

Mentorship in anesthesia

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Purpose of review

This article will provide a review of mentorship in academic medicine. The review will include definitions and an overview of the evidence supporting the benefits, barriers, and structure of mentorship programmes in academic medicine and anesthesia. Finally, we will identify areas of further research.

Recent findings

Mentorship in medicine has been increasingly recognized as a core component of training and career advancement in academic medicine. Mentoring provides many benefits to both mentor and mentee and facilitates the growth of academic departments by improving research productivity, faculty career satisfaction, recruitment, and educational performance. Mentorship programmes may be formal or informal and should include some form of mentor education. There are several barriers to successful mentorship including time constraints, limited availability of mentors, gender, minority status, and generational differences. These barriers may be overcome with improved awareness and sensitivity. Further investigation into the prevalence of mentorship and specific needs in our specialty are urgently required.

Summary

Mentorship has been demonstrated to be an integral part of training and career development in academic medicine and benefits both mentees and mentors. Despite the promotion of mentorship in many academic anesthesia departments, little is published in the available literature supporting mentorship in anesthesia.

Keywords

academic medicine, anesthesia, mentee, mentor, mentoring, mentorship

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Introduction

Mentorship in medicine has been increasingly recognized as a core component of training and career advancement in academic medicine [1–3,4^{*},5]. Despite this, relatively little has been written on mentorship in anesthesia. This article will provide a review of academic mentorship including definitions and an overview of the evidence supporting the benefits, barriers, and structure of mentorship programmes in academic medicine and anesthesia. Finally, we will identify areas for further research.

Definitions

The concept of mentorship first originated in Greek mythology when Homer's Odysseus, left his teenage son in the care of a Mentor to guide and teach him during his absence in the Trojan wars [6]. The popularity of mentorship in academic medicine and anesthesiology has grown significantly in recent decades. Modern day mentorship retains many of the same elements described in Homer's work although the term has been applied

inconsistently and erratically within academic medicine. 'Mentorship' is often used interchangeably with 'role models' and 'supervisors' although these labels are not equivalent [7^{**}]. Although emulated, there is no relationship between the parties and the role model is frequently oblivious of their role. Supervisors are appointed, often temporarily, to ensure a specific task is completed and are not responsible for the development of the mentee. Despite this variability, several elements are consistently tied to the concept of mentorship: this relationship typically involves an older, more senior faculty (the *mentor*) who provides wisdom and advice to a more junior person (the *mentee*). In one study of mentors in academic general internal medicine, over 90 percent were at the associate professor rank or higher [8]. Berk *et al.* [9] defined a mentoring relationship as 'one that may vary along a continuum from informal/short-term to formal/long-term in which a faculty with useful experience, knowledge, skills, and/or wisdom offers advice, information, guidance, support, or opportunity to another faculty member or student for that individual's professional development'. Moreover, this relationship should not be taken lightly; Bergstresser [1]

states 'mentorship is not a casual relationship; rather, it represents a specific and formal agreement between two individuals'. The relationship between mentors and mentees is not equal; however, the relationship can still be enjoyable and fun [10]. Finally, mentorship is a two-way transfer of information between mentor and mentee through which the capabilities of both are increased [5].

Multiple types of mentors may fulfill different roles for the mentee [4^{*}]. For example, the roles of primary, secondary, and senior mentor have been described, where the primary mentor shares the same (research) interests and is closest to the mentee; the secondary mentor(s) offer specialized knowledge and expertise and may only be intermittently involved with the mentee. The primary mentor should not be someone who may have competing interests such as a departmental chair. The broader obligations of these individuals may conflict with those of the mentee and impede successful mentorship [1]. A chair or division head may provide mentorship, however, as a secondary or senior mentor. An alternative classification by Feldman *et al.* [11^{**}] defines the career mentor, the scholarly mentor and the co-mentor. The career mentor is a senior faculty member primarily responsible for overall career guidance and support and although typically from the same department, may not have specialized expertise in the mentee's area of interest. In contrast, the scholarly mentor must offer expertise in the mentee's area of academic interest and provide professional, research, and academic skills as well as networking. Finally, the comentor, similar to the secondary mentor above, is responsible for providing particular guidance in their area of expertise.

Status of mentorship in anesthesia and medicine

The prevalence of mentorship among medical students and physicians has been variably reported from 19 to 93% depending on the medical discipline [3]. The definition of mentorship used and informal versus formal mentorship may account for some of this variability. For example, a survey of otolaryngology residents revealed 38% were officially assigned a career mentor although 83% reported meaningful mentorship from unofficial mentors during their training [12].

Mentorship is considered a valuable component of residency training programmes yet a gap exists between the perceived value and application of this resource. For example, in a study of radiology programme directors, 85% agreed that it was important for residents to have mentors yet only 52% thought their residents had identified mentors [2].

Little is known about the prevalence of mentorship in the specialty of anesthesiology. In a solitary survey in the UK,

Key points

- Mentorship has been increasingly recognized as a core component of training and career advancement in academic medicine.
- Mentoring provides many benefits to both mentors and mentees although several barriers to successful mentorship have been identified.
- Little is known about the current status of mentorship in anesthesia and further research is required.

20% of anesthesia trainees could identify a mentor although only 38% of those trainees had formally established a relationship with their mentor [13]. Nearly 70%, however, stated they would have benefited from a mentor–mentee relationship, suggesting a high demand for this resource in anesthesia training. In the Department of Anesthesia at University of California, San Francisco (UCSF), new residents are assigned a mentor for a limited term. After a 6-month trial period, the residents are required to select their own mentor, which may or may not be the same person. Approximately 60–70% of residents select someone else (unpublished data). An electronic evaluation system is used to send meeting reminders and document meetings.

Benefits of mentorship

Mentorship provides significant benefits to both the mentee and mentor. The advantages to the mentee are numerous and include improved personal and career development, increased academic productivity, and superior educational skills [3,11^{**},14]. Multiple studies have shown that physicians with identified mentors have increased career satisfaction and confidence when compared with those without mentors [3], and mentored individuals are more likely to pursue an academic career [15]. Mentored individuals are more likely to get promoted and exhibit increased success rates in obtaining peer-reviewed grant funding as well as research publications [3,16–18]. The positive impact of mentoring on career, health, and motivation has been demonstrated in both medical and business mentorship models [19,20].

Mentoring also produces an effect on specialty and academic career choice. Multiple studies have demonstrated that the presence of a mentor positively influences the decision to pursue an academic career in a wide spectrum of medical specialties [3]. The quality of mentoring itself was shown to influence the perceived probability of continuing an academic career in one study [15]. The rate of academic faculty retention also increases with the implementation of faculty mentorship programmes [21,22]. Finally, mentored research fellows were shown in another study to be more likely subsequently mentor others and continue the cycle [23].

Although the benefits of mentorship have traditionally focused on the mentee, there are additional benefits to the mentor. Mentors may experience professional stimulation, personal satisfaction, and a sense of giving back to their profession and having a positive influence on another individual's life [4[•],22,24]. In addition, it has been shown that mentors also experience increased research productivity, networking, and professional recognition when working with a successful mentee [24]. Finally, an increasing number of universities, including UCSF, consider mentorship activity during assessment for promotion.

Roles in mentorship

The roles of both the mentor and the mentee must be clarified and understood to ensure successful mentorship. Although there are multiple descriptions in the literature, several common themes exist.

Role of the mentor

A thorough understanding of the characteristics and responsibilities of a good mentor is required of both parties embarking on this relationship. Tobin [25] described the seven roles of the mentor as teacher, sponsor, advisor, agent, role model, coach, and confidante. Another study identified seniority, altruism, approachability, accessibility, patience, and honesty as important characteristics of a mentor [26]. A successful mentor must be inspired by the process of mentorship in order to produce inspiration, they must affirm the strengths of their mentorship and foster a community of scholars to multiply the learning opportunities for the protégée [27].

Role of the mentee

Sambunjak *et al.* [7^{••}] identified several desirable characteristics of mentees required for a successful mentoring relationship in their systematic review of the qualitative aspects of mentorship. Mentees should be proactive in initiating and taking ownership of the relationship with their mentors and display commitment and passion to succeed [4[•],7^{••}]. In addition, mentees should be receptive to criticism and advice from their mentor; however, they may need to be selective in accepting advice [7^{••}]. Finally, mentees need to be clear in communicating their needs and expectations for a successful relationship [24].

Barriers to successful mentorship

Multiple barriers may impede a successful mentoring relationship. There may be a limited pool of available or skilled mentors and a mentee may have difficulty identifying an appropriate mentor [24]. Furthermore, few institutions provide education in mentoring which

may further reduce the availability of capable mentors [28[•]]. One solution is the implementation of mentorship training programmes, such as that described by Feldman *et al.* [28[•]] at the University of California, which may improve the mentor's confidence and increase their understanding of mentorship issues.

Limited time available for mentorship was cited most often as a barrier in one survey [26]. Many institutions do not recognize mentorship in annual reviews or promotions, do not provide adequate protected time for participation in mentorship, and do not explicitly include mentorship in nonclinical activities. Increased recognition of mentorship within academic institutions and incorporation into protected nonclinical time are potential solutions to this issue.

Women and under-represented minorities are often identified in the literature as groups facing obstacles in obtaining adequate mentorship. Women faculty have been shown to have difficulty identifying mentors, and specifically a lack of available female or minority mentors who may have increased understanding and sensitivity regarding the issues faced by these groups [22,26,29]. Formal mentoring programmes targeting women faculty have been described successfully with improvements in recruitment, retention, and promotion of women faculty [22]. Given the relatively low numbers of women pursuing and continuing in academic anesthesiology [30], further research into the mentorship of women in academic anesthesiology is needed.

The necessity of gender matching in the mentor–mentee relationship is unclear [7^{••},26]. A survey of radiology programme directors revealed significantly different opinions on the need for gender-matched mentors as female programme directors felt it was important for female residents to have female mentors more frequently [2]. In another survey, female mentees expressed difficulty finding female mentors who could guide them on the timing of maternity and returning to work [26].

Intergenerational differences may present difficulty in establishing effective mentorship relationships. Different generations of physicians have been exposed to formative life events that influence their attitudes, perceptions, and values [31]. Although not universal, differences in the attitudes of senior and junior faculty are important to recognize and may impact everything from education and learning styles to work-life balance to communication styles [32]. For example, junior faculty may prefer greater flexibility and control over work hours and this may conflict with the expectations of senior faculty. Effective strategies to overcome these barriers include managing expectations, enhanced communication, and awareness of these issues.

Nonresearch focused physicians may face poor accessibility to adequate mentorship. Traditionally, mentorship in academic medicine has focused on physicians pursuing research-oriented careers rather than those in primarily educational or clinical careers despite the fact that these physicians form a majority in many academic institutions. In a study of otolaryngology residents, lower satisfaction scores were given for availability of mentorship in preparation for a career in private practice versus mentorship in academic medicine [12]. A survey of academic faculty at a major university demonstrated that clinical faculty with increased teaching and patient care responsibilities were significantly less likely to have a mentor compared with faculty in research intensive series [11^{••}].

Structure of mentorship programmes

Mentorship has typically been poorly organized and unstructured in its implementation in modern medicine [33]. Formal mentorship programmes are not common [33]. Controversy exists as to whether mentor–mentee partnerships should be assigned or self-identified as there are advantages and disadvantages to both approaches [24]. The mentorship literature supports the idea that formal mentoring is better than no mentoring at all; however, informal mentoring is more effective as both participants are voluntary [34]. It is clear that for a satisfying, successful mentorship relationship to occur ideally, the mentor and mentee should be compatible in personality, interests, and goals. It may be difficult, however, to identify appropriate candidates, particularly for individuals new to an institution or junior faculty. A formal mentor assignment may facilitate the process. Several studies have demonstrated that physicians who are officially assigned a mentor may have greater success with mentorship [12]. In contrast, other evidence suggests mentees who are allowed to choose their mentor have greater satisfaction with the mentorship process [26]. Overall, it is clear that mentorship programmes should be flexible and maximize participant input.

Mentoring should not be limited by geographical location. Appropriate mentors may not be available in proximity to the mentee and certain potential mentors may offer specific expertise to the mentee that is not available at their home institution. Furthermore, both mentees and mentors may move location during their careers but this should not necessarily limit the mentorship relationship. A survey of general internal medicine mentors confirmed that two-thirds were involved in some form of long-distance mentoring although almost 80 percent did not feel it was as effective as onsite mentoring [8].

The concept of ‘speed mentoring’ has recently been introduced as a method to facilitate matching of mentors

and mentees [33,35[•]]. The method described by Cook *et al.* [35[•]] allowed junior faculty members to interact with potential mentors using multiple, short (5–10 min) encounters. Afterwards, mentees had the option of contacting one of the participating mentors for further discussion. The activity was rated highly by the participants; however, most of the mentees felt the time per encounter was too short and only two mentees contacted a participating mentor afterwards. Although the outcomes in the small study did not produce long-term mentoring relationships, overall participants were satisfied with the experience and it was relatively easy to organize. Overall, further investigation is needed into the optimal structure of speed mentoring.

Assessment of mentorship quality and outcomes

Although many institutions provide assistance in matching mentors and mentees, few have any mechanism for monitoring the effectiveness of the mentoring provided. Even if mentorship opportunities are available to medical trainees and faculty, the quality of mentoring may not be adequate. For example a survey of faculty at UCSF revealed that although 58% were mentored, only 12% felt that the experience was good or excellent [33]. Validated assessment tools are essential but are difficult to construct. Berk *et al.* [9] describe the Mentorship Profile Questionnaire and the Mentorship Effectiveness Scale, the combination of which are intended to formally evaluate the effectiveness of faculty mentoring relationships; however, these tools require further validation. Regardless of the scale used, anonymity is difficult to preserve when conducting assessments of mentorship and this may result in overly favorable responses.

The University of California, San Francisco experience

The Faculty Mentoring Programme (FMP) at the UCSF was implemented in 2006 and is one of the largest and most comprehensive mentorship programmes in the USA [28[•],36[•]]. This programme, currently used by the Department of Anesthesia, was developed in response to a survey of faculty showing poor satisfaction with the current mentorship support at UCSF [11^{••}]. The FMP facilitates pairing of junior faculty from the four health sciences professional schools (Medicine, Nursing, Pharmacy, and Dentistry) with a *career mentor* as well as a mentoring team. This task is accomplished through ‘mentoring facilitators’ in each department and overseen by the Director of Faculty Mentoring, the Mentoring Programme Coordinator, and the Vice Provost Office [11^{••}]. The mentors may be either chosen or assigned by the facilitator. The mentor and mentee must meet bi-annually at a minimum and are responsible for discussing

the mentee's Curriculum Vitae and Individual Development Plan outlining career plans and goals. Mentoring activities and awards must be documented during the promotion process.

Future directions

The paucity of literature on anesthesia and mentorship is concerning for many reasons. Much of the current literature on mentorship in academic medicine is derived from other specialties, many of whom have strong reputations as academic specialties. The lack of interest in mentorship in anesthesia is worrisome given the increased attention to the apparent decline of academic anesthesiology [37]. Schwinn and Balsler [37] have shown that anesthesiology is significantly under-represented in National Institutes of Health funding relative to the rest of academic medicine both in successful and total applications. Furthermore, the lack of data on the status of mentorship in anesthesia suggests we may be lagging behind in the development and implementation of mentorship programmes in our specialty and that this may be a key contributor to limited academic growth in our discipline. Finally, a recent timely editorial on academic misconduct argues that mentorship may have a role in preventing unethical research practices by mitigating both professional and personal stress among junior faculty as well as providing role models for research integrity [38]. As multiple studies have shown that academic and, specifically, research success is closely linked to mentorship [3,16,18,33], it is critical that we in anesthesiology understand the current prevalence and quality of mentoring in our specialty.

Conclusion

Mentorship has been demonstrated to be an integral part of training and career development in academic medicine. High-quality mentoring provides numerous benefits to both mentor and mentee and facilitates the growth of academic departments by improving research productivity, faculty career satisfaction, recruitment, and educational performance. These attributes make the implementation of mentorship programmes critical to the specialty of anesthesia given our declining academic performance. Mentorship programmes may be formal or informal, and although self-pairing of mentors with mentees has been shown to produce higher satisfaction, assigned mentors are better than none. There are several barriers to successful mentorship, including issues related to availability of mentors, time, gender, minority status, and generational differences; however, these may be overcome with improved awareness and sensitivity. Finally, the virtual invisibility of anesthesia in the mentorship literature requires urgent attention. Further investigation into the prevalence of

mentorship and specific needs in our specialty are required.

Acknowledgements

Conflicts of interest

Dr Gelb is the Mentorship Facilitator for the University of California, San Francisco, Department of Anesthesia and Perioperative Care.

References and recommended reading

Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

Additional references related to this topic can also be found in the Current World Literature section in this issue (pp. 710–711).

- 1 Bergstresser PR. Academic mentoring. *J Invest Dermatol* 2011; 131:273–274.
- 2 Donovan A. Views of radiology program directors on the role of mentorship in the training of radiology residents. *AJR Am J Roentgenol* 2010; 194:704–708.
- 3 Sambunjak D, Straus SE, Marusic A. Mentoring in academic medicine: a systematic review. *JAMA* 2006; 296:1103–1115.
- 4 Zerzan JT, Hess R, Schur E, *et al.* Making the most of mentors: a guide for mentees. *Acad Med* 2009; 84:140–144.
- A useful summary for those seeking to maximize the mentorship relationship.
- 5 Holmes DR Jr, Hodgson PK, Simari RD, Nishimura RA. Mentoring: making the transition from mentee to mentor. *Circulation* 2010; 121:336–340.
- 6 Homer. *The Odyssey* (Shewring, W., Transl.). Oxford; New York: Oxford University Press; 2008.
- 7 Sambunjak D, Straus SE, Marusic A. A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *J Gen Intern Med* 2010; 25:72–78.
- A recent updated systematic review of the qualitative mentorship literature.
- 8 Luckhaupt SE, Chin MH, Mangione CM, *et al.* Mentorship in academic general internal medicine: results of a survey of mentors. *J Gen Intern Med* 2005; 20:1014–1018.
- 9 Berk RA, Berg J, Mortimer R, *et al.* Measuring the effectiveness of faculty mentoring relationships. *Acad Med* 2005; 80:66–71.
- 10 Detsky AS, Baerlocher MO. Academic mentoring: how to give it and how to get it. *JAMA* 2007; 297:2134–2136.
- 11 Feldman MD, Arean PA, Marshall SJ, *et al.* Does mentoring matter: results from a survey of faculty mentees at a large health sciences university. *Med Educ Online* 2010; 15:5063.
- The largest multidisciplinary mentorship survey done prior to implementation of a mentorship programme. The structure of the mentorship programme is also described.
- 12 Hsu AK, Tabae A, Persky MS. Mentorship in otolaryngology residency: the resident perspective. *Laryngoscope* 2010; 120:1263–1268.
- 13 Gould G. Mentor system for anaesthesia trainees. *Anaesthesia* 2004; 59:411.
- 14 Blicke G, Witzki AH, Schneider PB. Mentoring support and power: a three year predictive field study on protege networking and career success. *J Vocat Behav* 2009; 74:181–189.
- 15 Weinert CR, Billings J, Ryan R, Ingbar DH. Academic and career development of pulmonary and critical care physician-scientists. *Am J Respir Crit Care Med* 2006; 173:23–31.
- 16 Orandi BJ, Blackburn S, Henke PK. Surgical mentors' and mentees' productivity from 1993 to 2006. *Am J Surg* 2011; 201:260–265.
- 17 Ramanan RA, Taylor WC, Davis RB, Phillips RS. Mentoring matters: mentoring and career preparation in internal medicine residency training. *J Gen Intern Med* 2006; 21:340–345.
- 18 Steiner JF, Lanphear BP, Curtis P, Vu KO. Indicators of early research productivity among primary care fellows. *J Gen Intern Med* 2002; 17:845–851.
- 19 Eby LT, Allen TD, Evans SC, *et al.* Does mentoring matter? A multidisciplinary meta-analysis comparing mentored and non-mentored individuals. *J Vocat Behav* 2008; 72:254–267.

- 20 Eby LT, Allen TD. Moving toward interdisciplinary dialogue in mentoring scholarship: an introduction to the special issue. *J Vocat Behav* 2008; 72:159–167.
- 21 Benson CA, Morahan PS, Sachdeva AK, Richman RC. Effective faculty precepting and mentoring during reorganization of an academic medical center. *Med Teach* 2002; 24:550–557.
- 22 Kosoko-Lasaki O, Sonnino RE, Voytko ML. Mentoring for women and underrepresented minority faculty and students: experience at two institutions of higher education. *J Natl Med Assoc* 2006; 98:1449–1459.
- 23 Steiner JF, Curtis P, Lanphear BP, *et al.* Assessing the role of influential mentors in the research development of primary care fellows. *Acad Med* 2004; 79:865–872.
- 24 Keyser DJ, Lakoski JM, Lara-Cinisomo S, *et al.* Advancing institutional efforts to support research mentorship: a conceptual framework and self-assessment tool. *Acad Med* 2008; 83:217–225.
- 25 Tobin MJ. Mentoring: seven roles and some specifics. *Am J Respir Crit Care Med* 2004; 170:114–117.
- 26 Straus SE, Chatur F, Taylor M. Issues in the mentor-mentee relationship in academic medicine: a qualitative study. *Acad Med* 2009; 84:135–139.
- 27 Wood LD. Mentorship in pulmonary and critical care medicine. *Am J Respir Crit Care Med* 2010; 182:1215–1216.
- 28 Feldman MD, Huang L, Guglielmo BJ, *et al.* Training the next generation of research mentors: the University of California, San Francisco, Clinical and Translational Science Institute Mentor Development Program. *Clin Transl Sci* 2009; 2:216–221.
- A useful description of a mentor training programme.
- 29 Levine RB, Lin F, Kern DE, *et al.* Stories from early-career women physicians who have left academic medicine: a qualitative study at a single institution. *Acad Med* 2011; 86:752–758.
- 30 Wong CA, Stock MC. The status of women in academic anesthesiology: a progress report. *Anesth Analg* 2008; 107:178–184.
- 31 Shangraw RE, Whitten CW. Managing intergenerational differences in academic anesthesiology. *Curr Opin Anaesthesiol* 2007; 20:558–563.
- 32 Kapur PA. The impact of new-generation physicians on the function of academic anesthesiology departments. *Curr Opin Anaesthesiol* 2007; 20:564–567.
- 33 Kahn JS, Greenblatt RM. Mentoring early-career scientists for HIV research careers. *Am J Public Health* 2009; 99 (Suppl 1):S37–S42.
- 34 Allen TD, Eby LT, Lentz E. Mentorship behaviors and mentorship quality associated with formal mentoring programs: closing the gap between research and practice. *J Appl Psychol* 2006; 91:567–578.
- 35 Cook DA, Bahn RS, Menaker R. Speed mentoring: an innovative method to facilitate mentoring relationships. *Med Teach* 2010; 32:692–694.
- A novel approach to facilitating mentor–mentee pairing.
- 36 <http://acpers.ucsf.edu/mentoring/>.
- The University of California San Francisco mentoring website.
- 37 Schwinn DA, Balse JR. Anesthesiology physician scientists in academic medicine: a wake-up call. *Anesthesiology* 2006; 104:170–178.
- 38 Ochroch A, Eckenhoff RG. The role of mentoring in aiding academic integrity.
- *Anesth Analg* 2011; 112:732–734.
- An editorial describing the potential impact of mentorship in anesthesiology with a focus on academic integrity.