better integrate and scale and spread whole health themselves.

Published evaluations of the identified approaches used a range of methods to evaluate the outcomes of implementing whole health care. In general, many people and communities wanted access to and felt they could benefit from whole health care, and many clinicians and health system leaders supported implementing a whole health approach. While different studies measured different outcomes, and while no single whole health approach demonstrated—or even measured—all the following benefits, there is evidence that whole health approaches

- Improved patient care experience and patient reported outcomes;
- Increased access to care, reduced emergency room use, and had fewer hospitalizations;
- Improved clinical quality metrics;
- Improved outcomes for specific conditions such as management of chronic pain, mental health, traumatic brain injury, and healthy aging;
- Reduced maternal and infant mortality;
- Improved health equity;
- Promoted team well-being; and
- Showed some reductions in health care expenditures.

Despite the interest, need, and positive findings, a systems-level transition to a whole health approach will require seismic cultural, structural, and processual shifts. Both top-down (e.g., systems leaders and policy leaders) and bottom-up (e.g., people engaged with whole health care, stakeholders, clinicians) changes will be needed to address the requisite team, organization, community, and system-level structural and process transformations. Health care systems should implement these changes in ways that ensure whole health care services are integrated across systems (including systems that address upstream factors that often operate separately from health care systems), services, and time. In addition, these changes will need to be supported by a healthy and adequately trained workforce, meaningful measurement, information technology, and payment and policy reforms. A global, cross-sector, learning health system's approach should evaluate, learn, adapt, and refine whole health approaches continually, and systems will need to learn from each other to scale and spread best practices.

COMMITTEE GOALS AND RECOMMENDATIONS

This report and its recommendations apply both to VA systems of care and, more broadly, to systems of care throughout the United States and internationally. Based on the committee's statement of work and the evidence the committee found, the committee assumed that many in the medical community and outside of it desire to transform conventional medical care to whole health care. Common sense suggests that each person, family, and community would want to achieve whole health as it is defined. (For a list of committee definitions of terms like whole health, see Box 8-1.) Yet

BOX 8-1
Committee Definitions

Whole health—physical, behavioral, spiritual, and socioeconomic well-being as defined by individuals, families, and communities.

Whole health care—an interprofessional, team-based approach anchored in trusted longitudinal relationships to promote resilience, prevent disease, and restore health. It aligns with a person's life mission, aspiration, and purpose.

Whole health system—a collaborative health system that encompasses conventional medical care, comprehensive and integrative health, community programs, social services, and public health. When capitalized, Whole Health System (WHS) refers to VA's WHS.

Health system—an organization or practice engaged in delivering health care services, including innovative models.

Community programs—programs and services designed to address the needs and wants of a local population. Examples of community programs include spiritual and religious programs and health behavioral change programs.

Social services—programs and services that government or local organizations provide to help individuals, families, and communities address unmet needs related to health, housing, employment, nutrition, and other social needs.

Public health system—a broad range of federal, state, and local health agencies, laboratories and hospitals, and nongovernmental public and private agencies, voluntary organizations, and individuals, working together or in parallel to promote and protect the health of given community.

while evidence supports the benefit of whole health care, the committee also recognizes that not all people and systems will want to receive, deliver, or fund whole health care.

To ensure that every veteran and every person in the United States has access to and can receive the support needed to attain whole health, the committee's recommendations, detailed below, fall under six critical implementation goals. These goals describe a transformational journey in which health systems iterate goals as they learn from one to the next in order to develop the capacity for whole health care.

1. **COMMIT to the *shared purpose* of helping people achieve whole health.**
    - Engagement, support, buy-in, and prioritization from the bottom up and top down are needed to enable the cultural and structural transformations necessary to scale and spread a system of whole health care.
2. **PREPARE for a *whole health* approach to care.**
    - Interprofessional teams, organizations, and systems need to understand where they are developmentally on the trajectory to delivering whole health care and what they need to change to deliver whole health care.
3. **INTEGRATE *across systems, services, and time* to support whole health care throughout the lifespan.**
    - Achieving whole health will require support in all settings throughout peoples' lifespan, and within and across the communities to ensure holistic and comprehensive care.
4. **DELIVER *all foundational elements* of whole health care across the lifespan.**
    - Each foundational element of whole health care is essential and interdependent, and successful whole health systems need to attend to all five elements.
5. **EVALUATE to iteratively refine whole health care systems and *create generalizable knowledge*.**
    - The understanding of how to best deliver whole health care is evolving rapidly, so evaluating, adapting approaches efficiently, and sharing learnings will be essential for national success.
6. **DESIGN public- and private-sector *policies and payment* to support whole health as a common good and whole health care as a way of achieving whole health.**
    - Scaling and spreading whole health care throughout the United States will not be possible without realigning infrastructure, policies, and payment to support, promote, and fund the provision of the foundational elements of whole health care.

GOAL ONE: COMMIT TO THE SHARED PURPOSE OF HELPING PEOPLE ACHIEVE WHOLE HEALTH

Recommendation 1.1: To scale and spread whole health, the Department of Veterans Affairs, the Department of Health and Human Services, other federal agencies addressing health and social services, state and local governments, health systems, social services, community programs, and external environment actors (payers, corporations, educators, and others) should make whole health a core value.

Making whole health a core value means committing to the cultural, structural, and process changes needed to achieve whole health. This commitment starts with leadership across public and private sectors, including health care, community programs, social services, and public health organization, payers, educators, and informatics-oriented organizations or vendors, and it requires meaningful actions:

- Securing prioritization and buy-in at all levels of leadership.
- Naming the care delivery approach as a "whole health approach."
- Making a whole health approach part of the organization's core mission statement.
- Creating a vision and roadmap for delivering whole health.
- Including the people, families, and communities that will be served in the design of the whole health care system.
- Financially investing in the development of whole health approaches.
- Identifying champions at the local level and supporting their efforts to lead needed transformations.
- Incorporating whole health approaches in day-to-day culture for patients and care team members.

GOAL TWO: PREPARE FOR A WHOLE HEALTH APPROACH TO CARE

Recommendation 2.1: National, regional, and facility VA leaders should ensure that all sites are ready to offer the Whole Health System of Care to all veterans by ensuring that each site understands and adopts the whole health mission and vision and has the resources and services it needs to transform its care delivery approach.

While VA has made tremendous advances in developing, implementing, and spreading its WHS, not all VA sites have fully implemented it. All veterans should have easy access to whole health care in their community, which will require scaling and spreading the WHS more fully to all VA facilities. Additionally, not all VA sites will have the resources and interprofessional team members to fully implement the WHS. To address this expected limitation, WHS services should be more accessible either on site or through virtual platforms, as well as through non-VA health care and community-based systems by taking advantage of community programs through the MISSION Act (see Recommendation 6.1).

Recommendation 2.2: Health care systems, community programs, social services, and public health organizations committed to helping people achieve whole health should ensure that all sites are ready to

offer whole health care to the people, families, and communities they serve.

VA and many other health systems in both the public and private sectors have made significant advances in implementing whole health approaches, while other systems are just beginning their whole health journeys. In the United States, whole health implementations are primarily health system based, although in other countries there are examples that are more community based and even regionally or nationally based. Whether just starting to implement a whole health approach or scaling and spreading an existing approach to new sites, health systems need to take multiple actions to prepare for transforming care, including

- Assessing organizational and interprofessional team member readiness.
- Identifying potential facilitators, barriers, and strategies for overcoming barriers.
- Defining the elements of the current care system that will need to change to transition from conventional to whole health care.
- Determining what resources are available and what resources are needed, and pursuing those that are lacking.
- Identifying sites to serve as early adopters and designating champions to lead the redesign, innovation, and implementation.
- Creating a sense of urgency.
- Organizing interprofessional teams around the whole health needs of the people, families, and communities served.
- Developing processes for interprofessional teams to collaborate, share information, and coordinate resources.
- Establishing ongoing dynamic mechanisms for meaningful input from the people, families, and communities who will be co-creating whole health care.
- Developing the clinical, social services, and community cross-sector partnerships needed to fully address all five foundational elements of whole health.
- Ensuring that the whole health needs of the interprofessional workforce are also met.

GOAL THREE: INTEGRATE ACROSS SYSTEMS, SERVICES, AND TIME TO SUPPORT WHOLE HEALTH THROUGHOUT THE LIFESPAN

Recommendation 3.1: The Department of Veterans Affairs should integrate the delivery of whole health services between the Veterans Benefits Administration and the Veterans Health Administration.

Many of the benefits VBA offers to eligible veterans address the issues that are relevant to upstream factors foundational to whole health. However, VBA and VHA are separate administrations under the Department of Veterans Affairs, with separate leadership, budgets, and reporting structures. As currently structured, their efforts are siloed and do not fulfill the characteristic of being holistic with components and team members seamlessly integrated and coordinated. Integrating key VHA and VBA efforts and team members has the potential to maximize the effectiveness and efficiency of VA's whole health efforts while also reducing health inequities among veterans.

Recommendation 3.2: Health care systems should create and strengthen the infrastructure needed to partner with community programs, social care, and public health systems.

This recommendation applies to both VA and non-VA systems committed to helping people achieve whole health. Even if VHA and VBA fully integrate their whole health services (Recommendation 3.1), achieving whole health will require contributions from community programs, social services, and public health. Whole health systems will need infrastructure to support partnerships at the federal, state, and local levels, and they will need to include both the public and private sectors. Examples of agencies for health systems to consider building whole health partnerships with include

- Public and private payers (e.g., Centers for Medicare & Medicaid Services, state Medicaid agencies, commercial insurers, employers).
- Local and state mental health and substance use departments.
- Health behavior change organizations (e.g., diabetes prevention programs, child guidance centers).
- Public health departments.
- Social service agencies (e.g., Social Security Administration, Department of Housing and Urban Development, local housing administrations, homeless shelters, food pantries, community service boards).
- Workforce development agencies (e.g., Health Resources and Services Administration, Substance Abuse and Mental Health Services Administration).
- Education systems and training programs (e.g., Department of Education, universities, local school boards, vocational training programs).
- Health informatics actors (e.g., Office of the National Coordinator for Health Information Technology, health informatics vendors and developers).
- Private businesses and corporations.

To determine the specific partnerships necessary to build a whole health approach, health systems will need to identify the resource, service, and provider gaps in their current approach to whole health care. Functionally, the infrastructure needed to create partnerships should either physically or virtually co-locate care team members. Interprofessional teams should feel integrated and de-siloed and have coordinated leadership pursuing a common whole health vision. Infrastructure should support easy, seamless, and frequent information sharing and communication across team members. There should be sufficiently shared goals, purpose, mental models, and structural stability such that changes within partnering organizations do not undermine the whole health interprofessional team approach. Health systems will need workforce training efforts to support working across sectors, with a new focus and new goals to define success.

GOAL FOUR: DELIVER ALL FOUNDATIONAL ELEMENTS OF WHOLE HEALTH CARE ACROSS THE LIFESPAN

Recommendation 4.1: The Department of Veterans Affairs should fully incorporate all whole health foundational elements into its Whole Health System.

VA has made tremendous efforts to develop and implement its WHS. It has focused appropriately on the issues most directly related to service-related issues for veterans—chronic pain, mental health, and traumatic brain injury. Implementation has also focused more on the people-centered ("what matters to you"), complementary and integrative health, health coaching and peer navigation, and individual well-being components of the approach. Future efforts should continue and should advance these activities and more fully develop all foundational elements of whole health care with particular attention to ensuring that the care offered is comprehensive and holistic, addresses upstream factors (e.g., health behaviors, mental health, social needs) and team well-being, and is accountable to all veterans with particular attention to equity for disabled, socially vulnerable, racial and ethnic minority, women veterans, and others who may have difficulty accessing services due to geography or other factors. Additionally, VA will need to extend the whole health approach to older veterans, women's health, maternal health, family health, LGBTQ+ health, chronic disease management, and healthy aging.

Recommendation 4.2: Health care systems, community programs, social services, and public health organizations should model whole health approaches after the Department of Veterans Affairs and other early adopters.

VA and other early adopter health systems have learned and shared a significant amount of knowledge about implementing a whole health approach to care. Systems that are committed to helping people achieve whole health should begin by building on what others have done successfully. Local tailoring will be necessary to address the specific needs of the people served, available resources of the local care systems, the local environment, and opportunities for collaboration. Whole health implementations among early adopters have addressed a wide range of populations and conditions, but in any one system whole health implementations have generally been developed for select populations or conditions. Whole health care should be the default way that health care is practiced and should be available for all people in every community across the lifespan, including both caring for people of all ages at any one time and a longitudinal approach to whole health care across each person's life and health trajectories. Health systems should tailor whole health care to the populations they serve, and systems will need to assess and address their gaps in care as these align with specific communities needs and conditions.

Recommendation 4.3: Building on its existing health center program, the Health Resources and Services Administration should lead the scale and spread of whole health care in the community.

Through its experience in starting up national networks of federally qualified health centers and area health education centers and coordinating more than 3,000 grantees and 90-plus programs designed to provide equitable health care to people who are geographically isolated and economically or medically vulnerable, the Health Resources and Services Administration (HRSA) is well positioned to serve as a federal leader in promoting whole health care adoption and implementation in non-VA settings among its current and future grantees (see Recommendation 4.2). HRSA has established systems of accountability and addresses upstream factors as well as conventional health care. Particularly important has been HRSA's ability to scale and spread initiatives across the nation, including in some of its most vulnerable communities, in collaboration with state and community partners. Strategies to support scale and spread can include linking health center certification and funding to the center implementing a whole health care approach; requiring grantees to measure, learn from, and report on whole health processes and outcomes; and providing health centers with technical assistance to achieve the whole health goals outlined in this report. HRSA's approach to promote uptake and delivery of whole health care services can serve as a model for commercial and federal payers as well as state and local health departments. These roles would be an expansion of HRSA's current mandate and would likely require congressional support and funding, a necessary investment to promote access to whole health care, particularly among underserved populations.

GOAL FIVE: EVALUATE TO ITERATIVELY REFINE WHOLE HEALTH SYSTEMS AND CREATE GENERALIZABLE KNOWLEDGE

Recommendation 5.1: Systems fielding a whole health approach should systematically and continuously evaluate and participate in external evaluations of the implementation and adaptations of the approach and disseminate lessons learned.

Scaling and spreading effective whole health approaches so that whole health is accessible to all will take fundamental and seismic changes to the structures, processes, and goals of how the nation thinks about and cares for people. Even systems, such as VA, that have implemented a whole health approach are in the early stages of their transformation. It is essential for public and private systems fielding a whole health approach to evaluate how they implement whole health care and its outcomes, which will require partnerships with health researchers and participation in external evaluations. Learning from this kind of evaluation will inform continual adaptation and improvement, and this learning should be disseminated so that it may inform others who are also implementing or considering implementing a whole health approach. Evaluations should be prospective, longitudinal, and multilevel; should use a mix of methods; should include information on how-to achieve whole health; and should not be overly burdensome on clinicians or people receiving care. Findings should be shared openly and transparently, using narratives and numbers, with details to assess the strengths, limitations, and potential biases so that all can learn and adapt approaches based on the results. These evaluations should focus on learning and should be separate and distinct from evaluations used to ensure accountability and the quality of whole health care.

Recommendation 5.2: Building on its overall mission to study the care of people and the allocation of Patient-Centered Outcomes Research (PCOR) Trust funding to disseminate evidence to practice, the Agency for Healthcare Research and Quality (AHRQ) should fund research to evaluate whole health care as well as research that disseminates evidence on whole health practices. Additional research support will be needed from other national and international organizations, foundations, and private payers.

To accomplish Recommendation 5.1, systems will need research support and funding. AHRQ is a logical lead for this type of research, given its mission to study the care of people and its Center for Evidence and Practice Improvement. In addition, AHRQ has designated funding from the PCOR Trust Fund to ensure the dissemination of evidence into practice. This could be used to fund studies on how to best scale and spread whole health transformations and to implement lessons learned to ensure that whole health care is as efficient and effective as possible. Periodically, AHRQ can fund evidence reviews and create a central information hub to make it easy for systems implementing whole health care to find and understand lessons learned.

Implementing new approaches to care is a complex, multilevel, and iterative process. It will be important to measure both processes and outcomes and capture both efficacy (outcomes in controlled settings) and effectiveness (outcomes in usual day-to-day circumstance). Doing this will require a range of flexible and iterative study designs, including randomized controlled trials that can prove causality, pragmatic designs that assess adaptations and implementation over time, and observational and comparative designs with higher risks of bias but more ability to capture real-world impacts and processes. Evaluations will need to use mixed methods that incorporate quantitative and qualitative data and economic evaluations to study how to achieve the greatest value in care delivery.

The National Institutes of Health's dissemination and implementation portfolio and new Advanced Research Projects Agency for Health (ARPA-H) can be applied to whole health care. The World Health Organization's leadership and support for people-centered care is in alignment with similar support for whole health care. The Patient-Centered Outcomes Research Institute's mission to fund comparative effectiveness research could apply to comparing various approaches to delivering care. Other organizations that focus on measurement development, quality improvement, and the dissemination of best practices, such as the National Quality Forum and National Committee for Quality Assurance, could also play active roles in studying whole health. Federal leadership from organizations such as the Office of the National Coordinator for Health Information Technology can create incentives for informatics vendors to develop and support the systems needed to deliver whole health care, integrate collection and measurement tools into the electronic care delivery workflow, and make data more easily accessible to care systems and academic health services researchers. Public and private payers purchasing health care services should also fund whole health evaluations.

GOAL SIX: DESIGN PUBLIC- AND PRIVATE-SECTOR POLICIES AND PAYMENT TO SUPPORT WHOLE HEALTH AS A COMMON GOOD

Recommendation 6.1a: The Department of Veterans Affairs, Congress, and regional third-party administrators should determine how the MISSION Act applies to delivering whole health services.

Recommendation 6.1b: Regional third-party administrators of the MISSION Act should streamline the process for enrolling community providers in community care networks and define and enforce standards for health record transfer between community care systems and VA as a condition for reimbursement.

Delivering whole health care will require VA and Congress to clarify the services that the current MISSION Act legislation and policy covers and to hold regional third-party administrators accountable for establishing the clinical capacity needed to ensure timely, high-quality care. VHA and VBA programs should engage with non-VA health systems and social support programs to promote the routine identification of patients/participants with past military service and create coordinated care systems across VA and community settings to promote whole health.

While the MISSION Act was well intentioned, the current implementation of the act is fraught with problems and as currently put into practice has significant limitations in access to care through community (non-VA) clinicians. These limitations would likely be magnified if the act's requirements were applied to broader whole health care. There are numerous reasons for this, including the language of the legislation, inadequate community provider networks, ineffective policy and procedures regarding care standards and information exchange between community and VA systems, and financial overruns that threaten VA's ability to sustain clinical capacity at its own sites of care. If VA wants to scale and spread whole health for veterans receiving care through MISSION Act eligibility, it will first have to clarify whether whole health services, particularly those that address upstream factors (e.g., homelessness, housing, education, and vocational services), can be delivered by community providers under current MISSION Act rules. Paying for care from community providers and adding whole health care should not undercut access to services at VA sites. For the MISSION Act to succeed, VA will also have to ensure that it detects and thwarts financial abuse and fraud promptly and that there are sufficient networks of community providers and services in areas with unmet veteran needs. However, building larger networks of community providers will be challenging, as many communities are themselves facing significant provider and service shortages. Even so, regional third-party administrators can make the process of becoming an eligible community care provider more efficient in order to attract more participants. They can also ensure that both VA and community systems have a complete picture of each veteran's whole health status, needs, and preferences by facilitating reliable and consistent health record exchange between systems.

> **Recommendation 6.2: The Department of Veterans Affairs, in partnership with the Department of Health and Human Services (HHS), should create a national Center for Whole Health Innovation to design and advance the policies and payments for whole health care.**

Accomplishing the five goals discussed above will require a complex set of multilevel changes across many sectors and systems. The magnitude of change needed to accomplish whole health care implementation is great, even among systems like VA that are already on this path. New partnerships will need to be forged, policy and payment changes will be needed, and an unprecedented level of coordination will be needed at the local, state, and national levels. This will be a decades-long process and is not a change that the nation can accomplish in the next few years. Moreover, no one organization currently has the authority or responsibility for envisioning and leading the implementation of an effective whole health approach that spans health care, public health, community programs, education, and social services sectors. Given the magnitude of change needed, the current early stage of whole health implementation, the need for a longer trajectory of iterative system design, and the need for research and adaptation to implement and refine the whole health approach, the committee recommends creating and funding a national Center for Whole Health Innovation. The center would be charged with developing the needed policies, practices, and tools required to support scaling and spread of whole health both within VA and, more broadly, across health, community, and social systems nationally.

While the committee considered various entities to lead this effort, it concluded that, given the complexity and needs across sectors, only the federal government has the authority and resources to oversee the required changes. The committee is not aware of a single other public or private organization that could address whole health. While a coalition of organizations (either a private or a public–private coalition) might be able to address whole health care, responsibility would be diluted, and the coordination of efforts would be overly complex and cumbersome. There is a critical role for nongovernmental stakeholders (health system leaders, researchers, technology vendors, and others) to provide needed input and collaboration into designing the policies and payments for whole health care, and the committee concluded this could best be achieved by including these stakeholders as partners in the Center for Whole Health Innovation. The committee considered different ways in which the center could be organized within the federal government. Because VA has begun the implementation of its Whole Health System, it makes sense for it to be among the leaders of the national effort. However, because successful scale and spread of whole health across non-VA health, community, and social systems will depend on coordination across so many sectors, the committee felt that it was critical that HHS and VA partner in the effort. The committee did consider assigning this task to an agency within HHS, but rather ultimately determined that secretary-level leadership was needed to coordinate and assign agency-level participation. While pockets of success and innovation would likely continue throughout the country without a nationally coordinated effort, these successes would be scattered and not live up to their full potential.

VA and HHS should jointly lead the creation and design of the Center for Whole Health Innovation. Collectively VA and HHS can represent the spectrum of where people will receive care, the coordination of care, and the federal and national leaders in implementing whole health care. The center could be modeled after other national centers, such as the Center for Medicare & Medicaid Innovation. The Center for Whole Health Innovation will need investments in the range of what the CMS innovation center or the Cancer Moonshot initiative receive, which will likely require congressional support. The Center for Whole Health Innovation will need multisector support from other whole health stakeholder agencies and organizations such as CMS, HRSA, Department of Defense, Indian Health Service, Substance Abuse and Mental Health Services Administration, National Institutes of Health, AHRQ, Patient-Centered Outcomes Research Institute, ARPA-H, Social Security Administration, Department of Housing and Urban Development, Department of Education, Department of Agriculture, Department of Labor, Department of Transportation, veterans service organizations, and other representatives of people and communities being served by whole health systems.

The recommendation to form the center has many similarities to the recommendation to form the Secretary's Council on Primary Care in the National Academies' *Implementing High-Quality Primary Care* report. The proposed center and the proposed council have some overlap in terms of mission, charge, and design of whole health and primary care, respectively. However, whole health is more than high-quality primary care, and primary care has unique needs outside of whole health. The center and council will need to collaborate and build synergy with their efforts, but they should be independent parallel entities with unique charges.

The Center for Whole Health Innovation will need to address five specific tasks (as well as others not called out in the following list):

1. **Disseminate and advance the vision** of whole health for the nation and how to deliver whole health care effectively and efficiently. This report is a first step in developing a shared understanding of whole health and a framework for how to deliver whole health care. As whole health care scales and spreads further, the Center for Whole Health Innovation can aggregate, share, and disseminate lessons learned and best practices to help systems commit, prepare, implement, measure, and adapt their whole health approach.
2. **Define how to measure and hold systems accountable for whole health success.** Measures are needed to assess the effectiveness of the delivery of whole health care and the attainment of whole health by people, families, and communities. These measures need to be distinctly different from current biomedical measures and should instead measure whether systems deliver whole health care's foundational elements. Short-term measures could assess the process and delivery of care while long-term measures could focus on health outcomes.
3. **Ensure structures, processes, and infrastructure development** to support whole health. Structures and processes that support whole health care will require experimentation with expanded interprofessional teams, new forms of inter- and intra-organizational relationships, and mechanisms for promoting their integration. The necessary infrastructure will include health information technology, workforce training and education, engagement of people and communities on whole health care, and measurement for learning to scale and spread and for accountability purposes.
4. **Adapt value-based payment models** aligned with delivering whole health care. These payment models should include the entire interprofessional team and scope of whole health care services. They should also reinforce the delivery of all five foundational elements of whole health care. Payers, public and private, need to be united in their support of payment reforms.
5. **Consider equitable allocation of resources** to deliver whole health care. Because much of whole health occurs outside of conventional medical care, there is a need to meaningfully invest in developing community programs and social services, especially in historically under-resourced settings with the most unmet need. National policies are needed to better allocate payment and resources across the broad spectrum of whole health services such as increased funding to address upstream factors affecting health, allocating more health and social care resources to the people and places in need, training the workforce needed to deliver whole health care, and improved education for all.

CONCLUSIONS

Whole health is a common good that benefits people, families, and communities. Scaling and spreading whole health care so that all can have access to needed services is a tall task and will take seismic cultural, structural, and process transformations. These include how to think about what it means to be healthy, how to deliver health care, who is accountable for delivering health care, and even how to measure success. Throughout the transformation process, the people, families, and communities who receive whole health care should be engaged as equal partners in defining health goals and the preferred strategies to reach them. Multisector collaboration and investment on a national and local level are needed, as is a significant reallocation of resources to ensure effective, efficient, and equitable care.

The United States has made significant national investments to address diseases and conditions, which have produced tremendous medical advances and innovations. However, the nation has not made similar commitments to improving the delivery of care and ensuring that it is delivered effectively and efficiently. As a result, many people and communities fail to receive effective care, and care is often not aligned with what is needed and wanted. The whole health care approach is a promising model to guide the investments that health systems need to make to study and improve how they deliver care. The recommendations and approaches outlined in this report provide a roadmap for improving health, social, and community systems of care.

While there are challenges, there will be substantial benefits to transforming how the nation defines health and delivers health care. Recent innovations in VA and in other early adopter systems of whole health care have advanced the field significantly and demonstrated the value of a whole health systems approach. Building on these advancements will ensure future success leading to better health and well-being for veterans and the nation.

Appendix A

Biographic Sketches

COMMITTEE MEMBERS

Alex H. Krist, M.D., M.P.H. (co-chair), is a professor of family medicine and population health at Virginia Commonwealth University and an active clinician and teacher at the Inova Fairfax Family Practice Residency. He is the director of the Virginia Ambulatory Care Outcomes Research Network, director of community-engaged research at the Wright Regional Center for Translational Science, and past member and chairperson for the U.S. Preventive Services Task Force. Dr. Krist's areas of interest include implementation of preventive recommendations, patient-centered care, shared decision making, cancer screening, and health information technology. He is the primary author of numerous peer-reviewed publications and has presented to a wide range of audiences at national and international conferences. Dr. Krist was elected to NAM in 2018.

Jeannette South-Paul, M.D. (co-chair), joined Meharry Medical College as the Senior Vice President and Chief Academic Officer in December 2021. Prior to this appointment, she was the Andrew W. Mathieson UPMC Professor and Chair of the Department of Family Medicine at the University of Pittsburgh School of Medicine from 2001 to 2020, retiring from Pitt in 2020. Prior to joining the faculty at the University of Pittsburgh School of Medicine and UPMC, she served as a Medical Corps officer in the U.S. Army, retiring in 2001 while serving as Chair of Family Medicine at the Uniformed Services University of the Health Sciences and previously as Vice President for Minority Affairs at the same institution. Dr. South-Paul was responsible for the educational, research, and clinical activities of the undergraduate and graduate medical education, faculty practice, and community arms of three family medicine residencies and seven ambulatory clinical sites in Allegheny County (Pittsburgh), Pennsylvania, and responsible for the academic missions of five additional UPMC Family Medicine residencies in Pennsylvania. She is a family physician with specific interests in the areas of cultural competence, maternity care, and health disparities in the community. She designed an investigator-initiated project to evaluate cultural aspects of contraceptive choice (Merck funded) that was active from 2017 through 2021. Dr. South-Paul has served in leadership positions in the Society of Teachers of Family Medicine (STFM), the American Academy of Family Physicians, the Association of American Medical Colleges, and the Association of Departments of Family Medicine to include serving as President of the Uniformed Services Academy of Family Physicians and the STFM. After more than 10 years of service as a member of the Meharry Medical College Board of Trustees, Dr. South-Paul stepped off the Board to begin a new role as Senior Vice President and Chief Academic Officer for Meharry assuming this position in December of 2021. She is excited to collaborate with the academic leaders of the four schools of this historic institution as she continues to serve in academe. Dr. South-Paul was elected to the Institute of Medicine (now National Academy of Medicine) in 2011, received the University of Pittsburgh 225th Anniversary Chancellor's Medallion, and was elected to the Gold Humanism Honor Society in 2015 and received the Allegheny County Medical Society Dietrich Humanitarian Award in February 2018.

Andrew Bazemore, M.D., M.P.H., serves as the Senior Vice President of Research and Policy for the American Board of Family Medicine (ABFM), where he oversees the ABFM research enterprise, co-directs the Center for Professionalism and Value in Health Care in Washington, D.C., and coordinates and develops ABFM career development activities, including ABFM Visiting Scholars, Pisacano Scholars, and Puffer Fellows. Dr. Bazemore previously served as the Director of the Robert Graham Center for Policy Studies in Family Medicine in Washington, D.C., helping to cultivate the growth and evolution of the Graham Center into an internationally known primary care research center with diverse funding sources. He has special interests in access to care for underserved populations, health workforce and training, measurement science, and geospatial analytic applications for primary health care. Dr. Bazemore led the Graham Center's emphasis on developing tools that empower primary care providers, leaders, and policy makers and co-developed HealthLandscape, an innovative data engagement platform entirely funded by grants and contracts, including the development of the Uniform Data System Mapper contract that guides funding for all the nation's Federally Qualified Centers. He has served in national policy roles including the Family Medicine for America's Health Research Tactic Team, Board of Directors and committee leadership for the North American Primary Care Research Group, Society of Teachers of Family Medicine, National Research Network, Rural Training Track Consortium, Council on Graduate Medical Education, and the National Academy of Medicine, to which he was elected as a member in 2016 and for which he leads the Primary Care Interest Group. Dr. Bazemore serves on the faculties of the Departments of Family Medicine at Georgetown University and Virginia Commonwealth University (VCU) and serves a continuity panel of patients at in the VCU-Fairfax Family Medicine Residency Program.

Tammy Chang, M.D., M.P.H., M.S., is an associate professor in the Department of Family Medicine at the University of Michigan and a practicing family physician. She is a health services researcher with a focus on adolescent health, specifically, breaking the cycle of poverty and poor health among adolescent mothers and their children. Her National Institutes of Health–sponsored research is focused on improving access to reproductive health care and promoting healthy behaviors during pregnancy among at-risk adolescents using text messaging, social media mining, and natural language processing. She is the founding director of MyVoice, a national text-message poll of youth aged 14–24 years, whose goal is to inform local and national policies in real time. She is also the co-director of the National Clinician Scholars Program at the University of Michigan and the director of the Blue Cross Blue Shield of Michigan Healthy Behavior Optimization for Michigan Collaborative Quality Initiative. She has published widely in academic journals and has received numerous awards including the James C. Puffer, M.D./American Board of Family Medicine Fellowship at the National Academy of Medicine. Dr. Chang received her M.D. from the University of Michigan.

Margaret A. Chesney, Ph.D., is a professor of medicine in the Department of Medicine at the University of California San Francisco (UCSF). From 2010 to 2015, she served as the director of the UCSF Osher Center for Integrative Health, with three core programs on research, education, and care, focusing on whole person health and well-being. She is currently developing partnerships within UCSF, and with the local and national community to advance the field of integrative and whole person health. Dr. Chesney's distinguished career in integrative medicine also includes her being a professor of medicine and associate director of the Center for Integrative Medicine at the University of Maryland, School of Medicine. Before that, Dr. Chesney served 5 years as the deputy and acting director of the National Institutes of Health's (NIH's) Center for Complementary and Integrative Health

(NCCIH). During her time at NCCIH, she also served as the director of the Division of Extramural Research and Training and was the senior advisor to the NIH Office of Behavioral and Social Sciences Research. Dr. Chesney has conducted research on the relationship between behavior and chronic disease, identifying behavioral factors, such as lifestyle and stress, that are associated with increased risk of heart disease. She has also carried out clinical trials of psychosocial interventions to address these factors and reduce the risk they exert. Her work focuses on the role the individual can play in the promotion of personal health, prevention of disease, and the maintenance of optimal well-being across the lifespan, even in the face of serious health challenges, such as cardiovascular disease and cancer. In her research and as an NIH advisor, she has often emphasized the health challenges faced by women, seniors, and the underserved. She has been elected to serve as president of professional organizations and was elected to the National Academy of Medicine in 2001.

Deborah Cohen, Ph.D., is a member of the National Academy of Medicine and is a professor and research vice chair in the Department of Family Medicine at the Oregon Health & Science University. Dr. Cohen examines how improvements are implemented in primary care practices, to identify what changes are made, and how they are implemented, and to compare the effectiveness of observed practice change on process and outcome measures. She has led mixed-methods teams to understand and tackle complicated problems related to implementing and disseminating new innovations and important quality improvements in primary care practice related to prevention and health behavior change, behavioral, mental health, and chronic care. Dr. Cohen has led a number of large foundation and federally funded grants, including the national evaluation of EvidenceNOW, funded by the Agency for Health Research and Quality, and she has been co-investigator on many other studies and state-evaluation efforts, including the evaluation of the Medicaid Transformation Project in Washington state. Dr. Cohen received her Ph.D. from Rutgers University where she studied interpersonal and organizational communication.

A. Seiji Hayashi, M.D., M.P.H., FAAFP, is the Lead Medical Director for Government Programs at CareFirst BlueCross BlueShield that serves 3.5 million individuals and groups in Maryland and the Washington metropolitan area. Dr. Hayashi is a board-certified family physician and is an experienced leader in primary care, quality improvement, and health policy at the local and national levels. Prior to CareFirst, he spearheaded health services integration and transformation at two area community health centers (Mary's Center and Unity Health Care). Dr. Hayashi's national health policy experience comes from his role as Chief Medical Officer for the Federal

Health Center Program at the Health Resources and Services Administration. He started his career at Georgetown University and at George Washington University teaching public health and conducting health policy research. Dr. Hayashi has received a number of awards and honors, including the Samuel U. Rodgers M.D. Achievement Award from the National Association of Community Health Centers. Dr. Hayashi graduated with honors in Studio Art from Vassar College, received his M.D. with Alpha Omega Alpha distinction from the Albert Einstein College of Medicine, and completed his family medicine residency training at the University of California San Francisco. He received his M.P.H. from the Harvard School of Public Health while a fellow with the Commonwealth Fund/Harvard University Fellowship in Minority Health Policy.

Shawna Hudson, Ph.D, is a professor and research division chief in the Department of Family Medicine and Community Health and founding director of the Center Advancing Research and Evaluation for Patient-Centered Care at the Rutgers Robert Wood Johnson Medical School. She is a medical sociologist and has a joint faculty appointment in the Rutgers School of Public Health in the Department of Health Behavior, Society and Policy. Dr. Hudson holds research memberships in the Rutgers Institute for Translational Medicine and Science, the Rutgers Cancer Institute of New Jersey and the Institute for Health, Healthcare Policy, and Aging Research. She is a mixed-methods researcher and the principal investigator (PI) and co-PI on multiple National Institutes of Health (NIH)-funded studies. She has published extensively on the role of primary care in long-term follow-up care for cancer survivors. Dr. Hudson is a community-engaged primary care researcher working with vulnerable populations at the intersections of community health, primary care, and specialty care. She is the director for the Community Engagement Core of the New Jersey Alliance for Clinical and Translational Science, which is a Clinical and Translational Science Awards consortium. She leads its $5 million NIH-funded Rapid Acceleration of Diagnostics for Underserved Populations initiative to improve outreach and access to COVID-19 testing within New Jersey vulnerable and underserved communities.

Carlos Roberto Jaén, M.D., Ph.D., M.S., FAAFP, is a professor and the Dr. & Mrs. James L. Holly Distinguished Chair in the Department of Family and Community Medicine at the Joe R. and Teresa Lozano Long School of Medicine in San Antonio, Texas. Dr. Jaén's special interests include improving preventive care for individuals of all ages, preventing complications from chronic diseases like diabetes, high blood pressure, and heart disease. He is passionate about building and studying high-performance primary care offices. He has been selected to the Best Doctors in America yearly since 2002. He is dedicated to building a healthier San Antonio through efforts in community wellness. Dr. Jaén was elected member of the National Academy of Medicine of the National Academies in 2013. He was co-director of the American Academy of Family Physicians (AAFP) Center for Research in Family Medicine and Primary Care. For more than 15 years, the Center studied almost 500 mostly independent, community-based primary care practices and completed the evaluation of the AAFP's national demonstration project of the patient-centered medical home. He served on the panels that published the U.S. Public Health Service smoking cessation guidelines in 1996 and 2000 and was co-chair of the panel that published an update in May 2008. In 2005, he was appointed to the National Advisory Council to the Agency for Healthcare Research and Quality. He received a Generalist Physician Faculty Scholar Award from the Robert Wood Johnson Foundation and a Cancer Control Career Development Award for Primary Care Physicians from the American Cancer Society. He is the immediate past-chair of the Board of Regents of the National Library of Medicine of the National Institutes of Health and former chair of the American Board of Family Medicine. He was appointed to the U.S. Preventive Services Task Force in January 2022.

Christopher Koller, MPPM/MAR, is President of the Milbank Memorial Fund, a more than 100-year-old operating foundation that improves population health and health equity by connecting leaders with experience and sound evidence. The Fund fosters state health policy leadership, which focuses on critical population health issues, and publishes evidence-based content and *The Milbank Quarterly*, a peer-reviewed journal of population health and health policy. Before joining the Fund, Mr. Koller served the State of Rhode Island as the country's first health insurance commissioner, from 2005 and 2013. The Office of the Health Insurance Commissioner was nationally recognized for its rate review process and its efforts to use insurance regulation to promote payment reform, primary care revitalization, and delivery system transformation. Previously, Mr. Koller was the CEO of Neighborhood Health Plan of Rhode Island. He has a bachelor's degree from Dartmouth College and master's degrees in religion and public/private management from Yale University. He was a member of the National Academies of Sciences, Engineering, and Medicine's (National Academies) Board on Health Care Services and he has served on three National Academies committees and in numerous national and state health policy advisory capacities. Mr. Koller is a Professor of the Practice in the Department of Health Services, Policy and Practice in the School of Public Health at Brown University.

Harold Kudler, M.D., received his doctorate from Downstate Medical Center in Brooklyn and trained in psychiatry at Yale. He has received teaching awards from the Duke Department of Psychiatry and Behavioral Sciences, the American Psychiatric Association, and the American Psychoanalytic Association. From 2002 to 2010, Dr. Kudler coordinated mental health services for a three-state region of the U.S. Department of Veterans Affairs (VA) and, from 2000 through 2005, co-chaired VA's Special Committee on PTSD, which reports to Congress. He founded the International Society for Traumatic Stress Studies™ (ISTSS) PTSD Practice Guidelines taskforce and has served on the ISTSS Board of Directors. He co-led development of the joint VA/Department of Defense Guideline for the Management of Posttraumatic Stress and was advisor to Sesame Street's Talk Listen Connect series for military families. From 2006 to 2014, he co-led the North Carolina Governor Working Group on Veterans, Service Members, and their Families. In 2012, he was appointed to the North Carolina Institute of Medicine. From 2004 to 2014, Dr. Kudler was associate director of the VA's Mid-Atlantic Mental Illness Research, Education, and Clinical Center which focuses on deployment mental health. From 2010 to 2014, Dr. Kudler was also medical lead for the VISN 6 Rural Health Initiative. In July 2014, he joined VA Central Office in Washington, DC, where he served as Chief Consultant for Mental Health Services and, from 2017 to 2018, was detailed to serve as Acting Assistant Deputy Under Secretary for Patient Care Services. Dr. Kudler plays an active leadership role in several professional organizations and as a without compensation employee in the VA Physician Ambassador Champion Program.

Sandy Leake, DNP, RN, NEA-BC, has held progressively responsible nursing and health care executive roles for almost four decades. A critical care nurse by background, Dr. Leake devoted 29 years of her career caring for Veterans; served 22 years as the chief nursing officer (CNO) in one of the largest, most complex health care systems in the Department of Veterans Affairs; held numerous national leadership roles and responsibilities including two interim assignments leading national program offices in the VA Office of Nursing Services; and twice led the Atlanta VA Health Care System to Magnet designation by the American Nurses Credentialing Center. Her areas of expertise include workforce planning, leadership development, coaching/mentoring and succession planning, developing innovative academic–practice partnerships, and driving organizational excellence. Additionally, she has been a longtime advocate for integrative approaches to whole person care to improve outcomes. She currently serves the Senior Vice President and CNO at The University of Tennessee Health System (Knoxville), which includes a 710-bed hospital representing the region's only academic medical center, Magnet designated hospital, and

Level I Trauma Center. Under her leadership, the organization achieved its third Magnet designation at the height of the COVID outbreak in November 2021. Dr. Leake obtained a BSN from Memphis State University, a MSN (nursing administration focus) from Vanderbilt University, and a DNP (nurse executive leadership focus) from Augusta University. She served as fellow in the Johnson & Johnson—Wharton Fellows Program for Nurse Executives and holds national certification (Nurse Executive Advanced) by the American Nurses Credentialing Center. She also holds faculty appointments in the colleges of nursing at Emory University, Augusta University, and The University of Tennessee.

Patricia Lillis, M.D., MHA, MSS, is a triple board-certified clinical researcher currently part of the Marshfield Clinic Health System in Wisconsin and an oncologist with more than 40 years of experience in the medical field. Prior to this, she served as a Medical Corps officer in the US Army, retiring after 32 years from a career that spanned teaching, clinical research, administrative, and operational assignments. These included assignments at the Office of the Army Surgeon General, faculty at the Uniformed Services University of the Health Sciences, and command and combat experience. She has numerous teaching and military awards including the Legion of Merit and a Bronze Star. Retiring from the U.S. Army in 2012, she has continued her clinical career and research, becoming chair of her specialty at her health system. She has intimate knowledge of the VA health care system beginning with her medical school training, continuing through specialty training, clinical faculty appointments, and lastly as the senior medical officer on the highly influential Army Pain Management Task Force while assigned to the Walter Reed National Military Medical Center. With her expertise in integrative medicine, she cofounded a 501(c)(3) to continue integrative medicine programs across the country that were spearheaded at Walter Reed and not available in any other locations. These programs have now been expanded internationally. She sits on numerous nonprofit boards and has leadership positions at the state level in Disabled American Veterans (DAV) and serves on national committees for the DAV.

Ajus K. Ninan, MSW, MPA, is an active-duty Army Clinical Social Work Officer who combines clinical practice and organizational development principles to guide and lead behavioral health services for service members. He is also the President of the American Board of Clinical Social Work. Prior to the Army, most of his work centered on veteran-focused rehabilitation services, including service coordination, case management, consultation services, individual and group counseling, addiction treatment, homelessness, and helping veterans navigate the VA health system. Ajus' previous service in the U.S. Marine Corps fueled his passion for serving the veteran population and making health care better. Ajus is a board-certified psychotherapist specializing in marriage and family therapy, group treatments, addiction medicine, and advanced mental health practice with adults and children. Ajus earned a Master's of Social Work from The State University of New York at Binghamton and a Master's of Public Administration from Marist College in Poughkeepsie, New York. In addition, he completed a post-graduate fellowship in child and family behavioral medicine from Walter Reed National Military Medical Center. Ajus is currently a Ph.D. candidate in organizational leadership at The Chicago School of Professional Psychology, District of Columbia campus. Ajus has research emphasis in the areas of access to care, care transitions, patient flow, organizational culture, and leadership.

Rear Admiral (RADM) (ret) Pamela Schweitzer, PharM.D., retired in September 2018 from a 4-year term as the Assistant Surgeon General and 10th Chief Pharmacist Officer of the United States Public Health Service (PHS). Of her 29-year career in federal service, she most recently served at the Centers for Medicare & Medicaid Services (CMS) as technical director in the Medicaid division that provides oversight, guidance, and funding for information technology systems. Previously, she served in varied assignments in the Indian Health Service (IHS) and the Veterans Health Administration (VHA). Since retiring, RADM (ret) Schweitzer continues helping with a number of public health–related projects related to improving health and access to health care in rural and underserved communities, interoperability, and reimbursement for clinical services. RADM (ret) Schweitzer received her bachelor's degree in biological sciences from California State University Fullerton (CSUF), earned her doctor of pharmacy (Pharm.D.) from the University of California San Francisco (UCSF) School of Pharmacy, and completed an ambulatory care/administrative residency at University of California Irvine Medical Center. She has received numerous awards including, IHS Senior Pharmacist of the Year Award (2013), the University of California San Francisco (UCSF) School of Pharmacy 2015 Distinguished Alumnus of the Year, Surgeon General Exemplary Service Medal (2018), ASHP 2019 Distinguished Leadership Award (2019), Distinguished Person of the Year, 2020, Pharmacists Public Health Initiatives. RADM Schweitzer currently serves on the board of directors at Tabula Rasa, a health technology company that develops medication management products and solutions for systems and clinicians. Additionally, she is on the board of trustees at several nonprofit organizations including the Public Health Service Commissioned Officers Foundation for the Advancement of Public Health, the National Council for Prescription Drug Programs (NCPDP), the NCPDP

Foundation, the Albany College of Pharmacy and Health Sciences, and the National Community Pharmacy Association Foundation. She also is on the advisory board at the University of Oklahoma College of Pharmacy, Pharmacists Public Health Initiatives, and ScriptDrop.

Sara J. Singer, Ph.D., M.B.A., is a professor of medicine at Stanford University School of Medicine and professor of organizational behavior, by courtesy, at Stanford Graduate School of Business. She is Associate Director of the Clinical Excellence Research Center, Faculty Director of the Health Leadership, Organization, and Innovation Labs in the Division of Primary Care and Population Health, and affiliate faculty with Stanford Health Policy and Center for Innovation in Global Health. She directs the Agency for Healthcare Research and Quality (AHRQ)–funded Engineering High Reliability Learning Lab, Robert Wood Johnson Foundation–sponsored programs to promote a Culture of Health as a Business Imperative, and a National Science Foundation program enabling the "Future of Work" in health care; and serves on the Board of the Harvard Medical Faculty Physicians. She studies health care teams and organizations to understand how leaders and policy makers can improve the safety and quality of health care delivery through changes in institutional culture, leadership, organization design, and team dynamics. Her research addresses central challenges in health delivery (ensuring patient safety; integrating fragmented services; implementing health delivery innovations; and promoting a culture of health). Previously, Dr. Singer was professor, health care management and policy, at Harvard Chan School of Public Health and Department of Medicine at Harvard Medical School. She co-founded and served as Executive Director for Stanford's Center for Health Policy (now Stanford Department of Health Policy). Dr. Singer has conducted numerous studies for AHRQ, Veterans Administration Health Services Research & Development, National Science Foundation, and private foundations. She served as panel consultant and co-author of "State Race and Ethnicity Data Collection" for the Institute of Medicine Committee on National Statistics DHHS Collection of Race and Ethnicity Data. She also presented by invitation to the National Academies of Sciences Committee on Establishing and Promoting a Culture of Safety in Academic Laboratory Research.

Zirui Song, M.D., Ph.D., is an associate professor of health care policy and medicine at Harvard Medical School and a general internist at Massachusetts General Hospital, where he practices primary care and attends on the inpatient medicine teaching service. Dr. Song's research focuses on efforts to improve the value of health care spending, including provider payment reform, pricing of medical services, financing of health insurance, and quality measurement. Related work aims to understand other policies and factors that may affect spending and health outcomes, including employer efforts, peer influences, and public health interventions. Dr. Song directs the Health Policy track in the Massachusetts General Hospital Internal Medicine Residency Program and is Research Director at the Harvard Medical School Center for Primary Care. He co-leads the health policy course for first-year Harvard medical and dental students and teaches a course on health policy and economics at Mass General Brigham. He advises medical students, Ph.D. students, and post-doctoral fellows in their research. He is an Associate Editor of *JAMA Health Forum* and a member of the editorial board for *Health Services Research*. Dr. Song has worked on payment policy at the U.S. Department of Health and Human Services and the Massachusetts Health Policy Commission. His research has been recognized by AcademyHealth, the Society of General Internal Medicine, American College of Physicians, and National Institute for Health Care Management Foundation. Dr. Song trained in internal medicine at Massachusetts General Hospital, where he was a recipient of the Morton N. Swartz, M.D. Humanism in Medicine Award. He received his M.D. from Harvard Medical School, magna cum laude, and Ph.D. in health policy (economics track) from Harvard University, where he was a fellow in Aging and Health Economics at the National Bureau of Economic Research. He received a B.A. in public health studies with honors from Johns Hopkins University.

NATIONAL ACADEMY OF MEDICINE FELLOW

Alexander Melamed, M.D., M.P.H., is a gynecologic oncologist and clinical outcomes researcher on the faculty of Massachusetts General Hospital and Harvard Medical School. His research focuses on improving outcomes among people with cancer and promoting the use of robust analytical methods for observational studies in oncology. Dr. Melamed's research has impacted the practice of gynecologic oncology in the United States and internationally. His work on minimally invasive surgery contributed to a shift in the international standard of care for the treatment of early-stage cervical cancer and has been cited in widely read treatment guidelines. He has published articles in high-impact journals including *JAMA*, *New England Journal of Medicine*, and *BMJ*. Dr. Melamed is the recipient of career development awards form the National Institute of Health's National Center for Advancing Translational Science, the Conquer Cancer Foundation of the American Society of Clinical Oncology, and the Department of Defense Ovarian Cancer Research Program. He maintains a clinical practice delivering comprehensive surgical, medical, and palliative care to women with gynecologic malignancies. Born in Ukraine, Dr. Melamed immigrated to United States in 1989. He earned a bachelor of science in chemical biology from the University of California, Berkeley, and master of public health and medical doctorate degrees from the University of Southern California's Keck School of Medicine. Dr. Melamed completed residency training in obstetrics and gynecology at Brigham and Women's Hospital and Massachusetts General Hospital, and a fellowship in gynecologic oncology at Massachusetts General Hospital.

STAFF

Marc Meisnere, M.H.S., is a senior program officer on the National Academies of Sciences, Engineering, and Medicine's Board on Health Care Services. Since 2010, Mr. Meisnere has worked on a variety of NASEM consensus studies and other activities that have focused on mental health services for service members and veterans, suicide prevention, primary care, and clinician well-being. Most recently, he was the study director for the 2021 NASEM report *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care*. Before joining NASEM, Mr. Meisnere worked on a family planning media project in northern Nigeria with the Johns Hopkins Center for Communication Programs and on a variety of international health policy issues at the Population Reference Bureau. He is a graduate of Colorado College and the Johns Hopkins University Bloomberg School of Public Health.

Marjani Cephus, M.P.H., CSM, recently joined NASEM as a research associate on the Board on Health Care Services at the National Academies of Science, Engineering, and Medicine. She recently completed her M.P.H. in health policy analysis and evaluation from the University of Maryland School of Public Health. Before joining NASEM, she was working at Planned Parenthood of Metropolitan Washington analyzing local reproductive health legislation. Prior to that, she was working as a contact tracer and health policy intern for Prince George's County in Maryland.

Tochi Ogbu-Mbadiugha is a Senior Program Assistant with the Board on Health Care Services at the National Academies of Sciences, Engineering, and Medicine. She has worked on a number of consensus studies and workshops centered on nursing, health care payment systems, population health, pandemic preparedness and response, and health equity. Prior to joining the National Academies, she assisted the legislative practice at Powers, Pyles, Sutter & Verville PC with tracking legislation focused on health care and disability. She holds a bachelor of science from the University of Maryland College Park.

Sharyl J. Nass, Ph.D., serves as Director of the Board on Health Care Services and Director of the National Cancer Policy Forum at the National Academies of Sciences, Engineering, and Medicine. The National Academies provide independent, objective analysis and advice to the nation to solve complex problems and inform public policy decisions related to science, technology, and medicine. To enable the best possible care for all patients, the board undertakes scholarly analysis of the organization, financing, effectiveness, workforce, and delivery of health care, with emphasis on quality, cost, and accessibility. The forum examines policy issues pertaining to the entire continuum of cancer research and care. For more than two decades, Dr. Nass has worked on a broad range of health and science policy topics that includes the quality and safety of health care and clinical trials, developing technologies for precision medicine, and strategies to support clinician well-being. She has a Ph.D. from Georgetown University and undertook post-doctoral training at the Johns Hopkins University School of Medicine, as well as a research fellowship at the Max Planck Institute in Germany. She also holds a B.S. and an M.S. from the University of Wisconsin–Madison. She has been the recipient of the Cecil Medal for Excellence in Health Policy Research, a Distinguished Service Award from the National Academies, and the Institute of Medicine staff team achievement award (as team leader).

Appendix B

Disclosure of Unavoidable Conflict of Interest

The conflict-of-interest policy of the National Academies of Sciences, Engineering, and Medicine (https://www.nationalacademies.org/about/institutional-policies-and-procedures/conflict-of-interest-policies-and-procedures) prohibits the appointment of an individual to a committee like the one that authored this Consensus Study Report if the individual has a conflict of interest that is relevant to the task to be performed. An exception to this prohibition is permitted only if the National Academies determine that the conflict is unavoidable and the conflict is promptly and publicly disclosed.

When the committee that authored this report was established a determination of whether there was a conflict of interest was made for each committee member given the individual's circumstances and the task being undertaken by the committee. A determination that an individual has a conflict of interest is not an assessment of that individual's actual behavior or character or ability to act objectively despite the conflicting interest.

RADM (ret.) Pamela Schweitzer was determined to have a conflict of interest because she is a member of the board of directors of Tabula Rasa. The National Academies has concluded that for this committee to accomplish the tasks for which it was established, its membership must include at least one person who has substantial relevant expertise in the operational aspects of the Department of Veterans Affairs (VA) and the Department of Health and Human Services (HHS), as well as relevant expertise and recent experience in clinical pharmacy and in health information technology systems. As her biography describes, RADM (ret) Schweitzer served at the Veterans Health Administration and was assigned to Indian Health Service

(IHS), during which she worked on partnership programs between IHS and VA. She also served as Assistant Surgeon General and Chief Pharmacist Officer of the United States Public Health Service. RADM (ret) Schweitzer has extensive current experience in clinical pharmacy and health information technology systems including as member of the board of directors of Tabula Rasa. In addition, she served at the Centers for Medicare & Medicaid Services as technical director in the Medicaid division that provides oversight, guidance, and funding for information technology systems.

The National Academies has determined that the experience and expertise of RADM (ret) Schweitzer is needed for the committee to accomplish the task for which it has been established. The National Academies could not find another available individual with the equivalent experience and expertise who does not have a conflict of interest. Therefore, the National Academies has concluded that the conflict is unavoidable.

The National Academies believes that RADM (ret) Schweitzer can serve effectively as a member of the committee, and the committee can produce an objective report, taking into account the composition of the committee, the work to be performed, and the procedures to be followed in completing the study.