

Formalizing a Residency Mentorship Program with a “Business of Medicine” Curriculum

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ABSTRACT

BACKGROUND: Mentorship is critical for achieving success in academic medicine and is also considered one of the core professional competencies for residency training. Despite its importance, there has been a decline in the mentor-mentee relationship, largely due to time constraints and lack of clear guidelines for productive discussions. We provide a mentorship curriculum with an easily adoptable workbook which may serve as a guide for programs seeking more formalized mentorship opportunities.

METHODS: We created a mentorship curriculum that was divided into 4 quarterly sessions, each with topics to facilitate career guidance and development, and to provide insight into the practical aspects of business of medicine. The mentorship pilot curriculum was implemented during the 2017 to 2018 academic year. Specific questions were provided to stimulate reflection and appropriate discussion between resident mentee and faculty mentor. A post-curriculum survey was distributed to evaluate the effectiveness and satisfaction of the curriculum.

RESULTS: A total of 23 residents participated in this pilot project. A majority had not had any formal teaching related to the business aspects of medicine (82%). Upon completion of the curriculum, most residents felt several topics were sufficiently covered, and a majority were satisfied with the course and relationship developed with their mentor (87%).

CONCLUSIONS: Our pilot curriculum provides a model to address a knowledge gap in the practical aspects of medicine while simultaneously enhancing residency mentorship. The one-year course was generally well-received by residents and can serve as a model to other academic residency programs with similar challenges and goals.

KEYWORDS: medical education, curriculum development, mentorship, residency, business of medicine, workshop

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Background

Mentorship is critical for achieving success in academic medicine. As with the biomedical and basic sciences, effective mentorship plays a critical role in the professional growth and development of students, residents, and faculty. For many trainees, residency represents the first mentor-mentee interaction. Likewise, many medical educators have little experience or formal training in assuming the role of a mentor.

Mentoring is considered a part of the “Professionalism” core competency defined by the Accreditation Council for Graduate Medical Education (ACGME).¹ Within training residencies, mentorship serves several specific purposes. First, academic mentorship in training dates back to the 19th century as an essential element in developing the future of the profession.² It is linked to recruitment within academic medicine, and in developing interest such as fellowships among junior trainees.³ Second, mentors demonstrate characteristics that residents can emulate and provide actionable advice for improving clinical performance. Finally, mentors prepare trainees for the practicalities of a career after residency.

Despite the importance of mentorship, there has been a decline in the mentor-mentee relationship at the residency level.^{1,4} In receiving feedback on our formal mentorship program, many residents admitted that the mentor-mentee relationship was under-utilized, and both mentors and mentees lacked clear objectives or guidelines for discussions. In many instances, arranging regular meetings was a barrier as well.

Coupled with the decline of this crucial relationship, there has also been growing gap in the knowledge and comfort level among residents when addressing practical aspects of medicine. This deficit in the “business of medicine” is seen throughout training programs, with less than one-third of residency graduates feeling comfortable with practical aspects of medicine and feeling well-prepared for these elements after training.⁵⁻⁷

We aimed to address both issues with the implementation of a mentorship “workbook” that would provide a curriculum to address practical issues relevant to residents, while cultivating a more meaningful longitudinal mentor relationship. In developing our curriculum, we emulated previous successful mentorship programs by incorporating their efficacious aspects of (1)



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encouraging proactive and self-reflective mentee commitment, (2) selecting mentors who support both academic and personal growth, and (3) providing institutional guidance for mentorship establishment.⁵ Our primary aim was to enhance the mentor-mentee relationship through the development of clear objectives that can be replicated by other academic residency programs.

Methods

Each neurology resident was paired with a unique faculty mentor. Mentor selection was performed by the program director based on faculty who have shown dedication, interest, enthusiasm, and willingness to participate in resident education. Furthermore, effective mentors were selected based on the following characteristics of “outstanding mentors” described by Cho et al:⁶ (1) having admirable personal qualities, including enthusiasm, compassion, and selflessness; (2) being career guides, offering a vision but purposefully tailoring support to each mentee; (3) making strong time commitments with regular, frequent, and high-quality meetings; (4) supporting personal/professional balance; and (5) serving as role models. Faculty who received consistently positive evaluations on their teaching and mentoring from residents are considered each year as a resident mentor. Mentors and mentees were asked to meet at least once per quarter during the 2017 to 2018 academic year to guide them throughout their residency, and to connect them with other appropriate faculty who could similarly help develop their career interests.

The following objectives were proposed for the mentorship program: (1) to discuss career interests and provide suggestions, guidance, and connections to aid in career development; (2) to assess overall wellbeing and screen for burnout; (3) to discuss reading plans; (4) to facilitate career planning and achievement of career objectives; (5) to provide insight into the practical aspects of the business of medicine as an extension of a business of medicine conference series.

In order to facilitate the mentor-mentee relationship, residents were expected to arrange quarterly meetings and complete a self-reflection worksheet prior to each meeting to set expectations for topics of discussion. The quarterly worksheets are provided as Table 1 and include specific timeframes and objectives for each session. Residents are provided these worksheets as a booklet at orientation and are encouraged to bring their completed workbooks for discussion at their bi-annual evaluation meeting with the residency Program Director.

The formal ‘Business of Medicine’ curriculum was delivered to neurology residents throughout the academic year as 8 noon-conference lectures; lecture topics are listed in Box 1. It was expected that residents would discuss lecture content and applicability to their personal careers with their mentors during the aforementioned mentor-mentee meetings.

At the end of the academic years 2017 to 2018 and 2018 to 2019 following curriculum implementation, a 13-item

post-curriculum survey was distributed via e-mail to neurology residents. In addition to questioning resident’s future career plans, the survey assessed curriculum impact with questions: (1) “how would you rate the training you received through the Business in Medicine Curriculum?” with response options poor/fair/good/excellent, and (2) “were you satisfied with the training you received?” with response options not at all satisfied/somewhat satisfied/satisfied/very satisfied. Residents were asked to specify how well each topic was taught by selecting response options sufficiently taught/somewhat taught/neutral/somewhat neglected/neglected/largely neglected.

The project was deemed by authors to be exempt from institutional review board (IRB) review based on Northwestern University IRB Exempt Review Category 1 (<https://www.urb.northwestern.edu/exempt-review/>), as the surveys were conducted in an educational setting involving curricular changes that were not likely to adversely impact residents. The intervention was thus not taken to the IRB.

Results

A total of 23 residents participated in the curriculum, and all were given a post-curriculum survey focused on their knowledge and comfort on the business in medicine topics. Most residents were post-graduate year (PGY) 3 or 4 residents (61%, $n=14$), without additional advanced degrees (22 with MD only, 1 with MD/MPH). Prior to residency, trainees indicated that their exposure to the business aspects of medicine consisted of either informal teaching (43%, $n=10$) or no training at all (39%, $n=9$), with only 1 resident indicating that he had a formal course in the topic. Specialty and career choice at the onset of the course was varied, with residents indicating an interest in at least 6 neurology subspecialties, a preference toward mostly outpatient practice (65%, $n=15$), and a plan to pursue a clinically focused practice in an academic setting (56%, $n=13$).

Assessed by the post-curriculum survey, the majority of residents felt that the training they received in the conference series was either “fair” or “good” (78%, $n=18$) and they were either “somewhat satisfied” or “satisfied” with the course and relationship they developed with their mentor (87%, $n=20$). When asked how prepared they felt for specific aspects of medical business practice, the majority of residents felt moderately or extremely prepared for all topics, with the highest percentages for Transitioning to Academic Practice (91%), Navigating a Research Career (78%), and Financial Planning (78%) (Figure 1). The majority of residents felt that the following topics related to academic medicine were sufficiently or somewhat taught: Transitioning to Academic Medicine (83%) and Navigating a Research Career (74%). Though still the majority, a lower percentage of residents felt that business-centered topics were sufficiently or somewhat taught: financial planning (65%), transitioning to private practice (65%), and health care economics (56%) (Figure 2).

Table 1. Pilot curriculum for residency mentorship.

SESSION		MENTORSHIP TOPICS		SPECIFIC QUESTIONS FOR REFLECTION & DISCUSSION	
Quarter 1 (Jul-Aug): getting started	<ul style="list-style-type: none"> A. Acclimation to Environment & Role B. Career Interests/ Objectives C. How to Align with Your Career Interests 	<ul style="list-style-type: none"> A1. How do you handle stress and work-life balance? A2. What is your reading plan? A3. How do you feel you are doing with regard to: (a) Presenting patients; (b) writing notes; (c) localization; (d) efficiency B1. Consider the following career paths and your level of interest in each: (a) Primary researcher; (b) Mix of research and clinical care; (c) Primarily clinical with research as a collaborator; (d) Clinical care with clinical scholarship as academic focus; (e) Clinical care with education as academic scholarship focus; (f) Other? C1. How does your available time, resources, and department/division expectation compare to your personal and career objectives? C2. What barriers or hurdles do you currently see to achieving your career objectives? 			
Quarter 2 (Sept-Dec): self-assessment	<ul style="list-style-type: none"> A. Reflect on your accomplishments B. Reflect on your skills C. Reflect on your scholarship D. Reflect on guidance and mentorship you receive and provide 	<ul style="list-style-type: none"> A1. What are your professional accomplishments to date (including training accomplishments and professional visibility/reputation)? A2. How do these accomplishments compare to others at your stage of training? B1. What skills have you gained that will help you in your career? B2. What skills do you still need to gain to achieve success in your field? C1. What scholarly activity, publications, and/or projects have you completed? C2. What scholarly work are you planning? C3. Grant-seeking activities (if applicable) – To what degree do you need funding for your research and/or other scholarly activity? If you need to seek funding, what do you need it for – that is, protected time, hiring others to work on your research, supplies, etc.? How skilled are you in knowing where you can obtain the funding you need and how to write the kinds of proposals they expect? To what extent does your track record to date position you to be a research collaborator vs. someone who can lead research? D1. In what ways are you currently receiving the mentoring you feel you need? D2. In what ways are you currently lacking the mentoring you need? D3. What do you need to further your progress toward your goals and who can help you facilitate that? 			
Quarter 3 (Jan-Mar): looking ahead short-term	<ul style="list-style-type: none"> A. Checking In B. Training goals – the next 12 months C. Mentoring/Networking – the next 12 months 	<ul style="list-style-type: none"> A1. How do you handle stress and work-life balance? A2. What is your reading plan? A3. How do you feel you are doing with regard to: (a) Presenting patients; (b) writing notes; (c) localization; (d) efficiency B1. What do you want to accomplish in terms of scholarship and training goals over the next 12 months? B2. Why have you chosen these as your objectives? What will they add to your efforts to achieve your career goal? B3. What will happen if you don't achieve them in the next 12 months? B4. Are these goals realistic? B5. What, if any, new skills do you need to develop in the next 12 months? B6. Why are these skills important to work on now? What will they enable you to do or be in the future? C1. What specifically do you need from mentors over the next 12 months? C2. How can you take the lead and responsibility to make sure your mentors know what you would like from them and how you will guide the processes to make it happen? C3. Are you mentoring anyone? C4. What do you need to work on to improve or expand the size and quality of your professional network? 			
Quarter 4 (Apr-June): Looking Ahead Long-Term	<ul style="list-style-type: none"> A. Training goals – the next 3 years B. Post-graduation plans C. Addressing & Anticipating Challenges 	<ul style="list-style-type: none"> A1. What do you need and want to accomplish by the end of the next 3 years to position yourself to be on target to achieving your career objectives? A2. Are you doing anything now that may detract from that goal? A3. What milestones do you need to meet 2 years from now? 3 years from now? A4. What assistance or help do you need in meeting your milestones, and how do you plan to get that assistance? B1. What are your ambitions/plans post-graduation from residency? B2. What guidance do you need to achieve these goals? C1. What are the biggest challenges or issues you face on a regular basis that deflect you from making progress toward your objectives? (eg, – time management, competing time demands, procrastination, insufficient quantity or quality of time from mentors, etc.) C2. How can you address these challenges? 			

Discussion

Our pilot curriculum meets unmet needs with regard to both mentorship and career development regarding practical aspects of medicine and can be easily reproduced by other training programs. The results from this initiative suggest that a majority of trainees enter residency with little or no formal training in practical aspects of medicine. The quarterly curriculum proposed here provided residents with formal opportunities to cultivate a mentor relationship throughout the year, while become more comfortable and competent in several pragmatic areas related to future practice.

A systematic review by Sambunjak et al found that less than 50% of medical students and less than 20% of faculty members had a mentor.⁴ Ramanan et al found similar results, with the challenges particularly magnified for women and underrepresented minorities.¹ Yet mentorship is known to be critical in career development. In a survey to general surgery residents, nearly 50% reported their decision to pursue general surgery was influenced by a mentor.³ Similarly, nearly 60% of neurology residents attributed their fellowship decision to an

influential mentor.⁹ Moreover, physicians who have mentors are more likely to obtain competitive grants, to publish, and to be promoted.⁷

A second need that was fulfilled with our curriculum was addressing the practical aspects of medicine. The knowledge deficit in “business of medicine” is seen throughout training programs, with less than one-third of residency graduates feeling comfortable with practical aspects of medical practice.^{5,6} Within neurology, only 35% of recent graduates reported feeling well-prepared for the practical aspects of a career after residency.⁷ While there is a need to address these deficiencies for graduates entering independent practice, there can also be a tangible benefit to teaching this while in residency.⁸

Some of the biggest hurdles to mentorship seem to be finding effective mentors, and devoting regularly scheduled time to develop longitudinal and meaningful relationships. This is especially true given the increasing demands on trainees to not only master clinical knowledge, but also several practical aspects of medicine, in an increasing complex and administratively heavy medical environment. In our curriculum, pre-arranged workshops eliminate the difficulties of arranging mentor-mentee meetings and provide specific topics and points of discussion with objectives that give structure to facilitate a strong relationship. Additionally, pre-assigning mentors provides a point of contact early on in residency, and provides residents with a reliable resource to guide them and cultivate their academic interests. A potential disadvantage to random pairing is that mentors and mentees may not share scholarly interests. This is a limitation of our model, but we feel that selecting mentors based on their personal qualities and teaching abilities is most critical, as they can later help mentees identify and connect with specialty-specific mentors as they progress in the program. Faculty are incentivized to continue participating in the program through a system in which the department converts teaching activities into financial bonus awards.

Box 1. Business in medicine topics covered in conference series.

TOPIC
Medical Documentation
Health Care Economics
Navigating a Research Career
Transition to Academic Practice
Transition to Private Practice
Contract Negotiations
Financial Planning
Practice Management/Understanding wRVUs

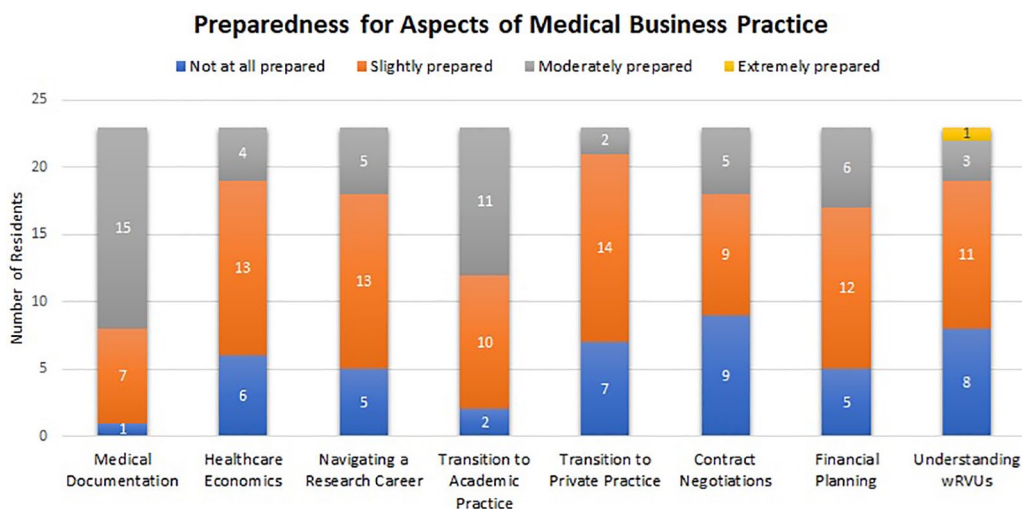


Figure 1. Preparedness for aspects of medical business practice.

In the post-curriculum survey, residents were asked to assess their preparedness for various topics of medical business practice. A total of 23 residents completed the survey.

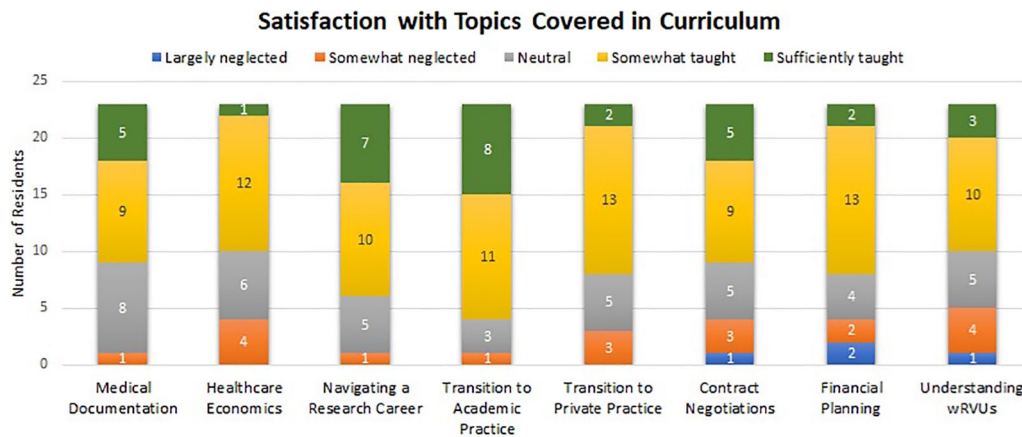


Figure 2. Satisfaction with topics covered in curriculum.

In the post-curriculum survey, residents were asked to specify how well each of 8 topics were taught during the lecture series by selecting response option sufficiently taught/somewhat taught/neutral/somewhat neglected/neglected/largely neglected. A total of 23 residents completed the survey.

Specific strengths of our pilot curriculum model include the lectures on academic medicine topics, as these were deemed sufficiently taught by the greatest percentage of residents, and the majority felt moderately or extremely prepared in this subject matter post-curriculum. The other lecture topics, with more focus on business practice, will be audited for content and delivery quality, and improved upon moving forward. Additional modifications to the program will include deploying a standardized pre-curriculum survey to assess pre-curriculum resident knowledge and comfort level with applicable topics. Future post-curriculum surveys will assess the mentorship aspect of the curriculum with specific questions regarding mentor-mentee relationship, meeting frequency and quality, and solicitation of feedback and suggestions for improvement.

With iterative improvement to the Business of Medicine and mentorship curriculum beyond this pilot period, we anticipate that residents will report greater satisfaction with their training with regard to practicalities of business of medicine and will feel more prepared for the practicalities of a career after residency. We also anticipate that residents and mentors will engage in more independent interactions as a result of the workshop interactions leading to greater mentor-mentee engagement.

Conclusion

Quality mentorship is deeply rooted in neurology and academic medicine, and the benefits of this span across multiple levels, from promoting interest in the field, to teaching about the practicalities of a field, to role modeling behaviors. The mentor-mentee relationship has declined over the years due to multiple challenges, particularly to the increasing demand for time on part of both the mentor and mentee. In addition, there is a growing gap in the need for practical business skills among trainees, and a lack of structured process dedicated to this. Through implementation of a formal mentorship curriculum with a workbook that can be easily transferred to any program

in the country, we believe we can address these issues, while simultaneously improving the mentor-mentee relationship.

Authors' Contributions

AS, DL, GC and DB contributed to the design of the project, review of datasets, drafting and revision of manuscript drafts. DL contributed to administration of survey and compilation of data. AS and DB contributed to review of review of manuscript draft. All authors have read and approved the final manuscript.

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Availability of Data and Material

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

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