Introduction

We reckon that few academics would argue against the importance of mentorship in academic medicine; after all, you're reading this introduction! As we hope to convince you in Chapter 1, effective mentorship is a major determinant of academic success and both job and life satisfaction. However, although most studies of academic faculty suggest that they want mentorship [1–3], there are lots of academic settings in which less than 20% of them get it. In recognition of this yawning gap, many academic health institutions are developing mentorship programs and, in doing so, have recognized the paucity of educational as well as administrative resources to educate and support both mentors and mentees. We wrote this book to help meet this need.

How did we get interested in mentorship?

Sharon became interested in mentorship while completing a research fellowship at the University of Oxford under Dave's supervision. At their first meeting, Dave asked her to outline her career goals as well as those for her research training. Dave's response changed her life: he told her that his job was to make sure she achieved what she wanted in her fellowship and to support her in the development of her career path. This altruism was role modeled throughout the next few years and Dave's amazing mentorship skills and expertise directly influenced her career and her own attempts at mentorship. When preparing to leave Oxford and begin her first faculty position, Sharon asked Dave how she could ever repay him for what he'd given to her and his immediate response was, "Do the same for others." Now, after mentoring more than 50 graduate students and new faculty, Sharon states that one of the most fulfilling parts of her job is to be able to interact with and learn from her mentees. It is these experiences, plus the scarcity of resources describing how to develop and support mentorship, that led to several research projects and, ultimately, to this book.

Dave, akin to Molière's Monsieur Jourdain*, was getting mentored for years before he knew it. Beginning in a US medical school in 1958 (back when man still had 48 chromosomes), and in his internship, first medical residency, and nephrology fellowship, he was "adopted" in turn by a bench scientist, a chair of medicine, and a nephrologist who didn't simply recruit him into their bailiwicks as an extra brain and pair of hands to be "supervised." Instead, and in turn, they took time each week or so to challenge his ways of thinking about what he "knew" and might be able to find out about human biology and clinical medicine, to open doors to the places ("restricted" labs and graduate courses) where he might learn how to find those things out, to critique and improve his plebeian writing and speaking skills, to explore his career interests and ambitions, and to help him think how he might pursue them through his next career moves. Twenty-five years later, after getting educated about mentoring and instituting it at a new Canadian medical and graduate school, his seventh mentor helped him think through and implement his second medicine residency. He's now on his tenth mentor and gazillionth mentee, and beginning to get the hang of it [4].

Who are the potential readers of this book?

We have written this book for aspiring academic researchers and educators (whom we'll hereafter call *mentees*) and those experienced, empathic persons who guide them in the development and re-examination of their own ideas, learning, and personal and professional development (whom we'll call *mentors*). We are academic physicians (namely, we are subspecialists in internal medicine and geriatric medicine and don't presume to be experts in other clinical areas) who have largely worked in North America and the UK. Most of our mentees have been physicians, but we have mentored people from various disciplines including nursing, medicine, rehabilitation therapy, biostatistics, health informatics, education, and engineering amongst others and from different career paths including clinician educators, researchers, and administrators. While there is some material in this book that is relevant to anyone working in an academic institution, we don't to pretend to be experts in mentorship for other types of clinicians and academics (such as those in other clinical disciplines or career paths) or for those working in low and middle income countries, and we encourage them to identify (or create) mentorship resources that outline issues unique to their mentorship needs. We invite these readers to share these resources

* . . . who exclaimed: "Well, what do you know about that! These forty years now I've been speaking in prose without knowing it!" Molière: *The Bourgeois Gentleman*, 1670.

with us via our website (www.mentorshipacademicmedicine.com) and to lead discussions on the website about which contents from the book are useful to them and which ones aren't relevant. In the literature review that we conducted to inform this book, most of the articles focused on mentorship for clinician scientists. We found less research that targeted clinician educators and clinician administrators and thus our discussion of mentorship for academics following these career paths is not exhaustive. Again, we encourage our readers to send any relevant research targeting these individuals to our website.

We have targeted our book primarily at mentoring in academic institutions. Accordingly, we have viewed our readers and their interests, goals, aspirations, opportunities, resources, challenges, and dilemmas through that lens, and at both the individual and institutional levels:

- At the individual mentor–mentee level, we've presented the best evidence we could find on what they should look for in each other, how they should find each other, how they should treat each other, how they should plan and run their mentoring sessions, and how they should identify and manage the opportunities, challenges, and problems mentees encounter as they launch their academic careers (including how to fix or sever mentorships that aren't working).
- At the institutional level, we've presented the best evidence we could find on how to assess an institution's need for and interest in mentoring, how to develop a mentoring program and train mentors, and how to evaluate it, correct its faults, and sustain it. While most of the literature focuses on clinician scientists, we have included information for other career paths whenever we have found it. Similarly, although most of the evidence focuses on mentoring trainees and junior faculty, we've addressed issues for senior faculty whenever possible.

Is this book about the theory or practice of mentorship?

There are some brilliant people who are continuing to develop a theoretical basis for mentoring [5, 6]: we are not among them. This book is about the practice of mentoring.

How is this book organised?

This book employs a case-stimulus learning approach:

- Each chapter begins with a scenario for the reader to ponder and solve.
- Next, comes the best evidence we could find about the issues raised in the scenario.

- Finally, we close with some evidence-based, actionable solutions to the challenges presented in the scenario.

Where did we get the evidence for the material in this book?

We identified the evidence in each chapter from three sources:

1. Our systematic reviews and updates of the mentorship literature. Updates since this book went to press can be found on our website.
2. Our 2012 survey of international colleagues who have been recognized by their peers as being excellent mentors. We identified 271 colleagues from various academic settings around the world who have been active in various career pathways and have some expertise as a mentor. We invited them to complete a survey, either electronically or via phone interview, and to share their thoughts on targets for effective mentorship, tips for achieving these targets, potential mentorship problems, and strategies for overcoming these problems. Forty-five colleagues responded to our request and we have incorporated their anonymized responses in this book. We have posted the survey on our website that accompanies this book (www.mentorshipacademicmedicine.com) and we invite readers to take a few minutes to review it and share their answers to the survey with us.
3. Our own experiences as mentors, mentees and developers of institution-level mentorship programs.

Because the GRADE system [7] doesn't yet have a scale for assessing qualitative literature, we used a modified version to describe the validity and "trustability" of the evidence we present in each chapter. In brief, we labelled evidence as *high quality* when we are highly confident that the true effect of the mentoring intervention lies close to that estimated in the publication. For example, evidence is judged as high quality if all of the following apply:

- there is a wide range of studies included in the analyses with no major limitations
- there is little variation between studies
- the summary estimate has a narrow confidence interval.

We judge evidence as *moderate quality* when we consider the true effect is likely to be close to the published estimate of the effect, but there is a possibility that it is substantially different. For example, evidence might be judged as moderate quality if any of the following applies:

- there are only a few studies and some have limitations but not major flaws
- there is some variation between studies
- the confidence interval of the summary estimate is wide.

Finally, we judge evidence to be *low quality* when the true effect may be substantially different from the published estimate of its effect. For example, evidence might be judged as low quality if any of the following apply:

- the studies have major methodological flaws
- there is important variation between study results
- the confidence interval of the summary estimate of the effect is very wide [7, 8].

What other mentorship resources are available to complement this book?

We are supplementing and updating the contents of this book on our website at www.mentorshipacademicmedicine.com. As this book was being published, it included:

- a mentorship checklist
- an individual development plan
- interviews with various mentors
- some mentorship scenarios.

A major portion of this website will provide updates of new evidence for each chapter so that readers can see what's new or different since the book was published. We'll update this evidence-base by repeating our systematic reviews. Furthermore, we'll translate any new, valid evidence into new, effective strategies and tactics for mentees, mentors, and institutions.

We invite you, our readers, to take over[†] the website.

- When you come across moderate- or high-quality evidence on mentoring that we missed in preparing this book, please add it to the website. For example, we've worked mostly in academic centers in high-income countries, and we'd welcome contributions from colleagues who are mentoring in other settings such as those in low-income countries.
- When you have had a particularly positive or negative experience in mentoring or being mentored, please add it to the respective chapter, telling the rest of us what you think its "active" principle was so that we can duplicate or discard it accordingly.
- When you find important gaps that we simply failed to cover, let us know.
- And we always appreciate having this book's errors (including typos, misspellings, and other goofs) identified and corrected.

[†] The usual standards for website participation will be employed, and you are free to sign your contributions (and be acknowledged for them) or remain anonymous.

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Chapter 1 What is the evidence for mentorship?

Scenario

At the end of your first year as an academic clinician–investigator in a big, busy clinical department, with some 200 faculty members, you've just finished discussing your annual review with your department chair. She tells you that you're doing extremely well for a new faculty member, which is a great relief to you. Although you think you've done pretty well – in the past year, you received a peer-reviewed development grant, first-authored two papers and co-authored four others, have a systematic review in press, have an abstract accepted for a national meeting, are enjoying your time on the clinical service, and the medical students and residents submitted glowing assessments of your bedside teaching – you feel pressed for time, worry about your work–life balance, and wonder whether you're "on the right track" for a successful and enjoyable academic career. Although you've received encouragement from several senior members of the department, you've been conscious of how busy they are and don't want to impose on their jam-packed schedules to ask for advice. But now, stimulated by a recent session on mentoring which you attended at an academic meeting and emboldened by your chair's praise, you tell her that you and some of your colleagues are concerned about the lack of a formal mentorship program in the department. She says that to be able to "sell" this idea to the department, she wants to see the evidence that such a program does more than waste time, money, and energy, and she challenges you to lead a working group to track down, appraise, and summarize the evidence that a formal mentoring program benefits the career development and life-satisfaction of academic clinicians. With the promise of some staff support for your working group, you accept her challenge.

Your first step in this task is to gather the evidence; specifically, what's the case for mentorship?

In this chapter, we'll set the stage for our mentorship discussion providing the definitions and terminology that we'll use throughout this book. In particular,

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we'll outline the scope for our discussion, including what mentorship is and isn't, and help you to provide the "case for mentorship" based on the relevant evidence. We invite you to join us in this dialogue via the website (www.mentorshipacademicmedicine.com) that accompanies this book; we'd love to hear about how you define mentorship and how you would meet the challenge we posed in the above scenario![*]

What is mentorship?

The concept of mentorship can be traced to Greek methodology. Odysseus placed his much older friend Mentor in charge of his palace and of his son Telemachus when he left for the Trojan War. Interestingly, Athena disguised herself as Mentor on several occasions to provide guidance to Telemachus. It was from this story that the term "mentor" was taken and began being used to mean a trusted, senior advisor who provides guidance to a more junior person.

Moving along to more recent times, there are many definitions of mentorship, including those from business [1] and psychology literature [2], but our focus in this book is on academic medicine, including clinicians who work in universities and academic health science centres. So, for our discussion, we'll use the definition commonly cited in academic medical literature:

> A process whereby an experienced, highly regarded, empathetic person (the mentor) guides another (usually younger or more junior) individual (the mentee[†]) in the development and re-examination of their own ideas, learning, and personal and professional development. The mentor, who often (but not necessarily) works in the same organization or field as the mentee, achieves this by listening or talking in confidence to the mentee [3].

One element that we think is missing from this definition is that mentorship is about an exchange between the mentor and mentee and provides benefits to both parties; we'll explore these benefits later in this chapter.

Berk and colleagues have further elucidated the concept of mentorship to specify that it can range from an informal, short-term relationship to a formal, long-term relationship [4]. *Informal* mentoring is a relationship between individuals that develops without organizational interventions and

[*] There are different ways of tackling this challenge and we've provided our proposed solution to this scenario at the end of this chapter.

[†] Note that we use the term "mentee" to refer to the target of mentorship. In the literature, protégé is a term that is sometimes used interchangeably, but we find this term paternalistic and will stick to mentee in this book.

is the natural "coming together" of a mentor and mentee. For example, a resident may identify a staff physician with whom they worked on a clinical rotation and developed a good rapport; this interaction may lead to a series of conversations that ultimately results in a mentoring relationship. *Formal* mentoring is initiated (in some places, mandated!) by an outside party or organization, as when a department chair not only requires that each new recruit has a mentor but makes sure that they get one.

A common source of confusion in the mentorship literature is that the term "mentor" is often used interchangeably with the term "role model" or "coach." We maintain that these are very different concepts. "Role modeling" is a "passive, observational learning model in which an individual attempts to emulate observed, desirable behaviours and qualities" [5]. Indeed, there may be no personal relationship with the role model, and they are often oblivious of their role! Of course, a mentor can and often does serve as a role model, but that's just one, passive facet of their function. Similarly, mentoring goes far beyond "coaching" a junior colleague on the performance of specific tasks and skills [6]. This latter function is often the complete extent of an aspiring academic clinician's interactions with their research supervisor or department chair. We found an interesting analogy (for anyone who has seen Star Wars) that nicely highlights this difference: "Yoda is a coach, teaching Luke how to use the Force, and Obi-Wan Kenobi is a mentor, showing him what it means to be a Jedi knight" [7].

Who are the targets for mentorship?

Much of the literature on mentorship focuses on targeting junior or new faculty members [8–10]. However, faculty at any stage in their career can benefit from it.[‡] A large qualitative study (moderate-quality evidence) of clinician researchers across two universities documented that senior (or established) faculty often feel that they are neglected and should have equitable access to mentors [11]. We also found a descriptive study of a mentorship program developed in a Department of Pediatrics at an academic medical centre that targeted mentorship activities not only to junior, but to mid-career and senior faculty [12]. Their survey of mid-career (associate professor level) department members found that respondents commonly wanted mentoring around the requirements and timelines for promotion, about how to redefine their careers, and how to network effectively (they were less interested in advice from mentors on how to transition to

[‡] Dave Sackett linked up with his first mentor in 1958 and is currently mentee to his tenth.

administrative positions) [12]. Senior faculty wanted mentoring around how to transition towards part-time opportunities and retirement, and on financial and succession planning. These results highlight that as a mentee's career progresses and evolves to take on different responsibilities or change career paths, different sorts of mentoring may be required. For example, a mentee's emerging interest in administration or education may require mentoring skills beyond those of their earlier clinician–scientist mentor.

In academic medicine, clinicians can have different career paths including those of a scientist, educator, or administrator, and having this career flexibility is one of the privileges and pleasures of academic medicine. Interestingly, surveys and qualitative literature (moderate-quality evidence) suggest that clinician investigators are both more likely to seek mentorship and more comfortable asking for it than are clinician educators [8–10]. This difference may be because clinician investigators have completed research training, are already used to having research supervisors, and are "primed" to seek the greater benefits of mentors. These studies also suggest that clinician educators are more likely to have difficulty with promotion than clinician scientists, raising the possibility of a causal relationship [8–10]. Throughout this book, we will identify differences in mentorship issues for each of these career paths whenever we find them in the literature.

What is the impact of mentorship?

Mentorship claims to develop and maintain faculty who are productive, satisfied, collegial, and socially responsible. However, not only are there no randomized trials of mentorship; we doubt we will ever see one, since it would be both methodologically and ethically challenging to randomize clinicians to either receive a mentor or be denied access to one.[§] Accordingly, we based this section on the results from three systematic reviews of the literature [8–10], updated by more recent literature searches to the first week of March 2012. Studies of any design were eligible for inclusion, but the final selection was restricted to English-language reports targeting academic medical faculty.

Much of the evidence base is summarized in a quantitative systematic review that explored the impact of mentoring on career choices and academic advancement [8]. It included 42 articles describing 39 studies (34 of which were cross-sectional self-report surveys). A second systematic review of the

[§] On the other hand, if we can identify enough academic centers with an interest in mentorship but no programs, a stepped wedge cluster randomized trial could provide powerful evidence on whether it works. We'd be keen to hear from any programs that might be interested in tackling this challenge!

qualitative literature on mentorship identified 9 relevant studies [9]. Since the publication of these reviews, we identified an additional 13 eligible studies:

- 7 surveys [13–19]
- 2 nested case control studies [20, 21]
- 1 uncontrolled before-and-after study [22]
- 1 case series [23]
- 2 qualitative studies [24, 25].

Most of the evidence base comes from cross-sectional surveys of academic clinicians who had or had not been previously mentored. The methodological shortcomings of such studies must be recognized. Specifically, if mentored academics are more successful in these observational studies, possible explanations for their success extend beyond mentoring, and include the possibility that they were destined to be stars from birth and therefore had a selection advantage in getting access to superior training programs that provided coincidental but unnecessary mentoring. And, the majority of the studies that we've found to date were done at a single site and didn't follow mentees' careers over a sufficiently long period of time.

Bearing these caveats in mind, there appear to be career- and life-benefits of mentorship to both mentors and mentees. We'll explore the benefits to mentees first:

1 *Academic clinicians who got mentored reported greater career satisfaction* [moderate quality evidence; 14–16, 22, 26]. Mentorship not only influences career choice [10, 24], it influences job satisfaction. For example, in a survey of faculty from 24 US medical schools, faculty members with mentors had significantly higher career-satisfaction scores (62.6 vs 59.5 on a 100-point scale, $p < 0.003$) than those without mentors [26]. Similarly, in a survey of gastroenterologists in the US, having a mentor was a predictor of job satisfaction (odds ratio of 2.32, $p < 0.001$) [15]. And, in a survey of mentors and mentees from the Psychiatry Institute at King's College, London, having a mentor was associated with greater job well-being [22]. In contrast, Stamm and Buddeberg-Fischer have followed a cohort of Swiss medical school graduates for more than seven years with both repeated surveys and a nested case-control study and showed that having a mentor was not predictive of job satisfaction [20]. However, mentorship did predict self-perceived career success [20].

2 *Academic clinicians who were mentored got more research grants* [moderate quality evidence; 27, 28]. Mentorship can enhance productivity. For example, a survey within a nested case-control study found that mentored primary care fellows were two to three times as likely to be a principal investigator on a research grant [28].

3 *Academic clinicians who were mentored reported more protected time for scholarly activities and produced more publications* [moderate quality evidence; 17, 26, 29–31]. A survey of more than 3000 faculty members in the US found that those with a mentor had more time allocated to research (28% vs 15%, $p < 0.001$) than those who didn't have a mentor [26]. In another study, survey respondents who had a mentor were more likely to allocate more time to research and were more productive in research in terms of their numbers of grants and publications [28].

4 *Academic clinicians who were mentored were promoted more quickly* [moderate quality evidence; 8, 18, 32]. Not surprisingly, given that mentorship is associated with greater productivity of academic outputs, mentorship seems to facilitate academic promotion. For example, a study of Canadian obstetrics and gynecology fellows found that those who reported that they had a mentor were more likely to achieve a promotion (hazard ratio 2.3; 95% confidence interval 1.36–3.99) [32]. Surveys in the US, Canada, and Germany found that the absence of effective mentoring was a major obstacle to a successful academic career [8]. In a small survey of 12 faculty, Daley and colleagues found that having a senior mentor was a factor in determining promotion [18].

5 *Academics who were mentored were more likely to stay at their academic institutions* [moderate quality evidence; 33]. Mentorship may play a key role in recruiting and retaining staff in academic medicine. For example, in a two-tiered program consisting of one year of preceptoring new faculty (to orient them) plus mentoring junior faculty who had been there for at least a year, 38% of junior faculty who did not form mentor partnerships left the organization, compared with 15% of those who did [33].

6 *Academic clinicians who were mentored reported greater academic "self-efficacy"* [moderate quality evidence; 13, 22]. Academic self-efficacy is defined as the belief in one's ability to succeed in academic medicine. A survey of faculty members at the University of California, San Francisco reported that those who had a mentor reported significantly greater academic self-efficacy than those without mentors [13]. Similarly, Dutta and colleagues found that having a mentor was associated with both self-efficacy and self-esteem [22].

There is less literature available on the impact of mentorship on mentors, and we identified just two recent studies that explored this issue [22, 34]. In a survey of mentors for medical students, mentorship was reported to reinvigorate interest and lead to personal and professional growth [34]. In their before-and-after study, Dutta and colleagues documented mentors' enjoyment in being able to help solve mentees' problems, "to give back,"

provide support, see their mentees develop, and in using the mentorship to reflect on their own careers and skills [22].

Gaps in the evidence

As we emphasized at the outset, there are no randomized trials of mentoring. While completing a multi-centered randomized trial of mentorship would be challenging, we repeat our invitation to colleagues who might wish to collaborate in designing and executing the stepped wedge cluster randomized trial described earlier in this chapter. Short of this, longer-term cohort studies of aspiring academics, with and without mentors, which examine the impact of mentorship on the retention, productivity, ability to mentor others, quality of life, and satisfaction of mentees would shed important additional light on its risks and benefits.

Bottom line and scenario resolution

We conclude that effective mentorship is vital to career success. It produces benefits for both mentors and mentees. Conversely, we conclude that absent or failed mentorship leads to lower productivity and hampers the ability to achieve career benchmarks and personal growth. In the next few chapters of this book, we will present some ways to think about mentors, mentees, mentoring strategies and tactics, and how to develop and monitor a mentorship program.

Returning to the scenario that opened this chapter:

1 You develop a working group of 8 to 10 colleagues from your department including those from different career paths (clinician educators, investigators, administrators) and rank (assistant, associate, and full professor). You use purposive sampling to ensure that you include colleagues who are perceived as being opinion leaders in your faculty and who could be champions for this initiative, and include skeptics as well as proponents of mentorship.
2 After circulating, discussing, and debating the evidence, your working group concludes that mentoring does far more good than harm to both mentees and mentors, and ought to be systematically implemented in your department. You create a one-page summary with key messages that outline your conclusions. If accepted by your chair, these messages will form the rationale for your mentorship strategy and will be used to engage others in the mentorship program.
3 You present your report to your chair, who – after vigorous debate – is won over by both the quality of your review and the strength of your conclusions.
4 She agrees to support you in carrying out a "needs assessment" with your faculty members to begin to better understand the need for mentorship amongst your colleagues. As a result, your working group conducts a survey

to determine how many faculty members currently have a mentor, want a mentor, are a mentor, or are interested in becoming a mentor.

5 Your survey documents widespread dissatisfaction with the current, informal "hit-and-miss" mentoring that exists in the department, and widespread advocacy of an organized mentoring program with the initial goal of providing mentors to every senior trainee and all new faculty.

6 Your chair agrees to fund a start-up mentoring program (including support staff).

7 Finally, your chair sends formal letters of commendation to you and your committee members for you to add to your promotion and tenure dossier.

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