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Contemporary Topics in
Graduate Medical Education
Volume 2

*Edited by Stanislaw P. Stawicki,
Michael S. Firstenberg, James P. Orlando
and Thomas J. Papadimos*



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Preface

Graduate medical education (GME) continues to evolve. During the past two decades, evidence-based approaches began to increasingly transform the way we educate, evaluate, and promote GME trainees. Key to this transformation is our ability to recognize that broadly defined “medical education” constitutes a true lifelong continuum, beginning with pre-medical education, then proceeding to medical school, residency (and potentially subsequent fellowship) training, and then finally the so-called maintenance of certification that continues throughout one’s entire professional career.

This book touches upon various aspects of GME-specific innovation, beginning with an exploration of various challenges and opportunities associated with the modern graduate medical education environment. The reader is then introduced to the concept of “coping intelligence,” a paradigm that builds on the framework of “emotional intelligence,” and extends that paradigm into the realms of chronic and/or severe stress (often experienced by GME trainees). Within the latter context, the authors also discuss the importance of “work-life integration” as an extension of the traditionally understood “work-life balance.”

The book then transitions into the topics of professional coaching and mentorship, which are critical components of an effective GME system, the transition-to-practice period, and the subsequent professional development and career-long learning paradigm. A further compendium then follows, dedicated primarily to mentorship and related areas, specifically as they relate to graduate medical education trainee experience. Taken together, these two chapters provide a solid foundation upon which readers can build their own professional support networks.

The importance of an excellent patient-provider relationship is highlighted in the subsequent chapter. Elements critical to establishing and maintaining excellent working clinical partnerships with patients and their families are presented. In addition, an in-depth discussion of the many benefits of a positive patient-practitioner relationship is provided, with emphasis on various successful initiatives, examples, and behaviors. The chapter also provides a practical correlation with directly relevant associated educational curricular elements and interventions during both medical and postgraduate medical education.

The book then transitions to a discussion of the coronavirus disease 2019 (COVID-19) pandemic and its effects on medical education in general, with a specific focus on GME and various behavioral health aspects. Various strategies to address the challenges of coping with an overwhelming event, such as the COVID-19 pandemic, are presented. The topic of COVID-19 then continues into the subsequent chapter, with emphasis on the use of modern technologies and web-based approaches to facilitate residency and fellowship interviews during an active pandemic.

The next two chapters focus on topics directly related to GME program management. The first discusses the process of establishing new GME programs in a large teaching hospital setting. The second discusses the various challenges and

opportunities associated with residency program mergers, focusing on real-life examples and experiences. Different aspects and perspectives are incorporated in a balanced fashion, including those of residents, faculty, and program leadership.

The book concludes with two very important contributions, further expanding the scope of the current collection. The first chapter presents key aspects related to gender equity among physicians, focusing on academic general surgery as the primary area of discussion. The importance of diversity, equity, and inclusion is highlighted. The second chapter touches upon community-based medical education, with key components required for programmatic success outlined by the authors.

We hope that this structured collection of chapters on key GME topics will provide our readers with a solid foundation for further research in this important area, as well as powerful tools for professional growth and development. When commencing the work on the current book, it was our goal to create an innovative, high-quality platform that will become one of the “go-to references” for professionals navigating the complex landscape of modern GME.

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Introductory Chapter: Navigating Challenges and Opportunities in Modern Graduate Medical Education

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1. Introduction

Modern graduate medical education (GME) continues to evolve and transform, with increasing emphasis on evidence-based approaches, general competencies, objective assessment, and focus on value-and-quality considerations [1–3]. GME represents the gradual transition between what is traditionally understood as “undergraduate education” (including medical school) and one’s full professional engagement within a medical or surgical specialty [4, 5]. The concept of “readiness for practice” has emerged as an important driver of how graduate medical training is adapting to each trainee’s individual needs and accomplishments, with milestone-based re-calibrations throughout the learning continuum [6, 7]. This results in the creation of a highly competent medical workforce ready to meet the expectations and sophistication of a busy, modern-day clinical practice [5, 8]. As part of this transition, contemporary GME’s character has evolved beyond a well-established repertoire of didactic techniques, increasingly embracing immersive simulation, multimedia platforms, and various emerging real-time feedback technologies [9–11].

Consistent with the current book series title, *Contemporary Topics in Graduate Medical Education*, our editorial team and chapter authors are focused on sharing their thoughts and wisdom regarding the optimal approaches to preparing future generations of physicians (**Figure 1**). Parallel to the current GME paradigm shift, we clearly observe that the nature of physicians’ work continues to change and evolve [12, 13]. The themes underlying this transformation will create unique opportunities and challenges for tomorrow’s physicians, requiring an in-depth re-engineering of the established construct of “readiness for (independent) practice” [14, 15]. Within this overarching context, modern GME experts must navigate the careful balance between “the art and science” of medicine.

amount of personal and professional stress, and because it is virtually impossible to separate the “clinical life” from the “home life,” concepts such as burnout, resilience, and work–life integration (as opposed to the increasingly outdated paradigm of work–life balance) begin to emerge [28, 29]. The latter paradigm is especially important in the context of training “practice-ready” physicians in the era where our daily routines are increasingly defined by technological implementations, such as electronic medical records [30]. Novel developments in work–life integration include a rapidly growing area of “coping intelligence” – one of many innovative topics in this book [31, 32].

4. Embracing technology: telepresence and virtual platforms in graduate medical education

Graduate medical education is not a random process; individuals who graduate from medical schools and begin the residency training process dedicated themselves to attaining the goal of becoming a physician from much earlier in their lives [33]. As their journey through the decade-long quest to join the medical community continues, new challenges emerge and many important life lessons are learned. For the most recent generation of medical trainees, the COVID-19 pandemic has become a defining, once-in-a-generation (if not once-in-a-century) event. In this book, we discuss some of the adaptations by the GME community in response to the global pandemic. One of such adaptations – “virtual interviews” – helped leverage the existing technologies to transform our well-established candidate selection/match process [34].

Due to the COVID-19 pandemic, the use of telemedicine has increased markedly in the medical world, including resident education. Residents are now expected to navigate through the new world of telemedicine with little guidance or instruction, and minimal to no experience. Almost overnight, telemedicine became the main means of communicating with patients, especially for outpatient visits, and was used extensively during the pandemic. The Accreditation Council for Graduate Medical Education (ACGME) responded to this immediate need by setting up a framework for permitting residents/fellows to use telemedicine for patient care [35]. However, some residents reported a degree of unease in managing chronic diseases via telemedicine visits [35]. Careful consideration of how telepresence affects resident education and patient care, including further development of guidelines for its use, will be necessary as telemedicine services continue to grow.

5. Addressing critical shortages: investing in the next generation of primary care physicians

Primary care remains the cornerstone of modern, highly progressive, patient-centered, integrated healthcare systems, and the need for primary care providers (PCP) remains a global priority [36–38]. Regions with the best-performing healthcare systems tend to have the highest percentage of PCPs [39]. Consequently, numerous initiatives are underway to address the looming shortages, including the development of more targeted high-school/college career “pipeline” programs, medical training innovations, office practice transformation, and compensation/payment reforms [40].

6. Training future leaders: the growing importance of physician leadership and leadership education

Leadership in healthcare is extremely important, and there needs to be more emphasis on fostering the development of physician-leaders within our GME

programs [25]. The physician's primary purpose is patient care, accompanied by the education of patients, students, residents, colleagues, and various decision-makers within the society. In doing so, physicians bear the social responsibility of not only individual healthcare, but also the public's general health and well-being. Beyond this, it is critical that physicians understand what leadership is, are skilled in applying it, and know how to effectively interact within the "leadership sphere." As such, they will be well suited to advocate for patient safety, efficacious delivery of care, and financial stewardship of resources – factors required for sustainable healthcare.

Contemporary Topics represents a tremendous effort by many GME leaders, and this second Volume will hopefully serve as a foundation for further texts as educators continue to explore the general question of "what are the best approaches to train tomorrow's doctors?" The challenges are great as both the goals and the overall GME landscape continue to evolve rapidly. Above all, a physician is an individual who is responsible for the health and well-being of his or her patients. However, being a physician is not limited to providing healthcare services or medical/administrative leadership but extends beyond these functional domains. Consequently, physician education must ensure a certain degree of proficiency across all relevant spheres of professional functioning. In addition, unique challenges may arise regarding the most optimal ways of instilling the sense of "ownership" regarding patient outcomes and creating accountability within a framework where constructive feedback is not perceived as unfair or punishing. These concepts, especially as they relate to the ethical basis of "what physicians do" at the fundamental level, permeate throughout this text, along with the key question related to GME – "how do we best educate physicians-in-training"?

Interprofessional education is becoming increasingly important as an integral part of modern GME methodology [41]. Within interprofessional collaboration, the most fundamental operating principle is the maintenance of multilateral communication, respect, and open-minded attitude [42, 43]. As more areas of medicine evolve toward team-based and multidisciplinary models of care, we must actively pursue effective ways to train physicians to embrace the leadership of interprofessional, collaborative, and team-based models [44–47].

Effective multidisciplinary teams require strong, yet flexible, leaders who possess a good understanding of clinical research and key scientific principles, the ability to comfortably approach complex disease states and pathophysiology, familiarity with medical economics, ethics, diversity and inclusion, as well as skills required to build and maintain collaborative relationships across disciplines [25]. Physicians are uniquely suited to provide such leadership, and it is critical for our GME systems to adequately prepare such leaders of tomorrow by teaching flexibility, nimbleness, and adaptability. Our medical education system must effectively adapt and evolve with the times because change is a continuous state of this noble profession.

Unfortunately, as we argue for physicians to emerge as leaders and wear several "hats" all at once, the time crunch of everyday clinical practice stands in stark contrast to this call. Physicians find themselves unable to "do it all" as "patient-consumer" demands, new technologies, and increased administrative burdens [48] become more prominent. Because the evolution of medicine is inevitable and ultimately a necessity, the physician of the future may be prone to misperceive himself or herself to be overwhelmed or potentially even redundant. If physicians are expected to teach, listen, innovate, and lead, in addition to the traditional procedural and diagnostic aspects of the job, then the time dedicated to such pursuits must be re-allocated from some other aspect of their professional life. This would seem particularly true for primary care physicians who appear to be disproportionately affected by the often competing time pressures [49].

Although controversial, physicians may have to "give up" some of their traditional role to take on new challenges. Some solutions could include outsourcing

diagnostics to artificial intelligence and advanced electronic medical record (EMR) and software [50, 51]. Additionally, particularly in the case of outpatient primary care and hospitalist practice, physicians and physicians-in-training may face the risk of being increasingly replaced by advanced practitioners [52, 53] with little or no perceptible compromise to patient safety or satisfaction. Similarly, one study points out that physical therapists could replace physicians during encounters for assessment of knee osteoarthritis and other similar conditions [54].

This outsourcing of work may ultimately improve the primary care shortage, without increasing the cost to the healthcare system at large. Additionally, it may lessen the time constraints on physicians while enabling them to take on more leadership and teaching roles. However, as physicians render themselves increasingly redundant or replaceable in more fields, there is also the danger of devaluation of the profession itself. Any solutions to the above will require a fine balance involving the creation of appropriate synergies between advanced practitioners and physicians, and the associated process will necessitate significant amounts of time and investment by all stakeholders. This delicate equilibrium is one area that will need to be addressed in GME training - the creation of a carefully crafted framework that fosters the interplay of team care models and inclusivity. It is a unique opportunity to include all types of clinicians in shaping the future of patient care in the post-COVID era.

7. Focus on diversity, equity, and inclusion

It is of utmost importance for the medical community (and the society, in general) to address the challenge of, and opportunity for, inclusion and advancement for underrepresented minorities and women in medical leadership positions. There is an established bias in academic medicine leadership, which, if not addressed, will continue to propagate. Only 21% of women are full professors and only 15% of department chairs are female [55, 56]; moreover, a disproportionately small 8% of academic faculty are underrepresented minorities [56]. This gap is very likely to widen post-COVID. We will not fully understand the toll of the COVID-19 pandemic, but the tremendous burdens placed by our society on women physicians have resulted in formidable challenges for maintaining clinical practice. Addressing this fundamental issue, especially within GME, is of highest priority. If properly structured and implemented, solutions based on diversity, equity, and inclusion will lead to improved health care and outcomes for patients, which is our ultimate goal.

A simple yet profound concept in medical learning is that of interdependent opposites: presentation of opposing ideas to explore the alternatives and stake out the trainee's own position on a given matter. Through this repeated exercise, the trainee develops a medical attitude that informs future decision-making and philosophy. Ultimately, this allows expression of the developing practitioner's unique medical personality, a blend of personal thought and collective information grounded in the latest scientific and ethical frameworks.

8. Synthesis and conclusion

Graduate medical education continually evolves to meet the challenges facing physicians-in-training. *Contemporary Topics in Graduate Medical Education* discusses concepts of physician leadership in team-based healthcare models, the lasting impact of the COVID-19 pandemic on medical training and resources, and

the importance of inclusivity and advancement of underrepresented minorities and women in academic medicine. The recognition and ongoing discussion of these topics will be important at the level of graduate medical education. These fundamental sets of knowledge and skills will help positively shape a physician's career to support the development of competent future leaders who have the foundational skills to adapt to the inevitable transformation of medicine and healthcare delivery over time.

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Facing Adversity during Graduate Medical Training: The Concept of ‘Coping Intelligence’

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Abstract

Effective coping strategies are of great importance for trainees actively navigating the challenges and stresses of graduate medical education (GME). Although there is increasing emphasis on the concept of emotional intelligence (EI) in medical curricula, the range of behavioral skills learned in typical EI training may not be sufficient when dealing with extreme stress – something that healthcare students in general, and GME trainees as a subset, continue to struggle with. Under the conditions of extreme stress, multiple competing priorities and high cognitive load, even those with excellent command of EI skills may not be able to universally maintain sufficient emotional control. This, in turn, exposes a significant opportunity for further understanding and development in this dynamically evolving area of investigation. Increasing amount of research suggests that a unique skill set exists, known as ‘coping intelligence’ (CI), that may help fill the gap under the conditions of extreme stress and significantly elevated cognitive load. This chapter will discuss CI as a unique and novel concept, further exploring the possibility of introducing this new construct into the realm of GME.

Keywords: cognitive load, coping intelligence, emotional intelligence, graduate medical education, stress management

1. Introduction

The individual ability to cope with the acute stresses and demands within both professional and personal domains is an important and often overlooked construct, especially in the context of organizational functioning and the ability to appropriately process and respond to external stimuli [1–5]. In the era of near-universal embrace of the concept of ‘emotional intelligence’ (EI) and related topics [6], it is becoming increasingly apparent that the experience of repeated ‘micro-stresses’ and the associated emotional trauma may contribute to the development of burnout and other behavioral health sequelae [7–11]. When compounded by acute elevations in stress levels and cognitive load, as often experienced by graduate medical education (GME) trainees, a set of environmental conditions may create a fertile substrate for both momentary (and at times sustained) loss of emotional control [12–15].

Medical trainees, both graduate and undergraduate, are among the most affected and burnout-prone groups [6, 11]. Consequently, explorations are ongoing into why extensive efforts and research in the area of medical trainee burnout have not appreciably reduced the incidence of this damaging phenomenon [16–18]. As the complexity of the problem at hand became increasingly apparent, so did the need for a more comprehensive and integrated approach to coping with a combination of personal and professional life difficulties [19]. The result is the emergence of the concept of ‘coping intelligence’ (CI) which can be defined as a collection of “efficient individual ways of managing life stress” [20]. In this chapter, we will explore key concepts related to CI, focusing on the graduate medical education (GME) as our contextual anchor. We will also propose a conceptual foundation whereby CI can be thought of as a logical extension of EI, both being functionally important components of the ‘coping continuum’.

2. Methods

Research pertinent to this manuscript was performed using a comprehensive literature search strategy. Internet-based indexing and search platforms used during the preparation of this manuscript included Google™ Scholar, PubMed, and Bioline International. Specific search terms included, but were not limited to, “coping intelligence,” “graduate medical education,” “emotional intelligence,” “cognitive load,” “coping strategies,” “leadership,” “medical training,” and “wellness.” Out of a total of 7,452,110 initial search results, we narrowed down our reference list to approximately 472 results highly specific to our intended area of focus. Further screened and excluded were sources that did not specifically address the concept of coping and/or its relevance and connection to “emotional intelligence” as well as medicine/medical training. After the above screening was completed, our literature sources were narrowed down to the list of 107 citations included herein. Word cloud representative of key terms pertinent to the current chapter is shown in **Figure 1**.



Figure 1. Word cloud representing key words and phrases in this chapter.

3. Coping intelligence: a logical extension of emotional intelligence?

Concepts such as 'Emotional Intelligence' (EI) have been introduced into the area of GME some time ago, and although significant progress has been made in promoting and implementing the much needed change across various medical education settings, there remains an unaddressed behavioral niche that does not seem to fit the 'standard descriptors' and 'routine situations' encountered under high-stress, 'zero-sum game' clinical scenarios or 'no-win' situations [6, 10]. Consequently, the much dreaded phenomenon of physician and trainee burnout (using the definition from Korunka et al. [21].) continues unabated, despite the above efforts to enhance individual ability to cope with the combined macrotrauma of major clinical and life events, combined with the repeated microtrauma of multiple stressful events across different domains of life.

Within this overall context, it is becoming increasingly evident that EI simply stops being effective above a certain – likely highly individualized – threshold of stress and cognitive loading. At that point, no matter how well someone can handle themselves within a 'normal set of circumstances,' loss of emotional control becomes much more likely. As emotional control is lost, one's coping approaches transition from more mature defense mechanisms to increasingly immature defenses (**Table 1**), and he or she is more likely to commit judgment errors and/or become engaged in maladaptive behavior patterns. If the above is indeed the case, how can the awareness of (and training in) CI help one avoid the potentially disastrous emotional 'loss of balance'? Of additional importance to patient safety and patient well-being is the question that we must ask in this context, "what is the effect of the provider's or trainee's emotional state on bedside care?"

4. Current understanding of coping approaches

Literature focusing on individual coping with life difficulties provides limited answers and/or practical solutions [20]. Under the general umbrella term "coping," there are two subdomains – applied problem solving [22, 23] and coping with stress [24]. Early work published by Lazarus and Folkman categorizes coping as either problem-oriented or emotion-oriented [24]. At a more granular level, problem-focused coping is centered on managing and/or regulating a stressful scenario (e.g., when "something can be done") [20]. On the other hand, emotion-focused coping is used to modulate emotional response to a stressor (e.g., when "nothing can be done") [20]. Important within the broader context of CI is the role of problem solving competence through attitudes and belief systems [24, 25]. More recently, combined approaches began to emerge, based on the assumption that the perceived problem-solving effectiveness can be regarded as the degree to which one's actions promote or impede progress toward a resolution of the problem at hand [23].

Essentially, in academic systems, overall levels of stress are generally higher when compared with other areas within the fabric of our society [26–28]. Both professional and social complexities associated with a typical academic position, regardless of whether one's role is a trainee or a teacher, can be overwhelming and may lead to burnout [10, 11, 29, 30]. Additional socioeconomic and diversity-related considerations may also be important in this context [31, 32], and various forms of academic networking appear to be helpful as an approach to ameliorate the demands and overall stress of an academic career [33, 34]. Engagement within a social network may bring some advantages in terms of both greater resiliency and better coping skills [35–37].

Mature		Intermediate		Immature	
Mechanism	Comment	Mechanism	Comment	Mechanism	Comment
Affiliation	When under stress, one shares their problem(s) with others and asks for help	Displacement	Changing the target of an emotion, while the feelings remain the same	Acting out	Performing an extreme behavior in order to express thoughts or feelings the person feels incapable of otherwise expressing
Altruism	An act of goodwill toward another individual	Intellectualization	The use of reasoning to block confrontation with an unconscious conflict (e.g., "thinking" is used to avoid "feeling")	Compartmentalization	A form of dissociation, wherein parts of oneself are separated from awareness of other parts and behaving as if on had a separate set of values
Anticipation	Reducing the stress of a difficult challenge by anticipating and preparing for dealing with that challenge	Rationalization	Justification of attitudes, beliefs, or behaviors	Denial	Refusal to accept reality or fact, acting as if a painful event, thought or feeling did not exist while being apparent to others
Compensation	A way of coping with challenges in one area by overachieving in another area	Repression	Unconsciously removing an idea or feeling from consciousness	Dissociation	Separation or postponement of a feeling that normally would accompany a situation or thought
Self-assertion	Dealing with stress by expressing one's thoughts and feelings in a way that is not aggressive, coercive, or manipulative	Undoing	Attempting to "cancel out" or remove an unhealthy, destructive or otherwise threatening thought or action by engaging in contrary behavior	Projection	Attribution of wishes, desires, thoughts, or emotions to someone else
Self-observation	Dealing with challenging or stressful situations by reflecting on one's own thoughts, feelings, motivations, and behaviors, followed by an appropriate, rational response	Reaction formation	Acting the opposite of what one thinks or feels. Assuming attitudes and behaviors that one consciously rejects		

Mature		Intermediate		Immature	
Mechanism	Comment	Mechanism	Comment	Mechanism	Comment
Sublimation	Channeling of an unacceptable impulse in a socially acceptable direction			Regression	Returning to an earlier stage of development
Suppression	Consciously removing an idea or feeling from consciousness				

Table 1.

List of various defense mechanisms along a continuum (from mature to immature). Broadly defined, mature defense mechanisms are characterized by a healthy and conscious relationship with reality (e.g., reality is accepted even when it is not appreciated). Immature defenses, on the other hand, are psychological processes that facilitate the suppression of emotional awareness (e.g., unacceptable or painful reality is not accepted).

Medical students, residents, and medical faculty are generally considered to be highly talented and competitive. According to Fabio and Buzzai, “The most common traits associated with giftedness are: high sensitivity, higher speed of thinking, introversion, high emotional development, elevated creativity, independence, perfectionism and *interpersonal and intrapersonal conflicts* [38].” Physicians, generally, may not be introverted, but much of the description above can apply to them. It is important to note that the literature has indicated that EI, coping style and creativity coexist within a complex relationship, and can affect the health of an individual [38–42].

Fabio et al., show that among key characteristics of individuals who are able to deal with problems and challenges more effectively is the ability to think in a flexible manner, which in turn seems to facilitate innovative solutions to complex tasks, often approached from different viewpoints or angles and featuring more granular details and conceptualizations [38]. However, this does not mean that the more talented have greater EI and are more resilient. Fabio et al. show that highly talented individuals may have the propensity to utilize avoidance coping instead of more direct coping approaches or strategies [38]. In other words, CI becomes very important as an adjunct to EI. Coping intelligence has been defined as “efficient individual ways of managing life stress,” and can be further defined as, “a broad repertoire of life skills required to solve successfully everyday stress and life adversities in order to achieve desired goals and maintain physical, mental, and social well-being [20].”

A positive coping model emerged recently, championed by Libin [19, 20]. This multi-dimensional positive coping model (MDPCM) provides a framework for an objectivized assessment, Coping IQ [19, 43]. In this model, CI is defined by the quality, functionality, repertoire, and efficiency of cognitive, emotional, and behavioral strategies that individuals resort to when approaching stressful or otherwise difficult circumstances [20]. In brief, the new model categorizes efficient and inefficient coping strategies based on “their functionality or the organization of coping efforts,” and not on their modality [20]. Consequently, the MDPCM is characterized by: [a] The primary cross-cutting parameter: organization of the efforts (either efficient or inefficient); [b] The secondary cross-cutting parameter: modality of manifestation (either emotional, cognitive or behavioral); and [c] The cross-cutting tertiary parameter: intensity of efforts (e.g., passive versus active) (**Figure 2**) [20].

Subsequent research showed that: (a) efficient cognitive coping is characterized by cognitive activity that is focused on the resolution of the difficult situation; (b) efficient emotional coping consists of emotional efforts concentrated on the solution to the problem at hand; and (c) efficient behavioral coping is based on behavioral efforts applied toward resolving the difficulties encountered [20]. On the other end of the spectrum, inefficient cognitive coping is defined as: (a) cognitive activity deviating from the difficult situation; (b) inefficient emotional coping that is tied to emotional efforts divergent from resolving the problem at hand; and (c) inefficient behavioral coping consisting of behaviors that deviate from problem-solving [20].

5. Identifying efficient and inefficient coping strategies in trainees

Due to the high levels of stress experienced by GME trainees, it is paramount to identify issues with CI early and develop potential strategies for improvement. Leaders working in Business and Marketing have identified 2 major coping strategies in most individuals: (a) active coping, an efficient strategy, and (b) avoidance coping, an inefficient strategy [44]. As can be seen in **Figure 2**, active versus passive coping is among the key components of the multi-dimensional positive coping model championed by Libin [19, 20].

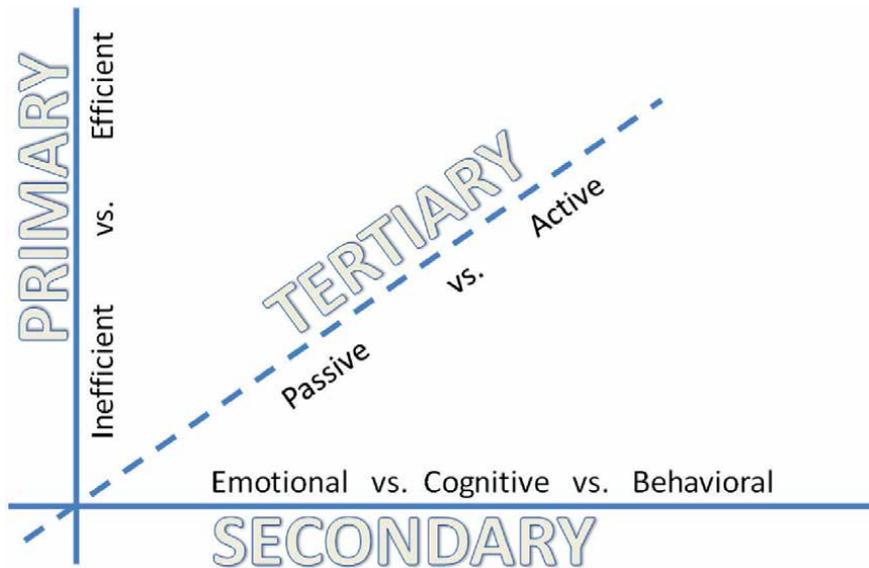


Figure 2.
The three cross-cutting parameters within the multi-dimensional positive coping model championed by Libin [19, 20].

In active coping, individuals identify problems or sources of stress, actively work to remove them, and promote positive outcomes [44, 45]. In avoidance coping, or evasive coping behavior, individuals develop mechanisms for avoiding stress and conflict passively, leading to more negative outcomes—lower job satisfaction, lower job performance, higher burnout, and deleterious consequences on health [44, 46]. Avoidance coping has been proven to increase emotional exhaustion, contribute to a decreased sense of personal pride in one's work, and lead to the development of self-endangering work/professional behaviors [44, 47].

Of importance within our current discussion's context, low EI correlates with worry states, greater degrees of psychological stress, and use of avoidance coping strategies [48]. Competence in EI often leads to effective coping strategies in times of stress, with problem-focused coping in particular leading to alleviation of psychological distress [48]. An important measure of a certain individual's ability to properly cope with stress and adversity is resilience [49]. If a trainee exhibits resilience, this is often a good indicator of his or her stress coping ability [48]. Many mind-body training programs for stress reduction focus on mindfulness and resilience training to mitigate stress, anger, anxiety, and depression.

6. How should coping intelligence be incorporated into existing emotional intelligence training?

The process of integrating CI into existing EI training paradigms can be challenging. First, trainees should be introduced to, and become proficient in, EI itself. This provides a solid foundation for the subsequent discussion and incorporation of CI as a meta-layer that functions as a 'safety valve' on top of EI (**Figure 3**). It is important to note that EI is a powerful moderator of coping strategies and perceived service outcomes, especially in situations where service failure (e.g., inability to deliver services as promised) is present [50]. This is indeed a common scenario within the functional realm of a graduate medical education (GME) trainee.



Figure 3. Simplified diagram showing the ability to transition from “routine” emotional intelligence (EI) skillset to a “more specialized” coping intelligence skillset can be viewed in the context of escalating levels and complexities of stress.

Second, those who made sufficient progress in their EI training (as evidenced through significant improvement on repeat standardized EI assessment tools) should be gradually introduced to the concept of CI. Experience-based group discussions are well suited toward increasing one’s awareness that the ability to handle emotions under ‘normal circumstances’ has its limits, and that despite one’s best efforts there are instances where ‘extreme pressure’ may result in loss of emotional control (**Figure 3**).

Current hospital policies and procedures that help providers/trainees deal with ‘extreme pressure’ in medicine tend to be retrospective in orientation, although there are programs that incorporate prospective measures to improve coping. An example of this is obstetrical hemorrhage. The stress of managing obstetrical hemorrhage can take clinicians and staff from problem-based coping to emotion-based coping in a matter of minutes, compounding errors and potentially leading to devastating outcomes for patients and providers [51]. In the typical scenario, these cases are extensively discussed after the fact using mechanisms such as intense analysis and morbidity and mortality (M&M) conferences [52–54]. These are protected conferences that are meant to highlight quality and safety considerations while also acting as experience-based educational group discussions. Focus on process can build problem-oriented coping skills for future traumatic events.

Many residency training programs have taken a proactive approach to enhance problem-based coping and minimize emotion-based coping. In obstetrics, this is achieved through post-partum hemorrhage drills and group training that can reduce post-partum hemorrhage [55–57]. Adherence to guideline-based care and check-lists can also enhance problem-based coping [58, 59]. This, in turn, facilitates improved coping at the individual level. Although rigorous training (drills) and adherence to checklists can help enhance problem-based coping, there will always be situations that can appear hopeless to the provider/trainee. Preparing trainees to cope more effectively with highly stressful and potentially chaotic situations, such as the management of maternal hemorrhage, will be an important aspect of addressing the need for better overall management of the ‘emotional burden’ associated with low-frequency, high-impact clinical events [60, 61].

GME programs can turn to other strategies to mitigate stress and anxiety. Dedicated support programs were originally initiated to reduce symptoms of burn-out: depersonalization, emotional exhaustion, and diminished sense of personal accomplishment. At the same time, tools that can reduce stress and anxiety may also help enhance efficient coping. Mindfulness training programs have been demonstrated to be feasible – even among the most demanding residency programs [62]. For example, implementing a mindfulness-based cognitive training program for surgical residents showed improvement in perceived stress and interestingly may

have resulted in improved technical skills [63]. In another example, when a broad-based curriculum including mindfulness training was applied to intensive care unit (ICU) providers, there were fewer patient safety events [64].

GME programs can promote efficient coping by enhancing problem-based coping and mitigating the effects of inefficient emotional coping through programs that can reduce stress and anxiety. Running drills for high-stress situations, developing and adhering to guidelines/quality bundles and checklists are all practical methods for improving providers’ and trainees’ problem-based coping [65–67]. The overall goal should be to provide tools to reduce the immature coping mechanisms that can occur in high-stress situations (**Table 1**). Mindfulness programs have been effectively instituted and can help mitigate the over-reliance on emotion-based coping. Taking a prospective approach to coping is likely to have a greater effect than retrospective, peer-protected group discussions such as M&M conferences.

7. What are the potential benefits of implementing coping intelligence programs in a workplace?

It is postulated by the authors that the introduction of CI into a workplace, especially one that is focused on the provision of services, may help with both employee coping under stress and with conflict resolution. Going back to our earlier discussion, the importance of CI may emerge in highly stressful situations where the overwhelming perception is that “nothing can be done” [20]. Under such circumstances, emotions may ‘take over’ and lead to inability to cope effectively with the particular stressor or a set of interrelated stressors. On the other hand, individuals who are able to maintain rational stance during highly stressful situations or circumstances, may be able to ‘weather the storm’ by either employing their social problem-solving skills or by relying on their attitudes and belief systems [20, 24, 25]. As noted previously, institutions, patients, and GME trainees can benefit from programs that teach effective coping. As shown in published research, if trainees can better ‘weather the storm,’ there will likely be fewer patient safety events, improved clinical outcomes, and reduced provider burnout [63, 64, 68].

8. Efficient versus inefficient coping: importance in life satisfaction

Research suggests that older individuals employ efficient coping strategies more often than younger groups, likely a reflection of an individual ‘coping repertoire’ that arises as a result of the cumulative ‘life experience’ and the associated development of emotional and cognitive mental processes. Of importance, there is evidence to support the viewpoint that low life satisfaction is related to inefficient coping strategies across emotional, cognitive, and behavioral domains [20]. To support this viewpoint, data show a relationship between increase in maladaptive behaviors and high levels of impulsivity [69, 70]. Other important concepts within this general context include social plasticity (e.g., ability to be flexible in social relationships and establishing social contacts) as well as one’s adequacy and timely channeling of emotional responses [20].

9. Mentoring to improve coping skills

Traditional medical education involves the use of mentors since the time of Aristotle. It allows a physician who has navigated the training and practice of

medicine to model and encourage the coping skills previously described. The personal relationship developed within a mentoring relationship has been shown to improve transitions for practicing physicians new to a hospital [71]. The tremendous time and intellectual commitments required to effectively train residents and medical students are, in turn, known to affect the trainees' personal lives, including interpersonal relationships, community activities (and thus support), and even the financial domain. Well-designed mentoring programs should incorporate all of the above-listed topic areas, beginning with the training dedicated to ensuring mentor competency and optimization of mentorship efficacy. Subsequent to this, properly trained mentors may begin to guide their mentees through a series of conversations that provide the opportunity to suggest methods of dealing with the issues of time management, practice management, meaning and purpose in medical practice, as well as bringing to light the topic of coping mechanisms that may be useful to the mentee in regards to the various domains and/or stressors of the modern health-care environment. Physicians who participated in such well-structured programs reported that despite the time constraints and added work demands, the mentoring process helped them achieve greater professional fulfillment and a sense of personal accomplishment [72].

9.1 Coping intelligence in the context of resiliency

The concept of resiliency warrants a brief discussion as well. Resiliency has been recognized as a quality beneficial to coping with adversity, and can be defined as the ability to respond to stressful situations in an adaptive and healthy manner [73]. It can also be thought of as the ability to withstand, adapt to, and recover from adversity and stress [74, 75]. Consequently, there is inherently a significant amount of overlap between resiliency and CI. Individuals with high resiliency address challenges and stressful changes in their personal and professional lives with flexibility and retained optimism [49]. Highly resilient individuals also recover from stressful or difficult experiences faster and with greater awareness of their environment and their responses to it [76, 77]. In brief, having resiliency not only enables an individual to be adaptive when confronted with difficulties, but also allows them to learn from the experience and therefore, be better prepared for future stressors. Ultimately, this fosters self-confidence and success in the face of adversity.

The Resiliency Scale was developed in the early 1990's by psychologists Wagnild and Young [78–80]. Early on, it was applied primarily in older patient populations to assess one's ability to adapt more effectively as they aged [81–83]. It sought to quantify and stratify individuals into groups that were at risk for maladaptive coping when faced with change and adversity as they aged. The ultimate goal of such efforts was to devise new interventions to enhance coping skills in individuals with diminished resiliency.

Research is also helping to define the quality of resilience that has been anecdotally recognized in successful GME trainees. For example, some have referred to this trait as “grit” – the previously undesignated characteristic that makes an individual both less likely to experience burnout and better equipped at managing demands of graduate medical training. It is specifically defined as perseverance and passion for long term goals; clearly a valuable quality in GME trainees across all specialties [84]. Higher levels of “grit” have been shown to result in decreased feelings of burnout, depersonalization and emotional exhaustion. It also supports the belief that with determination and hard work, one can be highly successful regardless of innate talent. Finally within the context of this chapter, the substance of “grit” may indeed represent a manifestation of CI.

Several instruments now exist to measure resiliency, expanding on the initial work of Wagnild and Young. Of special importance to our discussion is the Academic Resilience Scale (ARS-30) [85]. Created in 2016 by Cassidy, the ARS-30 aims to measure the participants’ mood and attitudes toward adversity in education, focusing on three key factors – perseverance, reflecting and adaptive help-seeking, as well as negative affect and emotional response [85]. These factors further delineate and quantify resiliency as key characteristic of individuals who do not give up when faced with stressors, recover from adversity in a positive manner and maintain optimism. The ARS-30 reinforced the qualities of resiliency and the ability to identify those who will be successful in academics as well as those who would benefit from further, more personalized skill-building. While research is ongoing, the ability to recognize and quantify resiliency may ultimately lead to more effective interventions to avoid burnout, improve CI and finally, facilitate individual and team success amid adversity.

9.2 Empathy and compassion: key components of the overall matrix of coping

Without a doubt there is a need in medicine to develop both EI and CI to help manage the stress that comes from one’s very functioning in an administrative system that may be characterized by at least some priorities that may deviate from the primary role of a physician/trainee – to help the sick and save lives [86–88]. Various administrative tasks and clinical challenges that physicians must successfully navigate may create a highly stressful environment. Without the ability to cope effectively, draw appropriate boundaries, and recognize one’s limits, many physicians are unable to successfully reconcile clinical and administrative responsibilities. In this context, one phrase often used by physicians captures the above, “you can only control what you can control.” Moreover, it is important that healthcare leaders are aware of, and subsequently embrace critical skillsets that help elevate one’s overall leadership effectiveness [89, 90].

High quality, compassionate leadership is critical in today’s highly stressful healthcare environment [91–93]. As such, it is crucial for the institutional leadership (at various levels) to bring structure and order to an environment often characterized by controlled chaos within a highly diverse matrix of people, skills, and functions [92, 94, 95]. Hence, in difficult time – regardless of the circumstances – and despite all of the efforts to develop and mature our individual and collective emotional and coping intelligence, physicians must remember their professional oath and responsibility - to do no harm and to help the sick [96, 97]. Our patients depend on our empathy and compassion and balancing our emotions in a system that inherently fosters the emergence of burnout as well as mental and physical exhaustion [6, 11, 29, 64, 98].

Unfortunately, there are growing concerns that among the consequences of relying on CI and/or EI, especially in the context of managing burnout, is increasing apathy and a recognition that the “system is broken.” This, in turn, may result in further physician/trainee disengagement and deterioration of the critically important emotional component that is necessary to venture beyond the mindset that providing healthcare is “just a job” or “over when my shift ends.” It is therefore critical, as life-long students of EI and CI, that we recognize that our inherent human compassion and empathy must not only be preserved, but also maintained within a framework which fosters an individual’s ability to be an effective, empathetic, and emotionally stable physician/trainee [99, 100].

While the topic of burnout, including its avoidance and mitigation, is beyond the scope of this manuscript, there are overlaps across the physical and emotional drivers of burnout. Physicians/trainees may benefit from the knowledge of such

overlaps, including the knowledge of how EI and CI may be beneficial in learning how to better establish and manage critical boundaries that are critical to one's emotional and physical well-being. Mahatma Gandhi once said: "Where there is love there is life" [101]. Nowhere else is such a concept more true than in medicine, but such energies must be kept in balance with the recognition that medicine is a life-long endeavor and to function effectively, for an entire career, a mastery of CI is necessary to successfully manage and contain the growing stressors, professional and personal challenges, and administrative complexities of modern healthcare.

It is also important to recognize that even in the best of circumstances and workplace environments there will be substantial personal and professional career challenges. One must concede that "modern medicine is a business" – and much like most businesses, leadership may change, high (and low) performers will come and go, and economic variables and incentives will be in constant flux [102, 103]. The overall environment can (and likely will) change. At times, this change may be rapid and not always consistent or in alignment with established goals and/or agenda. Having a solid foundation in EI and CI will be invaluable when such changes occur, especially when the positive aspects of our work-life integration or culture, become misaligned [104–107]. Such misalignments will often result in substantial institutional changes – changes in processes, protocols, cultures, team structures and organization – and individuals. You (or key members of your team) might, and potentially will, leave (even if not on their own accord), but a true sign of a solid foundation in CI and EI is to be able to adapt, accept, and navigate such changes when they occur.

Limitations: This is a largely exploratory chapter in an area that requires a significant amount of work to better understand all of the intricacies and complexities involved in behavioral responses to burnout and extreme stress. Current literature tends to be more focused on EI, with admittedly insufficient attention to coping as a unique and separate topic. Only with greater appreciation of various factors that contribute to maladaptive coping can we develop better informed and more effective mitigation strategies.

10. Conclusion

When the professional environment becomes too complex for one to fully understand and manage, social and emotional skills that allow one to function meaningfully under normal conditions may become insufficient. This, in turn, exposes an important gap in our current ability to cope with either momentary or sustained stressors. Under the proposed new paradigm, coping intelligence can be viewed as an extension of emotional intelligence when one's capacity to deal with stress exceeds a certain, highly individualized threshold. In a way, coping intelligence represents a much deeper and more refined form of applied self-awareness and requires much more intensive self-reflection and self-discovery. More research is warranted in this critically important and developing area.

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Coaching and Mentoring: Focus on Graduate Medical Education

Stephen N. DeTurk, Anish J. Kaza and Anna Ng Pellegrino

Abstract

Individuals at any level of the medical field could potentially benefit from feedback and supervision: from medical students, nurses, or physician assistants; to residents, advanced practitioners, and attending physicians. Two of the most common forms of feedback and supervision utilized in medical education are coaching and mentoring. These terms are often used interchangeably but are commonly misunderstood. In this chapter, we will highlight the differences between coaching and mentoring, place emphasis on the use of mentoring in medical education, discuss the characteristics of a successful mentor-mentee relationship, and provide an example of a mentoring program at a local community hospital.

Keywords: mentor, mentoring, coach, coaching, mentor-mentee relationship

1. Introduction

1.1 Origins of mentoring

When examining the differences between coaching and mentoring, it is useful first to consider the origins of these words, and their original usage and meanings. The term *mentor* comes from ancient Greek mythology [1]. In Homer's epic poem, *The Odyssey*, a character named Mentor was a trusted friend and advisor to king Odysseus. When Odysseus left for the Trojan War, he entrusted Mentor to look after and care for his son Telemachus. While away, Odysseus's house was overrun by those who wished to remove him from power. The goddess Athena disguised herself as Mentor, and provided counsel and guidance to Telemachus, and encouraged him to go on a journey to find his father [2]. In modern times, *mentor* was first mentioned in the Francois Fenlon's book *Les Aventures de Telemaque* in 1699, a rewriting of *The Odyssey*. In this version, Mentor takes a more pivotal role in the teaching and guidance of Telemaque. The book was immensely popular and became the most reprinted book in the 18th century. It is from the book's popularity that the word which we now use as *mentor* gained usage, first appearing in the English language around 1750 [2]. Today mentoring has become a well-established pillar in medicine as well as many other fields, including business, teaching, and academics.

1.2 Origins of coaching

The term *coach* was first used to refer to academic tutors at Oxford in the 1830s. These coaches would guide students by asking questions that helped them develop

reflective thinking and analysis [3]. This term is now commonly associated in sports, where a coach guides a player in the development of skills and instructs them what to do during games. Nowadays, *coach* is more so used in business and psychology, and is rarely a term related to medical education [4, 5].

2. Research methods

Pubmed and Google scholar databases were used to conduct literature searches. Searches were conducted with the terms: “Mentoring” or “Mentors” and “Coaching” or “Coaches” both with and without additional qualifiers “Graduate Medical Education”, “Residents,” “Residency,” “Medical Students,” and “Medical School.” Titles and abstracts were reviewed for relevancy, and full text of selected articles were reviewed. References of articles were also reviewed for relevance and unique insight or perspectives on the topic.

3. Purpose of mentoring

The purpose of mentoring is to provide a nurturing relationship, where a more experienced person serves as a role model, teacher, and counselor to the mentee [6]. The goal of mentoring is to enhance the professional development of the mentee through the direct transfer knowledge and experience. The relationship may last for several years and evolve as needs for continued professional development evolves. Mentors provide guidance in a wide area of topics such as career development, political advice, and personal issues. The guidance should be provided in a “push” method, directly advising the mentee what they should do [7]. In addition to providing advice, mentors may help facilitate the mentee’s career development by providing new opportunities. As a more senior professional, mentors often have connections within the field, which may benefit the mentee. Introducing the mentee to other significant players in the field and providing opportunities to attend networking events are some ways the mentors can use these connections to help the mentee’s development [7]. Mentoring relationships are often bidirectional, as mentors should feel a great sense of fulfillment from helping others, but both parties can benefit from professional development. Professional development can lead to more efficient and effective workers, as well as opportunity for individual introspection, self reflection and self-renewal.

4. Purpose of coaching

Coaching is a type of inquiry-based learning that guides people to effectively use their existing knowledge and skills [8, 9]. The purpose of coaching is to focus on specifically defined goals, leading to an immediate improvement in performance. Goals can be skills-based, such as surgical technique, or more abstract goals such as personal skills (e.g., goal-setting, planning, proactive initiation) and interpersonal skills (e.g., communication, conflict resolution, and team development) [10]. To accomplish these goals, coaches should facilitate the coachee to find their answers or solutions. This is best accomplished in a “pull” method, where the coach asks questions to allow the coachee to develop skills in self-evaluation and critical thinking [7].

5. Mentoring: the traits of a mentor

Mentors should exemplify several key character traits necessary for successful mentor-mentee relationships: display admirable qualities, be honest and trustworthy, be altruistic, be approachable, and have professional experience.

5.1 Admirable characteristics

An ideal mentor should serve as a role model with personal and professional admirable qualities that motivate the mentee to further their own career. Some personal qualities include being compassionate, insightful, inspiring, ethical, and wise. Important professional qualities include being collaborative, intellectual, skilled, accessible, articulate, passionate about medicine and health, and to be a visionary [11].

5.2 Being honest, trustworthy, and an active listener

The mentor should always be honest when guiding the mentee. It's important that the mentor tells the mentee whether something is a bad idea or if they need to take a completely different approach to obtain their goals. A good mentor understands the limitations of the mentee. Honesty can create a trustworthy relationship between the mentor and mentee that can further their productivity [12].

Trustworthiness is a very important characteristic of being a good mentor and involves the mentor to be a good active listener. The best way for a mentor to give effective advice is to listen to what the mentee is saying and understand the mentee's aspirations and goals. This is crucial to help the mentees work through their problems and give tailored advice. The mentor should be engaged at every session with the mentee and help to facilitate a goal for the mentee [13].

5.3 Being altruistic

The mentor should always act and advise in the best interest of their mentee. It is crucial for a good mentor to be altruistic and have selfless concern for the progression and goals of their mentee's career. Inattention and exploitation are counterproductive to effective mentoring. A mentor should not make much distinction between proposals or projects where he or she may or may not be a co-author between themselves or mentees. Mentees gain even more admiration for their mentors when the mentor looks for little to no professional recognition or benefit. A good mentor should put the mentees' careers before their own and introduce key collaborators that can further the mentees' careers [12, 14].

5.4 Being approachable and available

A successful mentor-mentee relationship requires the mentor to have a strong commitment to being available and accessible. The mentor should not only be initially meeting with the mentee frequently but also stay in touch with the mentee for the duration of the mentee's career. There should also be a certain quality of effort given to the mentee. During the meetings, the mentor should not be distracted and should give his or her full undivided attention to the mentee [11].

Approachability is an important characteristic that goes hand in hand with being a good mentor. There should be scheduled, consistent meetings and an open-door policy, so the mentee always feels comfortable reaching out to the mentor. This

is crucial for a longstanding, stable mentor-mentee relationship. Mentors should always be encouraging and check in with their mentees to show how they are progressing [12].

5.5 Have professional experience

Credibility is a very important characteristic of a good mentor. A mentor should have a good network of colleagues and collaborators that can help also guide and optimize the chances of success for the mentee. The mentor should continually create opportunities that bring value to the mentee. While mentors should always allow their mentees access to their network and connections, they should also warn and protect the mentees from harsh interactions [12].

Good mentors are able to effectively cultivate and develop highly productive faculty members. This leads to higher retention numbers of faculty at institutions. These faculty members are also able to obtain more grants, get more articles published, and promoted sooner than their colleagues without mentors [15, 16].

5.6 Promote a balance between personal and professional goals

Successful mentors should be able to provide a good balance between personal life and professional work to the mentee. The mentees should not only look at their mentors as role models at work or in a professional setting but also at home in their personal life. Good mentors are able to show the mentee how to deal with stress and are able to support them through their struggles. A mentor should be a guide and not force a mentee down a particular path. This requires the mentor to be compassionate and to stand by the mentee to offer emotional support. The mentor should be able to identify factors that might contribute to the mentee's stress and then teach the mentee how to deal with the stress or problem [11].

It is the mentor's responsibility to guide and transform the mentee toward their goals, but to also unlock their full potential. Mentors should be able to see the big picture and identify the mentee's potential. They should then set high standards and give a vision to help create a plan that can prioritize and achieve the mentee's goals. The mentor's advice should be specifically tailored to each mentee and offer a unique perspective to help expand the vision and ambition. The mentee should be allowed to fail, but it is important for the mentor to be present to advise and be a pillar of support as the mentee's career progresses. It is also important that the mentor allows the mentees to find their own way by leading instead of direction [12].

6. Mentoring: the traits of a mentee

Persons who would especially benefit from mentoring include those recently entering the profession or transitioning to a new position, those experiencing personal or professional difficulty, and those seeking to become organizational leaders [17]. It is important for the mentee to drive the relationship with the mentor and take the responsibility to seek out the mentor. Mentees should be respectful of the mentor's time and input. An effective mentee is able to make the most out of their time with their mentors by being prepared before sessions: come to the session with a structured plan, list of discussion points, timelines, and questions. During the session, the mentee should actively listen to the advice given by the mentors and be open to the criticism or feedback given by the mentor [9].

The mentee should feel inspired by the mentor and gain motivation to pursue their career. They should think of their mentors as a resource and not rely on their

mentors to obtain their goals. Having someone to lean on and go to for advice can then inherently lead to more confidence and a greater chance for them to reach success [18, 19].

7. Coaching: the traits of a coach

Unlike mentoring, coaching is not necessarily a confidential relationship. A more supervisory role is also provided to the coachee. Although some goals may require that a coach is an expert in the same field as the coachee (e.g., improving surgical techniques), this is not always the case. The key characteristics seen in good coaches include: being a skilled interviewer with excellent listening skills, being analytical and observant, being able to provide meaningful performance feedback, and being able to possess appropriate qualifications [20].

7.1 Skilled interviewer and excellent listening skills

Coaches help guide the coachee to develop their own insight and synthesize knowledge during coaching sessions. It is vital that the coach has the skills to guide the coachee in learning toward self-reflection and new knowledge. This requires a balance of both active listening for areas where insight may be lacking, and the ability to guide interviews in the desired direction. It is important that the coachee not only provide the information directly, but also allow the coachee to realize new insights themselves.

7.2 To be analytical and observant

In assessing objective measures of skills and performance, a coach must be able to identify areas of improvement. This requires them to be observant to not just major significant areas for development to meet an adequate level of skills, but also minor deficiencies that need to be corrected to reach superior skill levels. They must be analytical in their approach so that they may break down a skill in individual components and assess each part. Without these skills, it would not be possible to provide feedback for areas of improvement.

7.3 To provide meaningful performance feedback

During coaching sessions, coaches should review objective skills and performance assessments with the coachee. The insights the coach gained from observing and analyzing skills needs to be presented to the coachee in a constructive insightful manner. Providing constructive criticism and insight will allow the coachee to implement changes in the future necessary to accomplish the goals previously established. The feedback should be tailored to the expectation and skill level of the coachee, in order to provide achievable goals.

7.4 To possess appropriate qualifications

Not all coaches need to be medical professionals to provide coaching on certain skills. Skilled coaches without medical qualifications may provide insight into personal and interpersonal skills. However, technical skills (e.g., surgical skills, procedural skills) require a medical expert who is able to meaningfully assess the coachee's performance. It is, therefore, essential to select a coach with the knowledge to help the coachee reach their desired goals.

8. Coaching: the traits of a coachee

The traits a coachee should display are similar to those needed in a mentee. Before attending a coaching meeting, a coachee should self-reflect and be able to attend sessions with an agenda of challenges they wish to address [21]. They should also seek feedback from their coach and any supervisors to aid in this self-reflection. During coaching sessions, the coachee should be fully present and take advantage of the input from their coach. Immediately after a session and in between sessions, a coachee should practice new skills and be committed to follow through on their assignments [22]. Practicing the skills should be done with intention and consistency [21]. As their skills develop, coachees they should be able to track their progress and recognize and celebrate their success.

9. Establishing a mentoring relationship

A good mentoring relationship highlights a mutual symbiosis between mentor and mentee. Both parties can benefit personally and professionally. It is crucial that the mentor does not play a supervisory position. Having a mentor who has influence over the mentee's current position would make the mentee feel uneasy about being honest with the mentor about any difficulties they are having. Mentors should maintain a confidential relationship with the mentee, so that problems may be discussed freely without fear of repercussions.

Mentoring relationships can be formed through formal or informal means. Most mentoring relationships develop informally [23]. These relationships develop organically; typically a mentee seeks out a mentor on their own. Although most agree that having a mentor is essential, many without access to formal mentoring programs do not have a mentor. This is especially true for women and racial minorities, who are less likely than their peers to have a mentor [19, 24, 25]. Common reasons cited for lack of mentorship include fear of approaching faculty and inability to find a trusted faculty member [24].

There have been an increasing number of formal mentoring programs in the academic and medical fields. Mentors and mentees are paired together through a committee process. The pairing may be decided based on similar personality traits or common goals between the two parties. One key advantage of formal mentoring programs is that mentees that would otherwise not have a mentor can find one. Formal mentoring programs typically provide more structure compared to informal mentoring, wherein they explicitly establish rules, goals, expectations, and meeting times. If a formal mentoring program does not consider the importance of pairing between the mentor and mentee, the relationship may not be successful [26].

When first establishing a mentoring relationship, the two parties should get to know each other through open dialog, establish goals and expectations, and agree to a commitment of confidentiality [27]. The mentee's goals may be personal, educational, clinical, professional, or research-oriented. These goals may change over time when new priorities, opportunities, and difficulties arise, so it is essential to be flexible. Expectations should include establishing how frequent the two will meet in person and form an open line of communication available between meetings. During mentoring sessions, the mentor should advise the mentee on what steps should and should not be taken to reach their goals. Early on, the mentor may identify which professional organizations or institutional committees the mentee should join. The mentor should also be willing to share their own professional and personal experiences to provide context and facilitate in establishing the relationship.

10. Establishing a coaching relationship

Coaching relationships are almost always formed formally through structured institutional programs. Coaching relationships should first establish what the specific tasks that the coachee wishes to improve upon and assess the coachee's skills through observation and questioning. During coaching sessions, coaches should not lecture or tell the coachee what to do. Instead, development should come from a dialog where knowledge and insight are generated by the coachee through guided questions to facilitate discussion [28]. Coaches should review objective performance data, guide the coachee to gain their own insights into their assumptions, clarify meaning about the outcome, and identify specific actions necessary to achieve results. The coach does not need to share the same level of personal information as a mentor, as the goal is focused on accomplishing single tasks and not developing a relationship.

11. Examples of mentoring

At a local community hospital in Bethlehem, PA, an *Emerging Leader* mentoring program has been established to support and encourage interaction between more experienced leaders with newer or less experienced leaders. This program aims to create a mutually beneficial mentoring relationship where mentors and mentees share candid insights and discussions about how to effectively navigate and function as a leader in the hospital network. The program creates an environment of support that positively impacts a leader both professionally and personally and encourages the leader to be successful and to develop to their fullest potential. Among the program's competency goals include: development of business acumen, gaining interpersonal savvy and skills, obtaining self-fund of knowledge, understanding and managing the vision and purpose of his/her position, and to provide accountability and responsibility to those he/she is managing.

A brief survey/questionnaire was sent out to mentors and mentees of the mentoring program. Here are some receptive comments from mentees:

"I had a pleasant and affable mentor who was more than willing to get together. We met 2-3 times over the course the 18 months."

"I found the program very helpful. We met once every 2 months. I feel we were matched very well – similar personalities, thinking and approaches to issues. The best advice I've received: Invest time now developing my direct goal reports. Focus on the ones who take projects and run with them. I felt that this program changed my approach to our growing group. I have delegated more in my department and spent more time developing my leadership skills. This program has helped me mold into being a good leader/individual."

"I see better opportunities in the pairing process between a mentor and mentee. I would have preferred a pairing with a person from a different area of the health network. For example, clinicians paired with strategic/business leaders as opposed to paired with other clinicians. I think this would broaden both the relationship development in the network, as well as the skills set each mentee can expand."

"Opportunities to touch base were limited based on my mentor's off-site location and busy clinical schedules."

Below are some comments taken from mentors in the program:

“My mentees are my most valuable asset. That is why I would make myself available for them as much as possible. They will gain your trust and respect when you as a mentor dedicate/carve out time for them out of your busy schedule”.

“One of my goals as a mentor is to provide servitude of others. I ask myself ‘how can I use my fund of knowledge and experiences to help serve others?’”

“It is important to steer your mentee on motives on becoming a leader. I have them ask themselves “what is your vision for your department?” It is also just as important to allow your mentee to make mistakes and to learn from them. Self reflection is a must.”

“Do not allow your mentee to make hierarchal relationships with others, as no one may listen or respect the “do as I say” approach. Instead, guide your mentee into a ‘what can I do to help you and to help me’ approach. This will provide success in leadership”.

“So as not to waste anyone’s time during a meeting, in the first meeting, I lay out my goals in the relationship and my mentee will lay out his/hers. We come up with a plan for future meetings as well. Having a concrete structure in our meetings helped expedite each others goals and expectations in our relationship.”

“An aspect of mentoring involves how well you may be able to “read” your mentee. That is, to develop the insight about your mentee’s personality traits and to get to understand his/her strengths and weaknesses. The sooner you may lock into a strength or weakness, the sooner you may be able to help guide your mentee.”

12. Examples of coaching

In a clinical/academic setting, coaching should be used when an individual needs to improve specific skills through repetition. For example, obtaining surgical skills to perform surgery is an area that would benefit from improvement through coaching. Studies on utilizing coaching techniques have shown that it improves surgical skills more than traditional training alone [29]. In one study, surgical trainees were randomized to receive either coaching or traditional training. The coaching group received structured feedback based on video reviews of surgical techniques. During coaching sessions, video clips of surgical performance were reviewed and self-reflection of performance was encouraged. The trainees developed training goals with the coach and then implemented them in subsequent cases. Those in the coaching group showed considerable improvement in general surgical skills, procedure skills, and fewer errors [30].

Coaching to improve surgical techniques is not only useful for those in training, but for attending surgeons as well. In an article in the New Yorker, Dr. Atul Gawande described his experience with surgical coaching [31]. At the time, he had been a surgeon for several years and had seen his complication rate improve past the national average but then plateau. He sought out a retired surgeon, Dr. Robert Osteen, who was his attending during residency. Dr. Osteen observed Atul’s operations in the OR and on video recordings providing feedback on what small changes could be made. Since he started working with a coach, Dr. Gawande reported that his complication rates have improved.

Coaching is also useful for nonphysical skills, including communication and clinical reasoning. In one study, Family Medicine residents were coached by psychiatry faculty in order to improve their communication skills with difficult patients [32]. The coaching sessions followed encounters with standardized patients where difficult clinical situations could be evaluated. During one month of weekly coaching sessions, communication skills improved in the residents and were maintained at a follow up of 6 months. After residency, clinical coaching has been found to be useful as well. At Massachusetts General Hospital, a coaching program was developed that allowed new hospitalists to review cases and clinical questions with more senior and experienced hospitalists [33]. During the program more junior hospitalists changed their diagnostic approach, called fewer consults, and felt more comfortable as attending physicians. After reviewing cases with the senior hospitalists, unnecessary laboratory tests and invasive procedures were avoided. The senior hospitalists also reported being satisfied with the program and being more comfortable acting as coaches after participation.

13. Conclusion

Mentoring and coaching are distinct in many ways, including in their purpose, duration, methods, and driving factors (**Table 1**). *Mentoring* is based on the formation of a long term nurturing relationship, where mentors guide the professional and personal development of the mentee. Mentors provide guidance to mentees by advising on personal, professional, and educational issues. They may provide insight into institutional and professional politics, and provide the mentee with opportunities to network with others in the field. These relationships are unique in their influence on the development of the trainee and are pivotal for achieving maximal career success. Individuals who have an identified mentor often have greater career satisfaction and go on to achieve more than those who never had a mentor. Coaching is distinct from mentoring in both its methods and end goals. *Coaching* aims to improve specific skills in a short period of time. It is driven by improving performance and through self-reflection so that the coachee may become more self-aware. Studies assessing coaching-based programs show that this method of teaching is more effective when compared to traditional teaching methods.

	Coaching	Mentoring
Formality	Formal	Formal or Informal
Purpose	To accomplish specific goals; Task oriented	To promote Professional & Personal Development; Relationship Oriented
Duration	Weeks to months	Years
Assessment	Requires observation of skills and behaviors	No initial assessment
Methodology	Pull-Encourage Self-Reflection	Push-Provide guidance and advice
Performance review	Required	Not required
Directionality	Unidirectional	Bidirectional
Confidentiality	Not necessary	Necessary
Supervisory role recommended?	Yes, may be a clinical supervisor or manager to coachee	Not recommended in relationship

Table 1.
Coaching vs. mentoring relationship summary [28, 34].

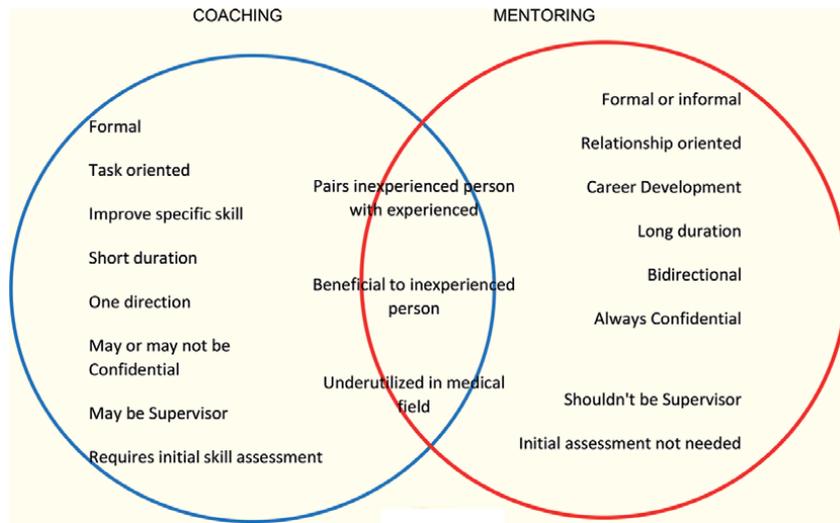


Figure 1.
Similarities and differences between coaching and mentoring.

Both coaching and mentoring focus on building up a less experienced person (medical student, resident, new attending). However, the methods used for development are different between the two. Understanding these differences allows program to better utilize resources and develop students or employees to maximize their potential (**Figure 1, Table 1**).

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Mentorship in Postgraduate Medical Education

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Abstract

Mentorship is critical to the development and professional growth of graduate medical education (GME) trainees. It is a bidirectional relationship between a mentor and a mentee. Mentorship has consistently been shown to be beneficial for both the mentor and mentee, with the mentee gaining valuable skills in education, personal growth, and professional support, and the mentor attaining higher career satisfaction and potentially greater productivity. Yet, there is a lack of research and in-depth analysis of effective mentorship and its role in postgraduate medical education. This chapter outlines different approaches toward mentorship and provides the reader with basic concepts relevant to the effective and competent practice of mentorship. The authors discuss the challenges that physician mentors and mentees face, the organizational models of mentorship, the approaches and techniques for mentorship, and the deleterious effects of mentorship malpractice. Our general discussion touches on best practices for both the mentor and mentee to allow for self-improvement and lifelong learning. The variety of applicable models makes it difficult to measure effectiveness of mentorship in GME, but there is an ongoing need for expanded research on the benefits of mentorship, as greater amount of supporting evidence will likely incentivize organizations to create mentorship-friendly policies and support corresponding institutional changes.

Keywords: Mentorship, Postgraduate medical education, Graduate medical education, Professional development

1. Introduction

Mentorship is the bidirectional partnership between a mentor, who acts as a guide or teacher, and a mentee, who acts as a learner. In graduate medical education (GME), mentorship serves to enhance mastery of curriculum content and is important in conveying various non-clinical aspects of training like professionalism, networking, values, clinical judgment, and other soft-skills that are not easily taught in a structured curriculum format [1–3]. This is an often overlooked aspect of personal and professional trainee growth process, as this chapter will outline in granular detail.

Mentorship is important for a variety of reasons, including the ability of participating parties to develop opportunities in education, personal growth, and professional support [4]. Because it is not a strictly defined process, mentorship may appear

somewhat ambiguous to participants. As such, mentorship is not to be confused with advising, coaching or sponsorship [5]. Advising is a system in which one party offers advice and guidance to another party. This is often an administrative task to help ensure the 'advisee' is on track; thus it tends to be a unidirectional exchange [6, 7]. Sponsorship typically involves a well-connected individual advocating for the career advancement of a less established individual. Similar to advising, it is a primarily unidirectional relationship [8]. While mentors may also engage in sponsorship, the two concepts are definitionally distinct while having the potential for synergistic interaction [9, 10].

Mentorship, which is based largely on the difference in experiences between individuals at various stages of their careers, creates a space to "flatten" the vertical hierarchy that governs medical education and offers an opportunity for a more horizontal exchange of information and perspectives. While mentorship is not a new concept or practice in medicine, the analysis of effective mentorship and its role in addressing modern challenges in postgraduate medical education is relatively new, and an area that clearly warrants more investigation [11]. The goal of this chapter is to outline different approaches toward mentorship and provide the reader with basic concepts relevant to effective and competent practice of mentorship.

2. An overview of benefits of mentorship

Mentorship can be used as a tool to improve outcomes, professional transitions, research productivity, recovery from burnout, and can even teach resilience. The role of mentorship in easing the transition from being a medical student to becoming a practicing clinician has been demonstrated in several studies [12–15]. Similar to medical students entering into residency training, nurse practitioners experience a similar transition and 'reality shock' when they move to a full-time hospital position [16, 17]. Of importance, a negative experience during this transition can have significant impact on preventing individuals from reaching their potential and may cause some to even leave the profession. The dichotomy between expectations and reality, along with increased responsibility, can take a toll as individuals navigate their new roles. When mentorship is utilized to ease such transitions, confidence and competence of mentees may increase [18, 19]. It may also be reasonably expected that mentorship-based interventions may produce a number of beneficial effects, including decreased burnout and turnover [18, 20–22].

3. Mentorship and burnout

Based on the above observations, it follows that mentorship is an emerging tool in combating burnout. In fact, residency training is the stage where physicians are most vulnerable to burnout [23–26]. The annual cost of burnout-related medical errors and workforce turnover is estimated to be \$4.6 billion excluding the emotional cost of these errors to patients, families, and physicians [23, 27, 28]. Burnout is largely due to work demands, personal relationship strain, lack of rest/sleep, and high levels of responsibility [29–31]. Residents who have experienced burnout identified mentorship from colleagues and attendings as an important part of recovering from this insidious condition [23, 32]. Additionally many of the factors related to burnout are ubiquitous to residency and by implementing peer mentorship from more advanced residents, programs have been able to normalize the intern experience and minimize difficulties, while promoting resilience and wellness in these vulnerable groups [33, 34].

4. Mentorship and academic productivity

It has been shown that mentees generate more peer-reviewed publications, receive more grant funding, report greater career satisfaction, and are more likely to be mentors themselves [8, 35, 36]. Mentees are also likely to achieve faster academic promotion and have greater faculty retention [37, 38]. Despite these benefits, the number of physicians engaged in academics and research is decreasing, the proportion of NIH-funded principal investigators over age 60 is increasing, and it is becoming more difficult for early-physician scientists to find mentors [37]. Furthermore, the expectations of physicians at the conclusion of their training are extensive, and include proficiency in clinical, teaching, scholarly, and administrative duties [39–41]. Mentorship is a means for mentees to develop soft skills such as written and verbal communication, team building, leadership, professionalism, and various other nontechnical skills – items that are often not included in our standard curricula or overlooked during training [39]. In addition, mentees benefit from professional coaching, emotional support, and networking opportunities provided by mentors [42], and mentorship meetings that include discussions of wellness, mindfulness, and coping skills add further benefit to participants [22, 43–45].

5. Mentorship and mentors

The many benefits of mentorship outlined above are not just limited to mentees. Of importance, mentors are also more likely to report higher career satisfaction, greater academic productivity and publications, personal gratification, and renewed passion for medicine [46, 47]. It is not uncommon for attending physicians to experience “monotony” of their everyday routines – a factor that undoubtedly contributes to burnout [48, 49]. Within this broader context, the opportunity to interact with enthusiastic trainees and seeing medicine from a fresh perspective can be both refreshing and rejuvenating [50, 51]. Furthermore, mentorship is a way to extend one’s legacy by supporting the professional longevity and acumen of the next generation of physicians [37]. It is in the best interest of society to train compassionate and competent physicians, and among the most important aspects of long-term sustainable development is the fostering of mentorship as an avenue of transmitting experience-based skills, knowledge, and the very important ability to self-reflect and embrace self-improvement [52]. The field of medicine is evolving rapidly, and physicians further removed from training may benefit greatly from knowledge of new approaches, schools of thought, technologies, and other trends shared by their mentees.

6. Mentorship and gender

Mentorship is important in guidance regarding setting and managing expectations for daily practice and career trajectory. As such, it is a very effective method for achieving better professional outcomes and retention. This type of intervention is especially needed to address women leaving medicine, a trend that is increasingly costly and dangerous for the medical system and patients. Of concern, nearly 40% of women physicians decide to pursue part-time work or leave medicine altogether within six years of completing residency [53]. Among reasons for this phenomenon are discrimination, salary inequity, and harassment, but the main challenge to women in medicine continues to be the difficulty of balancing work with family demands [54–56]. While systemic changes, such as expanded parental leave

policies, need to be made to ease this tension for female physicians, mentorship is one of many tools that can help. Mentorship provides an avenue for women (and men) to come together and discuss the real challenges that women face in medicine, help younger trainees manage their expectations, and may ultimately yield increased research projects to create useful solutions [57–59].

There are important additional gender-specific considerations. For example, research shows that it may be more challenging for women to find mentors [42]. One proposed reason for this is the lack of availability of mentors with similar backgrounds and/or experiences. For example, there are fewer women mentors available to mentor surgery residents [60]. This is not only due to the relatively fewer women in the field, but also due to the additional unique time pressures in personal life faced by women surgeons [61]. Similar considerations apply to other male-dominated disciplines where there is already a lack of female mentors, and women in those fields often do not have the time to commit to mentorship due to competing priorities and external demands [62, 63]. Women may also feel somewhat uncomfortable reaching out to male mentors due to gender dynamics [64]. It naturally follows that the paucity of female mentors in certain areas is deleterious to diversity in the medical profession, since it has been noted that specialty fellows-in-training consistently indicate that they chose their subspecialty largely due to having had a mentor in the field [42].

As a consequence, without sufficient representation of female mentors in subspecialties, fewer women have the support and the opportunity to enter those fields, which ultimately perpetuates the cycle of exclusion. Institutional support such as dedicated time for mentorship could be a helpful factor in increasing numbers of female mentors. It is also harder for individuals from underrepresented groups to find mentors [65, 66], and despite the best intentions the experiences of microaggressions or outright bias continue to occur [67, 68]. Peer mentorship has been especially helpful in bridging this gap for underrepresented minority trainees, since successive classes of trainees have been increasingly diverse [69, 70]. Due to the uneven opportunity for organic mentorship, formal mentorship programs have also been important to ensure fair and equitable access to mentors. In summary, there continues to be an unmet need for mentors, with large numbers of residents and other medical trainees reporting that they wish they had mentors or that they had difficulty initiating a mentorship [42, 71]. This crisis is negatively affecting the medical profession and requires urgent and durable resolution.

7. Organization of mentorship

7.1 Senior mentorship

The senior mentorship model is the traditional mentorship model in which the mentor is a well-established faculty member who can provide guidance informed by personal experience and professional connections [72]. Senior mentors are well positioned to serve as sponsors and can provide mentees with more opportunities for professional advancement. A major barrier to the success of this type of relationship is the presence of an institutional hierarchy – and thus power gradient(s) – that insidiously influences all interactions between mentor and mentee [73–75]. The power dynamic results in mentees feeling uncomfortable showing vulnerabilities, speaking honestly, and challenging the mentor when appropriate [75, 76]. It also can lead mentees to overextend themselves in a pursuit to meet their mentors' expectations, which ultimately may degrade the relationship [77]. Finally, there is much less diversity among senior attendings, thus limiting the diversity among available mentors.

7.2 Peer mentorship

Peer mentorship is a very successful approach that facilitates access to mentorship experience for individuals early on in their careers, thus increasing the likelihood that they will continue to serve as mentors throughout their career [67]. It also eliminates a certain level of formality and hierarchical barriers that exist in traditional mentorship relationships, thus providing a more flexible and relaxed environment. For example, it is not as daunting to reschedule a meeting with a peer as it may be to do the same with a senior leader. In various studies, residents have noted that it is easier to go to a peer resident mentor than to a faculty member [78]. This is potentially due to increased approachability and lessened fear of being criticized or judged.

Peer mentorship has been especially successful for underrepresented minority students who may experience cultural challenges in medicine, especially when there is a lack of representative attendings or faculty mentors [79, 80]. Connecting residents at different levels of training addresses some of the barriers to diversity in mentorship. Beyond technical skills, there are certain ‘unspoken rules’ that residents must pick up in the hospital and postgraduate environment. Having a peer mentor can help assuage this discomfort and facilitate learning these unspoken rules and expectations, especially related to being a minority in medicine [67]. The peer mentorship model helps both parties gain confidence, connect with colleagues, broaden professional networks, and can be a powerful tool for experience-based knowledge sharing between senior and junior residents [67]. Such peer mentorship programs have been implemented successfully for residents and staff from underrepresented minority groups [67, 81, 82].

The peer mentoring model is also an effective way to build a growing cadre of female mentors – a factor important in addressing some of the gender-based issues associated with male predominance across certain medical disciplines [83, 84]. The increased flexibility of a peer-based mentoring approach makes it more attractive for female residents to mentor each other and can make mentees feel more at ease by eliminating the hierarchy.

7.3 Individual model

Also known as one-on-one mentorship, this is a more traditional approach in which there is one mentor and one mentee, usually working together in a long-term professional relationship. The primary advantage of this model is the opportunity to invest deeply in a single, more dedicated relationship [85]. However, because time constraint is a concern for many mentors, it is important to note that weekly and monthly meetings were both shown to have equal success rates, which may make it easier for individual mentors to commit to more mentees [86]. A significant drawback of this method is the lack of diversity offered from a single mentor.

7.4 Group model

Group, ‘team-based,’ or ‘multiple-mentor’ model is an approach where a mentee has several mentors, each facilitating growth in different, often complementary areas [87, 88]. This method allows for more diversity in both content and perspectives; however, it is possible that mentors and mentees are more likely to develop a more superficial bond through this practice. This model also puts a higher burden on mentees as they must coordinate logistics and time-manage multiple mentors, all while requiring less time from individual mentors. Furthermore, as discussed pre previous sections, it can be difficult to find one mentor, let alone multiple,

		Pros	Cons
Mentor Identity	Senior Model	Greater potential for sponsorship Mentor conveys more collective experience, insight, and wisdom Generally better for professional guidance	Lack of diversity amongst available attendings Barriers to open discussion due to hierarchy
	Peer Model	Fewer barriers to open discussion due to diminished sense of hierarchy Less formal, More flexible Fresh memory of institution specific advice Can be cathartic for mentor Generally better for emotional guidance	Potentially less sponsorship and fewer networking opportunities for vertical career progress
Structure	One-to-One Mentorship	Potentially more rewarding for mentors Mentee tends to model mentor's path and behavior making it easier to attribute success Fewer people for mentees to meet with	More time consuming Less diversity in presented perspectives and more limited areas of focus
	Group/Multiple Mentorship	Less time strain on mentors More collaborative and diverse network reinforces the team based care model Mentee gets guidance in more areas	Limited discussion breadth with each mentor Potentially less feeling of investment in mentorship Increased time strain on mentees

Senior mentors provide more experience and connections but have limited availability and less candid conversations. Peer mentors provide less formality and more candid discussion but offer fewer career progress opportunities. One-to-one mentorships provide the opportunity to develop deep relationships but can be more time consuming for mentors and provide less diverse perspectives to the mentee. Multiple mentorship reduces the strain on mentors, and offers more diverse perspectives, but increases the logistical work for mentees. All combinations of mentorships organization outlined in the table can be adapted to a virtual environment which can potentially lead to larger and more global mentorship programs.

Table 1.

Mentorships include either a peer or senior mentor and either a one-to-one or multiple mentorship structure.

so supply of mentors remains a major limiting factor. A version of multiple mentoring is a 'team-based' approach in which the various mentors communicate among themselves in order to facilitate more efficient mentoring of an individual mentee [78]. A summary of commonly employed mentorship models is provided in **Table 1**.

8. Approaches and techniques for mentorship

8.1 Micromentorship

Micromentorship is a model proposed by Waljee, et al., in which the mentorship relationship changes based on goals, and focuses on frequent, brief, informal communication and feedback, targeting improvement in very specific areas [89]. This is better suited to younger generations who have grown up in the technology era, as it has been shown that they are more purpose-driven, show preference toward collaboration and horizontal/flat social structures, are more focused on end product

deliverables, and above all are accustomed to instant access to information [89]. It also provides benefits to the mentor – primarily because time constraint is a major concern – by decreasing the amount of time set aside for mentorship meetings. Under this paradigm, a simple intervention such as a quick text message, email, or phone call may be sufficient to meet a particular mentee’s needs and expectations. The micromentorship model can be adapted and scaled to include the increasingly virtual social interaction landscape, with informal meetings, which typically involve less planning, and the ability to more readily connect people across the globe.

Micromentorship is highly compatible with the group mentorship model in which a mentee has many mentors, all focused on providing guidance in diverse areas. This also prepares the mentees for more effective participation in modern team-based medicine approaches, addresses some issues of isolation among residents, and strengthens the feeling of community [39]. This model also empowers mentees by reducing the effects of the hierarchical structure of the traditional mentorship model and by eliminating a level of formality which, within the medical system, can be very beneficial to sharing knowledge, experience, and bidirectional feedback. By providing trainees with a greater stake in their community and collective decision-making, institutions will likely reduce attrition and improve retention of talent at the same time.

8.2 Adapting Maslow’s hierarchy of needs to mentorship

Maslow’s Hierarchy of Needs is a general principle stating that foundational needs must be met before higher level developmental processes like self-actualization can be met. Hale, et al., adapted this hierarchy to help tackle the issue of burnout among medical residents and to address critical wellness issues [90]. In their model, mentorship is placed at the highest tier as a method of accomplishing self-actualization. However, this model could be reasonably expanded to view mentorship as a tool to address various levels of needs rather than just self-actualization (**Figure 1**).

For example, when initially setting general goals for the mentor-mentee relationship, there should be a discussion of where to focus efforts so that the needs can be optimally met. If the mentor and mentee agree to emphasize wellness, then implementing reflection and wellness check-ins during regularly scheduled meetings could address the corresponding domain components [91, 92]. Implementation of reflective practices may help emphasize wellness, with benefits in both mental and physical health domains [92–95]. Mentorship can

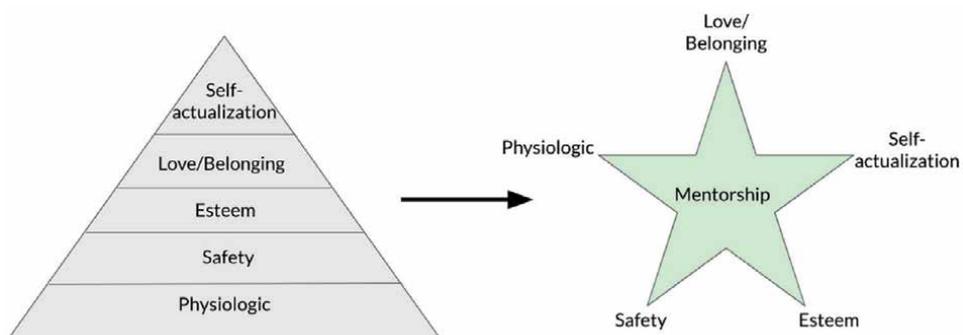


Figure 1. Remapping Maslow’s Hierarchy of Needs to represent general focus areas of mentorship. Mentorship practices can focus on fostering a sense of belonging, esteem, self-actualization, safety, and improving physiologic conditions.

target self-actualization through discussions about professional identity or career mapping. Building of one's esteem can be accomplished by treating each other with respect and fairness and working on various projects (including research) together to reinforce the value that each member of the team adds to the final outcome [96, 97]. The general domain of "safety" can be addressed by exchanging advice on practical life matters, including financial topics, as well as having candid conversations about personal boundaries [97–99]. While this framework is not universally applicable across all mentorship relationships, it may help in setting goals and creating actionable items for the pair to work on. This model also works very well with the 'multiple mentor' model, where different mentors could be responsible for addressing different aspects of the mentee's growth. This method could also be helpful in addressing the need for diversity within a mentorship team; for example, matching a female mentor with a female mentee to discuss work-life balance or wellness [77].

8.3 Intentional mentorship

Prior to engaging in mentorship, mentors should reflect on their own education and experiences at various levels of training [100]. They should identify what skills, behaviors, or thought patterns they found helpful and formative. They should reflect on good advice given to them by their own mentors or colleagues. Do they remember how they felt as a student, so they can understand what (and how) the mentee is experiencing? What were elements of successful mentorships and professional interactions that they have had? What do they wish they had been taught? What characteristics do they hope their own doctors possess? What do they hope for the future of medicine? What do they want to pass on to the next generation? Mentors should use this thought exercise to inform their mentorship technique and goals. They should revisit their answers regularly to ensure they are staying on track and mentoring with intention [34, 101].

8.4 Motivation and life-long learning

Among key benefits of a fruitful mentor-mentee relationship is the generally higher intrinsic motivation among mentees [102]. This is important because intrinsic motivation is positively associated with ongoing focus on self-improvement and life-long learning. Thus, measures to increase intrinsic motivation amongst medical trainees could have positive implications for one's entire career. Opportunities that support autonomous learning were shown to cultivate intrinsic motivation, which could be implemented in mentorship. For example, the mentor could invite his or her mentee to conduct research and present information on any topic of their choosing. This, in turn, provides the mentee with valuable skills related to self-directed, independent work.

8.5 Division of responsibilities between mentor and mentee – best practices

8.5.1 Mentee responsibilities

Mentees must enter into a mentorship knowing that the onus of cultivating the relationship rests primarily on them [77]. First, they must identify a potential mentor with consideration of personality fit, field of expertise, career and life experience, and professional network. In the absence of an organized mentorship structure, the mentee should initiate contact and set up a meeting to discuss

the viability of a potential mentorship relationship. If both parties agree to move forward, a series of meetings should outline the general goals of the mentorship, specific goals and topics of interest, frequency and type of communication, as well as various work and learning styles [77]. Both parties should consider outlining expectations for the relationship and for each other – something discussed in more detail in a subsequent section on mentorship malpractice. After that, general and specific goals can be set, optimally in an orderly, well-outlined fashion.

The mentee must come to subsequent meetings prepared with discussion points, including challenges that they seek guidance on, as well as the status of any projects they are working on with their mentor. Optimally, they should leave the meeting with a list of ‘action items’ to complete by the next meeting, as well as a mutually agreed date for the next meeting. Mentees should seek feedback at regular intervals, frequently enough to ensure continuity of experience. Feedback should encompass mentee-specific goals and objectives. Some guiding questions to help evaluate the relationship include [103]:

- To what extent has the mentor helped build confidence and satisfaction within profession and career?
- Do I feel that my mentor is focused on my performance, career development, and personal well-being to the extent that I expect?
- Are our meetings productive and driven by outlined goals?
- Do I feel that our conversations are kept confidential?
- Am I comfortable disagreeing with my mentor and expressing my opinions?
- Am I encouraged to give feedback to my mentor?
- Are we considerate of each other’s time?
- Does my mentor motivate me to excel?
- Is my mentor open to hearing new ideas and perspectives?
- Do I appreciate and show gratitude towards my mentor?
- Do I follow through on commitments made?
- Do we meet on a regular basis?
- Do I feel valued as an individual and feel like I am encouraged to give feedback to my mentor?

Evaluation of these answers could be on a graded scale from 0 to 5 as suggested by Wadhwa, et al. [103]. In terms of attitude, mentees should be generally appreciative and show gratitude for their mentor’s time. They should be honest about their limitations, take initiative, follow through with tasks, take risks and be willing to leave their comfort zone [77]. They should be eager to learn from their mentors and show respect in all interactions.

8.5.2 Mentor responsibilities

In order to ensure high quality of mentors and excellent mentee experience, involvement in a mentorship program must be voluntary, otherwise an advising-type relationship tends to emerge [86]. While there could be incentives such as dedicated time for mentorship in more academically-oriented institutions, mentors have to be willing to engage for personal reasons. Likewise, mentorship pairs must not be imposed but rather mutually chosen [78]. Most mentees choose mentors based on personality/style rather than academic achievements.

Before mentoring commences, individuals should reflect as outlined in the intentional mentoring section above. Mentors should also be aware that the best indicator of a successful mentorship relationship is when mentees feel that their mentors are invested in their day-to-day progress [104]. Among the most common reasons for mentorship failure is ‘mentor neglect,’ thus mentors must be effective communicators to minimize this threat [104, 105]. For example, one way to avoid neglect is to communicate effectively if meetings need to be cancelled and even give a clear message that mentorship might not be possible under a specific set of circumstances or conditions; leaving mentees in suspense is the primary mode of neglect and is largely avoidable. Another common threat to the success of mentorships is the power dynamic and negative impacts of hierarchy (e.g., ‘the power gradient’) within the relationship [106, 107]. To mitigate the above issues, mentors need to clearly indicate that mentees should avoid engaging in activities or projects that do not align well with their interests, skill set, or capacity to complete. This may be challenging for mentees because of the above-mentioned ‘power gradient’ and potentially mentee concerns of appearing ungrateful or unappreciative for opportunities offered to them.

To help optimize mentor-mentee interactions, mentors should make efforts to make routine information exchange less formal and to reduce either the presence or the appearance of hierarchical barriers. For example, mentors could preface the mentorship with statements of support and encouragement, while emphasizing that the ultimate signs of strength, maturity, and leadership include the ability to self-assess, know when to seek advice or help, and estimating one’s ability to take on more work. A mentor should also inquire early on about the mentee’s preferred work and motivational styles [77]. There should be mutual awareness of reasonable expectations, comfort levels, resources and generally speaking support (e.g., both in terms of resources and encouragement). At the same time, a balance should be struck between the amount and relative proportions of encouragement, support, and praise. Imbalance among those three factors may lead to mismatched expectations (e.g., praising poor effort will likely be counter-productive).

Throughout the entire mentorship process, mentors should embrace opportunities for mentees to engage in reciprocal teaching. This both enhances the mentee’s teaching (and leadership) skills and provides the mentor a fresh perspective on mutually relevant topics. This input can be solicited, for example, by asking a mentee a question about technology or changes to medical education. Mentors should embrace their commitment to life-long learning and regularly and frequently seek feedback about their performance as a mentor and the effectiveness of the mentorship on the whole. Other factors in creating a successful mentorship include implementing micro-motivational behaviors as well as awareness and avoidance of exposing mentees to unintentional microaggressions [108, 109]. In terms of their general approach, mentors should keep an open mind and be eager to learn from their mentees [77]. They should treat mentees with respect and view them as valuable colleagues. Mentors should be honest with mentees while at the same time exhibiting patience and generosity (**Figure 2**).

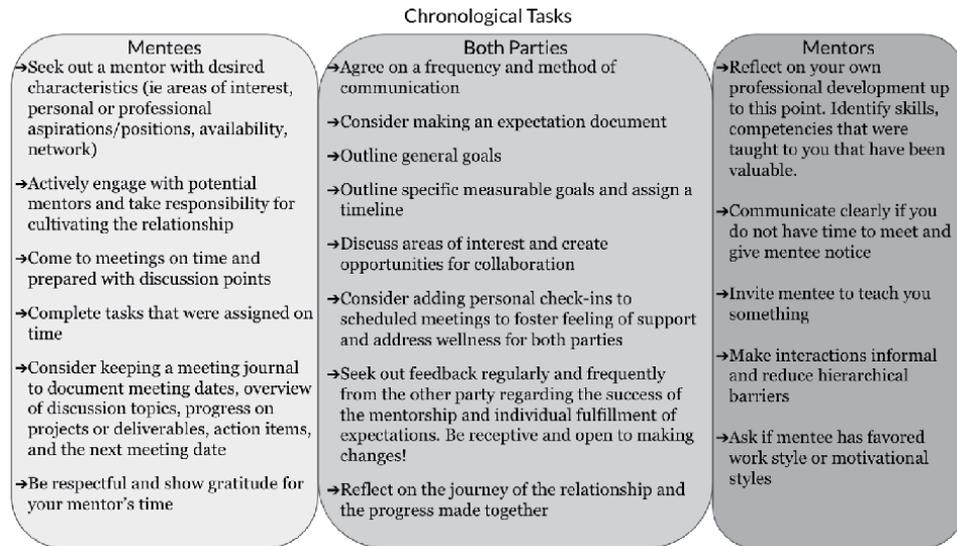


Figure 2. *Mentees bear the majority of work in mentorship and have the responsibility for cultivating the relationship; however, actionable items for both mentor and mentee can help facilitate a successful relationships. Having clearly defined tasks and responsibilities increases likelihood of success [86].*

8.5.3 Mentorship malpractice

Mentorship malpractice is an important topic within the overall context of this chapter. It is critical that both mentors and mentees understand the scope of their mentorship relationship, and that education regarding manifestations of “bad mentorship” is provided to all stakeholders. For example, Chopra, et al., grouped mentorship malpractice into active and passive types [110]. The authors further categorize active mentorship malpractice into three subtypes – the hijacker who takes hostage a mentee’s idea, project, or grant, often for self-gain; the exploiter who torpedoes a mentee’s success by saddling them with low-yield activities; and the possessor who dominates the mentee across various areas of collaboration [110]. Passive mentorship malpractice can be divided into the following three subtypes – the ‘bottleneck’ mentor who is preoccupied with own competing priorities and does not have the bandwidth or the desire to attend to mentees; the ‘country clubber’ mentor who focuses on conflict evasion and avoids difficult but necessary conversations; and the ‘world traveler’ mentor who spends little to no time or effort on mentoring while often exploiting the mentee for self-promotion [110]. In addition to educational efforts, more formal ‘mentor-mentee agreements’ may help enforce accountability within the overall relationship [111]. Finally, active prevention of mentorship malpractice requires mentees to be proactive, including the establishment of a ‘mentorship team,’ setting boundaries, communicating needs, knowing when to walk away, and not being complicit by facilitating negative mentor traits [110].

9. Challenges to mentorship

It is generally accepted that physicians at all levels of training carry tremendous amounts of responsibility and face significant time constraints due to multiple competing clinical and non-clinical priorities [112–114]. A major concern among potential mentors is the time commitment required for a successful mentorship.

This is a valid concern, and while new approaches to mentorship like ‘micro-mentorship’ and group mentorship provide avenues to lessen the time demand, mentorship is still an added responsibility. Consequently, it is up to the individual to evaluate if the benefits of mentorship are worth the time commitment [2, 115, 116].

10. Modern-day challenges to traditional mentorship in postgraduate medical education

While mentorships and mentor-mentee relationships may have been less structured in the past, they have always been crucial to most training and education. There may be specific factors in today’s clinical practice which impede one’s ability to mentor effectively. We have already mentioned time constraints as one barrier, and in order to preserve and improve mentorship in post graduate medical education there is a need to identify in what ways time constraints, particularly in the modern day, may be more of a barrier than before. The dawn of the electronic health record has certainly made many aspects of clinical life easier and more efficient. Still physicians may spend more time in front of computers, in cubicles and offices than out on the wards where the traditional “paper charts” would be, and hence render themselves less accessible to potential mentees. Notes used to be briefer in the past when they were hand written and more time may have been spent with students and trainees to nurture potential mentorships. Electronic health records also bring with them more “tick boxes”, asynchronous tasks and time spent on “filing” [117–119] which further could tighten existing time constraints. Additionally, the shift in employment of physicians by hospitals rather than being self-employed, along with the increasing administrative burden [120], highlights the need for “protected time” for teaching physicians to help promote and facilitate mentorship [121]. Non-physician managers may be less likely to understand the value of mentorship in medical training and may be more likely to be focused on optimization of clinical and financial efficiency. Another factor to consider could be the growing number of non-physician practitioners providing care and services in hospitals in the U.S. Where a medical or surgical team decades ago would most likely only have consisted of physicians at different levels of training, seniority and status, along with medical students, modern medical teams are much more diverse. Today a medical or surgical team is more likely to consist of a mix of physicians and non-physician practitioners. Given that the attending physician and the advanced practitioner are working together permanently over years and the trainee is only “rotating” through, he or she may feel more as an outsider, potential mentors may appear less available, and the landscape in which the mentee is navigating, may, in some ways appear more complex and intimidating. Physicians may actually be spending more time and resources mentoring non-physician practitioners and entrusting them with projects simply because of continuity. There is however little research into the effect that the growing number of non-physicians employed by hospitals have on training and mentorship, and more research into this topic may be beneficial. If the necessity of the mentor-mentee relationship in medical training could be elucidated, and robust data presented regarding positive outcomes with regard to diversity, retention of female physicians in the work place, and prevention of burnout, both for mentees and mentors, non-physician managers may see the benefits of more protected time to facilitate such relationships. Hence, it could be argued, that time set aside where faculty members are protected from clinical and administrative duties, in order to mentor physicians in training, may be an emerging and growing need in today’s healthcare system.

11. Mentorship in the era of COVID and beyond

The coronavirus disease 2019 (COVID-19) pandemic has certainly also posed its own challenges to medical education as a whole [122]. Over the last year students over several fields, not just medicine, have been kept out of class rooms and auditoriums and have been unable to congregate in student lounges, libraries, cafeterias and other places where healthy academic discussions may occur [122]. This is equally true for residents and fellows as well as medical students. Potential mentors are simply less visible and may be less accessible and overall harder to approach in the era of the pandemic. Research mentorships have also identified barriers specifically related to COVID-19, such as transitioning research forums and groups to virtual platforms, adapting the mentorship relationship to video conferencing platforms if needed and providing virtual research opportunities [123, 124]. It may also prove particularly valuable to consider promoting more mentor-mentee meetings in a time where social distancing and avoiding larger gatherings are mandated, given that this involves a two-person team only in most cases. Additionally the pandemic has opened the door for virtual gatherings through video conferencing platforms, which can include many of the advantages of a “face to face” meeting, while allowing for relationships to transcend geographical boundaries [125], a benefit which may outlast the pandemic itself. Mentorship may also be redefined given the already high burnout rate among physicians and trainees, even before the pandemic [126], to include not only academic support, but also emotional support and support of broadly defined ‘wellness measures’ through mutual compassion during a stressful time [123].

12. Challenging the traditional mentorship model

Modern day challenges to traditional mentorship in postgraduate medical education could be overcome by either addressing the challenges themselves or “challenging” the traditional model of mentorship. With more and more of the work that clinicians perform requiring information-technology (IT) skills and constantly being “up to date” with regard to the new features of medical software and EMRs, our physicians-in-training may find themselves at a unique advantage. New graduates from medical school would naturally be comfortable with IT skills and may also be more likely to evolve and pick up ‘new tricks’ pertaining to EMR use, enabling them to teach their mentors. This introduces the concept of “reverse mentorship”, where the less experienced physician could help the more experienced physician gain confidence and knowledge ultimately benefitting both the mentee and the mentor and “leveling the playing field” [127, 128]. Reverse mentorship may help those physicians with limited EMR knowledge or skills, lack of familiarity with modern electronic research tools, and even virtual and video meeting and teaching sessions. In addition, reverse mentorship may also be beneficial to some of the gender specific and ethnic barriers to mentorship mentioned earlier in this chapter. Female and minority physicians-in-training could mentor their faculty members in modern challenges which may be specific to females or minorities, ultimately increasing the understanding of these important topics among predominantly white, male mentor pool. Reverse mentorship may also be particularly relevant to postgraduate medical education during the current pandemic. Traditionally senior physicians have more knowledge and confidence in medicine because of decades of academic research and clinical experience. However, this advantage may be somewhat lost in the midst of a pandemic. The rapidity with which COVID-19 infiltrated and shook the very foundation of outpatient and inpatient medicine over the last year, made it important for physicians

to constantly stay current on the newest guidelines for management and newest evidence pertaining to COVID-19. Many experienced physicians were humbled and may have found themselves receiving updates and tips from younger less experienced colleagues. A “group mentorship” model which potentially could include physicians, advanced practitioners and nurse managers as well as hospital administrators as mentors, may improve the overall training of a physician-in-training mentee, and render them more equipped to practice in a rapidly evolving healthcare system.

13. Premedical mentorship

Having discussed mentorship in graduate medical education, it is important to emphasize that mentorship should not suddenly start during one’s residency training. Optimally, long-term mentorship relationships may begin during undergraduate years, especially once a future physician decides to commit to medicine as a career. One of the challenges of being an undergraduate medical student is receiving proper advice and mentorship, especially regarding various expectations and realities of modern healthcare. In this context, mentorship can be crucial in helping set up a premedical student for future success. Deciding to apply to medical school and gaining entrance into medical school can be difficult and anxiety-provoking [129]. Mentors can help reduce that anxiety and provide insight into the realities of a career in medicine. A mentor-mentee relationship can provide meaningful information, experience and confidence to a premedical student.

Many premedical students lack knowledge about the medical field or about entrance into medical school. Also, many of these students have no connections to individuals in the medical field [130]. A well-organized premedical advising program would serve students well by providing opportunities for direct mentorship by those in the medical field. Such programs could take the form of longitudinal mentorship, one-on-one physician mentoring programs, or periodic educational sessions with physicians.

A mentorship program could allow premedical students gain assistance in selecting undergraduate classes, completing medical school applications, crafting personal statements, preparing for medical school interviews, preparing for the medical college admission testing (MCAT), choosing extracurricular activities, understanding professionalism, developing leadership, or finding opportunities for research, volunteering or clinical experience. Mentorship programs can provide essential support for those who come from disadvantaged backgrounds or from groups underrepresented in medicine.

Having physician mentors can augment the advice of undergraduate premedical advisors and provide essential networking opportunities, as well as clinical experiences. Students can learn what a physician’s life is actually like and better understand the skills needed beyond excellent grades and test scores. They can witness real-life patient-physician interactions and communication [130], ask questions and may even gain exposure to different fields of medicine.

In conclusion, having a mentorship program could be beneficial in multiple ways to undergraduate premedical students. It would be a welcome resource if all undergraduate institutions had a well-developed program and mechanism(s) for assisting with the development and maintenance of mentor-mentee relationships.

14. Synthesis and conclusion

Studies have shown that rates of burnout and low motivation in residency can be linked to specific factors, including lack of adequate mentorship [23]. Thus, it

is essential to conduct necessary research and strategize how to best implement key initiatives like mentorship programs so they are optimally effective and helpful in preventing burnout, disengagement, and loss of talent [23]. Within this broader context, the intention, initiation and execution of mentorship all warrant additional research. Mentorship has proven to be very beneficial, but because it is implemented in a variety of ways and for a variety of purposes, its effects can be difficult to measure. There is a great need for increased research on various benefits of mentorship, as increased evidence will likely incentivize institutions to create mentorship-friendly policies like protected time, which in turn would encourage more faculty to serve as mentors. Examples of measurable outcomes include grants, publications, mentorship evaluations and awards, quality improvement measures, academic advancement, career satisfaction and faculty retention [37]. However, intangibles such as stronger collegial relationships, enhanced learning opportunities, and greater interprofessional engagement and awareness also need to be examined in a more rigorous fashion [37]. These less tangible markers may lead to greater fulfillment within the profession, less burnout and even better patient outcomes. Formal, long term evaluation of the success of mentorship programs is needed in order to measure the true costs, benefits, and institutional outcomes. With a shift to pro-mentorship cultures, institutions and individuals could greatly improve their outcomes and satisfaction within medicine.

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Creating Long-Lasting Clinical Connections: A Trainee-Centered, Leadership-Based Perspective on Provider-Patient Relationship

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Abstract

The nature of provider-patient relationship (PPR) goes far beyond the simplified paradigm of “chief complaints,” “clinical problems” and corresponding “therapeutic solutions.” In order to more comprehensively explore the scope of PPR in the context of leadership-based partnership (LBP), various factors and their contributions were researched in terms of both the success and optimization of health-care interactions. This is especially relevant to graduate medical education (GME) and advanced practice (AP) training programs. There are numerous nuances to PPR, including various communication, behavioral, ethical and leadership considerations. Body language and tone of voice are essential in establishing rapport, beginning with the so-called ‘first impression,’ which serves as a foundation for developing the PPR. Health-care providers (HCPs) with greater ability to empathize with their patients may achieve higher levels of treatment adherence, better clinical outcomes, and ultimately increased patient satisfaction. The inclusion of a patient as a co-leader and an essential member of their health-care team (HCT) should be a natural step and a top priority for GME and AP trainees. Such collaboration requires an open-minded approach by all stakeholders. Finally, recognizing patient well-being in all domains, including physical, emotional and spiritual, is critical to the holistic approach toward maximizing the benefits of an optimal PPR. Same can be said about the HCP. In this chapter, we will explore key aspects of PPR in the context of both the trainee and the patient being co-leaders within the bounds of the LBP framework.

Keywords: graduate medical education, GME, advanced practice, health-care provider, leadership-based partnership, provider-patient relationship

1. Introduction

Provider-patient interactions constitute a foundation upon which a durable therapeutic relationship can be built. The same is inherently true for trainee-patient interactions. Beyond some of the more superficial factors, patient-provider relationship (PPR) has profound implications on numerous domains, from clinical outcomes



Figure 1.
Word cloud depicting relative weights and frequencies of key terms reflecting the current chapter's focus.

to treatment adherence and patient satisfaction [1–4]. In this chapter, we will review existing evidence in this increasingly prominent area of leadership development, focusing on PPR in the context of graduate medical education (GME) and advanced practice (AP) training. More specifically, we will explore how the interplay between professional (e.g., mutual respect, tone of voice, body language); personal (e.g., mutual empathy, focus on wellness); and leadership (e.g., flexibility, proactivity, setting positive example) traits becomes central to optimal clinical outcomes, patient satisfaction, and high quality of care [3–9]. Additional focus will be placed on the importance of wellness, both on the part of providers/trainees and patients. For the reader's convenience, general themes from this chapter are summarized in **Figure 1**.

2. Methods

Research pertinent to this manuscript was performed via a comprehensive literature search. Internet-based search platforms used during the preparation of this manuscript included Google™ Scholar, PubMed, and Bioline International. Specific search terms included, but were not limited to, “advanced practice,” “graduate medical education,” “provider-patient relationship,” “care effectiveness,” “care optimization,” “leadership,” “relationship,” and “wellness.” Out of a total of 11,434,570 initial search results, we narrowed down our reference list to approximately 1,520 results highly specific to our intended area of focus. Out of that list, we selected our current reference list of 134 literature sources.

2.1 Important concepts and definitions

Active listening — The practice of listening to a speaker while providing feedback and conveying that one sees the speaker's point of view and understands him or her [10].

Adaptive leadership – Based on the idea that leadership is a personal characteristic independent of one's position in a hierarchy, adaptive leadership entails the work that practitioners do to initiate and sustain the patient's own initiative in maintaining well-being, therapeutic compliance and adherence [11, 12].

Adherence — The extent to which a patient continues an agreed-on mode of treatment without close supervision [13].

Advanced practice providers – A group of medical professionals that include physician assistants and advanced practice registered nurses [14, 15].

Body language — The expression of thoughts and feelings by means of nonverbal bodily movements, for example, gestures or facial expressions [16].

Empathy — A term that describes a process wherein a provider/trainee tries to understand what the patient is feeling and experiencing, physically and emotionally, and communicates that understanding to patient [17].

Graduate medical education – Also known as GME, is a system of postgraduate medical training whereby medical school graduates participate in a step-wise, long-term program to transition into practice within their intended specialties and subspecialties [18].

Leadership-based partnership — A partnership that engages all stakeholders as co-leaders to achieve a common goal or a set of common goals. It is distinct from the more traditional patient-provider partnerships, which tend to be more paternalistic in nature.

Motivational interviewing — A technique in which a person becomes a helper in the change process and expresses acceptance of his/her client; a style of counseling that can help resolve the ambivalence that prevents clients from realizing personal goals [19, 20].

Patient-centric approaches — Approaches that emphasize patient needs and priorities within the overall context of a therapeutic relationship and the healthcare system.

Patient satisfaction — Indicator or set of indicators for measuring the quality in health-care, including the overall performance of doctors and hospitals [3, 21]. More recently this has been evolving toward a more comprehensive term ‘patient experience’ which encompasses a much broader set of variables and provides a much broader context [22].

Servant leadership - Servant leadership is a leadership philosophy in which the main goal of the leader is to serve, with focus on empathy, positive reinforcement, selflessness, awareness, foresight and stewardship [23, 24].

Social determinants of health - Conditions in the places where people live, learn, work, and socially interact affect a wide range of health risks and outcomes [25].

Telemedicine — The use of telecommunication in the delivery of health services to enable provider–patient and provider–provider consultation despite geographical separation [26, 27].

Thorough approach — The doctor/provider/ trainee is conscientious and persistent [17].

Tone of voice — The quality of someone’s voice which expresses a mood or emotion [28].

3. Discussion

Long-established as a positive modulator of health-care quality and effectiveness, the importance of developing and sustaining a constructive and PPR cannot be overstated [29, 30]. The PPR itself is a relatively complex and multi-factorial concept, with contributing inputs from various closely inter-related domains, including effective communication, mutual respect, empathy, good listening ability, body language, tone of voice, leadership skills, cultural awareness, conceptual openness and joint decision-making, in addition to clear evidence of professional/technical competency [5, 31–34]. It is therefore not surprising that, over time, PPR became a key component and focus of medical school, GME, and AP training curricula [35–40]. In the subsequent sections of this chapter, we will discuss various

nuances and aspects of the PPR, focusing specifically on the importance of adaptive leadership in the overall framework of therapeutic effectiveness, long-term sustainability, and LBP [11, 38, 41].

3.1 Body language and tone of voice

During a health-care visit, whether with physician, trainee, or AP provider, it is important for the patient to feel comfortable, respected and listened to [42]. The focus should be on developing and sustaining a PPR that is based on mutual trust and the ability to relate with one another, utilizing primarily patient-centric approaches (PCAs) [43–45]. This helps facilitate the development of interpersonal respect and a bond (also known as a rapport) between the individuals involved [45], optimally resulting in the emergence of a LBP.

It is well known that a first impression, or the intuitive opinion of another person, can be formed in a matter of minutes based on appearance, body language, and tone of voice [17, 46]. Although it is not always accurate or correct, it nonetheless creates a basis for further interaction and relationship growth. The first essential tool is body language, which can be defined as “the expression of thoughts and feelings by nonverbal bodily movements” [16]. The second is tone of voice, including word choice, defined as the quality of someone’s voice with which one expresses a mood or emotion [28]. As a whole, nonverbal and verbal characteristics are key to successful PPR, mainly because a negative first impression is difficult to overcome [47].

There are certain techniques trainees in particular are encouraged to learn and embrace in order to optimize the odds of a positive first impression. First, and perhaps most fundamentally, they should study the patient’s medical records and be aware of his/her name and reason for the visit. In doing so, the provider/trainee can confidently enter the room properly addressing the patient, introducing themselves with a first and last name, and making good eye contact with a firm handshake (of course with a consideration of specific scenarios where such well-meant gestures may not be culturally acceptable) [17]. Before asking the patient to explain their reason for the appointment, the provider/trainee may consider inquiring about other aspects of his/her life [17]. In addition to promoting openness and trust, such questions may bring out important details about social determinants of health (SDH) [48]. Omission of these simple and effective measures may cause the patient to experience discomfort and distrust, causing them to neglect to share important information with the HCP. After moving to address the patient’s chief complaint, the provider/trainee should follow-up with increasingly more specific inquiries, appropriately moving from broader to more focused questions that follow a logical process. Appropriate expectations should be set along the way. This helps reduce any misunderstandings and ensures that information is communicated and processed in a controlled fashion. Taken together, the above approach helps facilitate the relationship-building process and inherently promotes the impression of a health-care visit as being both successful and meaningful.

It has been said that effective communication between a patient and a provider is “the heart and art of medicine” when building a therapeutic PPR [49]. At all times, providers should be aware of, and pay close attention to, their verbal expressions and word choices. Even though they have an extensive vocabulary of complex clinical terms, it is possible to confuse and even scare the patient depending on how medical information is delivered [50]. For example, when talking about having a surgery to remove an anatomic structure, using the word “excise” or “resect” can be easily misunderstood and using the phrase “cutting it out” sounds pain inflicting [17]. Consequently, using the term “removing” could be less stressful for the patient

while still conveying the main point of treatment. Also, during consultations, it is important to take note of the general tone of the conversation (i.e., friendly and engaged versus tense and business-like). Patients may perceive the interaction more positively if the HCP has a more constructive and approachable demeanor about the visit as a whole, including polite greetings and farewells and conversing about non-medical details [51]. On the other hand, the emergence of tension during a conversation can cause negative effects on patient satisfaction compared to a more light-hearted but professional tone. Of course, the context of a conversation must be respected, with matters of great impact being discussed at an appropriately more formal but equally empathetic and sympathetic level. Thus, if a provider communicates difficult diagnostic findings or therapeutic options through careful language selection, a patient may still report a more positive experience [51].

In addition to the importance of different ‘verbal behaviors’ within the overall PPR framework, ‘non-verbal behaviors’ may be just as important. For a provider/trainee, noticing a patient’s non-verbal behavior can help better understand carefully hidden emotions, such as anxiety and/or fear [17]. For example, fidgeting can reveal that the patient is anxious or may feel overwhelmed. Catering to his/her needs via word choice by the HCP guides the patient to feel sufficiently secure to calmly talk about their condition or other concerns. For patients, noticing that the HCP has their arms crossed, frowns, or makes faces may indicate disinterest and cause the patient to be equally closed off [52–54]. An HCP should incorporate eye contact, attentiveness, body movements, and time conscientiousness in order to make the patient feel as though he/she can be open while building the overall relationship [17, 55]. Gaining positive feedback from patients and doctors/trainees in non-verbal behaviors (i.e., attitudes, gestures, expressions, etc.) is vital in order to avoid confusion and misinterpretation which ultimately damages the rapport [55].

Finally, one must remember that good first impressions should not be taken for granted and must be sustained [56, 57]. This often entails a considerable effort over time. Consequently, PPR needs to be fostered with the long-term in mind, including focused and ongoing efforts by the entire HCT to maintain appropriate levels of communication, respect and trust. Most importantly, once a bad impression emerges, it is much more difficult to overcome when compared to the efforts required in maintaining an ongoing and sustained positive relationship (and thus mutual impression) [47].

3.2 Empathy is critical in provider-patient relationship

Within the past few decades, the idea has gained traction that maintaining a strong PPR requires both the provider and patient to be empathetic and play equal roles as co-leaders within the overall, multi-dimensional therapeutic interaction [58, 59]. Empathy entails the consideration of combined cognitive and affective components – both very important aspects of a provider’s and a patient’s well-being [60, 61]. When demonstrating cognitive empathy, HCPs should be able to recognize, reflect, and consider a patient’s emotions, while affective empathy allows them to support a patient’s mental state when they undergo similar feelings themselves [62, 63]. HCPs do not need vast experience nor introspection about a patient’s emotions to truly relate; previous studies have shown that empathy is a skill which can be both taught and/or enhanced through specific interventions [63–65]. The latter is especially important in the setting of medical, GME and AP education [66]. In fact, approximately two-thirds of medical schools have been teaching these skills, in some form, since the mid-2000’s [67]. Empathetic communication skills are a vital part of provider education, and are powerful tools that enhance the understanding of the patient’s point-of-view, and over time help build a robust LBP between the stakeholders.

It is important to recognize that effective empathy in clinical care is best facilitated in settings where the provider is neither overwhelmed nor affected by burnout. The ability to adequately reflect and identify oneself with another person's feelings requires one to 'slow down and take a deep breath.' Stress from excessive workload, antisocial behavior, unappreciated gender/cultural/racial differences, failure to meet the patient face-to-face, and time constraints can manifest externally as lack of empathy, even if not intentional [67]. While there is no quantitative way to measure empathy, certain actions will help psychologically improve patients' perception of their healthcare experience and the overall provider quality. The Accreditation Council for Graduate Medical Education (ACGME) recommends that through effective listening, thorough explanations and counseling, and decisions considering a patient's information and choice, physicians (with emphasis on trainees) will enhance the patient's perception of the overall care process, experience, and will help create and maintain mutual trust [67]. By avoiding apathy and any artificial barriers to patient-provider communication, HCPs are not only showing active personal and professional leadership, but also facilitate the growth and development of patient leadership, including the ability and the initiative to maintain interest in self-care and long-term health prevention [68].

Providers and trainees utilizing consistent communications and fostering overall patient comfort are more likely to achieve positive medical outcomes, including patient satisfaction [68, 69]. Data show that physicians with high empathy scores are more likely to have patients with good clinical outcomes, fewer complications, and symptomatic improvement [70, 71]. In one study, researchers studied how physician empathy affects diabetic patients using the Jefferson Scale of Empathy (JSE), an instrument measuring empathy through a physician's understanding of the patient's pain and apprehension, and a willingness to help. The results showed that patients whose practitioners had higher JSE scores were more likely to have an improved hemoglobin A1c and cholesterol level [72]. Another study suggested that patients with the common cold who highly rated their physicians' empathy scores, experienced overall 'milder symptoms' and were more satisfied with therapy [73].

Empathy can have direct positive influence on patients' health and their perception of HCP support [74, 75]. In one study, patients and physicians completed a questionnaire assessing their perceived emotional skills and quality of life. Results showed that even when highly empathetic doctors share negative results, patients with lower emotional skills experienced a primarily unfavorable impressions and feelings [76]. Of note, patients with high emotional skills reported greater perceived benefit from HCP empathy when hearing 'bad news' and not necessarily in a follow-up consultation [76]. Accordingly, interventions to provide additional patient support may be beneficial in cases where significant mismatch in emotional coping skills exist within a particular PPR.

In cases where patient-perceived HCP empathy helps enhance overall stakeholder experience and satisfaction, the therapeutic adherence also appears to be positively impacted. In one study, more than 500 outpatients participated in a questionnaire demonstrating that "information exchange, perceived expertise, interpersonal trust, and partnership" were among factors greatly affecting their compliance [77]. This, in turn, allows the HCP to actively enhance patient healthcare experience and associated outcomes, and do so in a relatively shorter period of time [77]. Being aware of the patients' fears and emotions, as well as the practice of self-reflection has been seen as a core competency for physicians and advanced practitioners, especially those who are in training. Within this dynamic, patients will also play a critical role in seeking help and following through on what is asked of them. Meanwhile, it is very important that providers strive to avoid misplacement within their patients' emotional milieu [78]. This approach, known as 'clinical empathy,' has been

suggested as an optimal way for physicians to maintain an emotionally healthy and balanced PPR [78]. By trying to understand the inner experiences of a patient and seeing ‘an individual’ rather than ‘a case,’ HCPs are taking on an active leadership role by making empathy a key instrument for therapeutic effectiveness.

While the information regarding HCP empathy as it relates to patient outcomes continues to be somewhat limited, studies have shown that medical empathy is important to improve patient satisfaction, compliance, and level of anxiety/distress [79, 80]. Simple word choices displaying empathy can have tremendous impact on the perceived quality of communication. It is essential that HCPs maintain compassionate care during consultations, with active awareness of the positive power of empathy, its ability to foster a meaningful connection, and a number of other potentially beneficial effects.

3.3 Patient leadership

The first step in becoming an effective leader is taking the initiative [23]. To some extent, patients assume a leadership role when they choose to seek medical care, with preventive and long-term maintenance interventions being most impactful manifestations of ‘patient as a leader’ [81–83]. Furthermore, shared decision making between patients and their providers is critical to the effectiveness of any PCA [84, 85]. In one example, a recent study examined the involvement of patients in clinical research, with an objective to foster greater patient involvement during pre-study, intra-study, and post-study activities. Data were gathered based on a set of priorities that consider the needs of patients during research related activities, defining an engaged patient as an ‘expert’ participant [86]. The importance of active patient involvement and self-directed leadership is most critical in the setting of oncology clinical trials, with significant missed opportunities due to poor overall patient enrollment or participation [87]. This is especially striking when one considers that the proportion of patients partaking in clinical trials typically does not exceed 5% of those with a diagnosis of cancer [88]. Consequently, encouraging patient leadership and initiative is important to improving clinical trials participation and potentially improving outcomes related to lack of active patient engagement.

Within the broader context of LBP, both patients and HCPs must remember that only relationships based on mutual trust can be successful in the long run [89]. Such leadership-based approaches and considerations are especially important when dealing with chronic health conditions and increasingly complex HCTs [90, 91]. It has been said that “the best follower is a leader-in-the-making,” and within the long-term PPR these words become especially relevant [92]. Consequently, it is important to persistently and consistently promote leadership qualities and behaviors within each and every PPR.

3.4 Patient wellness

The self-management of a patient’s health and well-being is a complex and multifactorial issue [93, 94]. HCTs should approach medicine with a clear focus on PCAs. In addition, it is important to maintain a holistic approach, with considerations given to factors well beyond topics such as ‘medication compliance’ or ‘long-term follow-up’ [95]. It is therefore critical that pharmacologic therapies appropriately balance biophysiological needs with highly individualized patient quality-of-life considerations to achieve sustainably healthy lifestyle and long-term well-being [96]. Finally, adequate self-reflection, deliberate mindfulness, focus on mental health/hygiene, and non-judgmental approaches are required to achieve optimal outcomes in this important domain [97–100]. HCPs should be well-versed

with the above issues and topics, and there should be ample time devoted to patient wellness as a core element of medical school, advanced practice training, and graduate medical education curricula [101, 102].

3.5 Provider wellness

HCPs and trainees are inherently attentive to the signs and symptoms of their patients, yet they often fail to properly tend to their own well-being [103]. Workaholism is all-too-prevalent among HCPs and is closely tied to burnout and various associated adverse secondary health sequelae [104–106]. Consequently, doctors and other members of HCTs should strive to preserve their own well-being, thus ensuring that quality of patient care is not negatively affected by provider burnout [107, 108]. The statistics of burnout in healthcare are staggering, with reported incidence of 30–68%, depending on the area of professional training/specialization [107].

From definitional perspective, burnout is characterized by the presence of 3 distinct manifestations: Emotional exhaustion (e.g., loss of enthusiasm for work or feeling drained); Depersonalization (e.g., manifest as cynicism or a callous approach toward others); and “Low sense of personal accomplishment” (e.g., a perception of clinical ineffectiveness and a feeling that the work is no longer meaningful) [109]. Medical students and trainees are among the most severely affected groups, but no one in the healthcare industry is truly spared [109–111]. Among physicians, high scores on the “Emotional exhaustion” and “Depersonalization” scales are seen more frequently [112]. Within the established core competencies, the ACGME places emphasis on professionalism, stating that residents must demonstrate a “responsiveness to patient needs that supersedes self-interest” [113]. Medical providers who feel emotionally or physically ‘drained’ or are unable to effectively recuperate outside of the workplace are less likely to achieve adequate (and sufficient) personal fulfillment and well-being. Self-sacrifice prevails as a part of professional identity as it applies to medical students and graduate medical education trainees [114, 115]. In one randomized study, data was collected from 74 practicing physicians in an attempt to learn more about burnout reduction and associated interventions consisting of a facilitated small-group curriculum. The authors concluded that physicians felt more empowered and engaged at work following the implementation of such targeted intervention(s) [113].

3.6 Teaching of physician-patient interactions: the role of simulation

Body language, tone of voice, empathy, and the ability to perform patient tasks/procedures competently are all critically important projections in regard to patient interactions. The question arises as to whether such important concepts can be taught and understood through simulation based medical education (SBME). The answer is “yes” in the case of most HCPs [116–122]. The next question then arises as to which is better, immersive or non-immersive simulation.

From definitional perspective, simulation generally refers to “noting or relating to digital technology or images that actually engage one’s senses and may create an altered mental state [123].” For the sake of this discussion, we will not include the interviewing of standardized patients or the use of manikins, but confine ourselves to digital technology. It must be acknowledged, though, that working directly with a patient is the true, most valuable, real world experience [124]. The rapidly changing world of SBME allows the opportunity to use digital technology in order to create an environment where much can be learned and experienced in order to minimize the chance for medical error or culturally inappropriate behaviors, to

name only two of many possible use cases. More specifically, we will address the use of immersive technology that uses virtual reality (VR), a ‘360-degree experience’ vs. images on a desktop computer, while noting that VR is clearly preferred to using a desktop simulation. In a way of pre-simulation caution, instructors must be aware that immersive VR technology can result in disorientation, nausea, headaches, and difficulties with vision (i.e., cybersickness) [125].

Body language, tone of voice, taskings/procedures, and empathy can be taught using both methods. However, considerable evidence is emerging that immersive digital VR architecture works best [126–129]. At the same time, it is evident that desktop non-immersive simulation can work better than regular lecture formats [130]. Tanvir et al. found that VR-based simulation of patients with disability allowed learners to perform better when compared to learners using a desktop model (e.g., non-immersive simulation) as reflected by information recall regarding the patient and the reduction in implicit bias [129]. Ventura, et al., performed a memory assessment of participants in an immersive vs. non-immersive environment to explore memory assessment and found the data supported the use of ‘360-degree’ technology in the evaluation of cognitive function [128]. Additionally, even behavioral counseling for primary care providers can be enhanced through the use of VR as a learning tool [127]. Everson, et al., believe that cultural empathy is an antecedent to cultural competence, and found that a 3D simulation experience impacted empathy in a positive manner among nursing students who dealt with a culturally and linguistically diverse population [126].

Any simulation, whether it is immersive, non-immersive, or real face-to-face meetings with actual humans, that puts a learner in the “patient’s shoes” warrants a dedicated educational effort [131, 132]. The exciting aspect of medical simulation, whether with standardized patients, manikins, immersive VR, or non-immersion desktop modeling, is that the instructor can mitigate the risks of anything ‘going wrong’ when learners are actively engaged in a real-world situation. Immersive VR, in particular, can be used in the pre-clinical arena to teach not only facts and procedures, but also reduce implicit bias thereby increasing empathy; cultural, physical, or otherwise. Finally, simulation may be a way to help providers maintain readiness, especially in the setting of patient volume fluctuations where procedures (e.g., cardiac catheterization) and protocols (e.g., trauma resuscitation) require ongoing provider competency [133, 134].

4. Conclusion

Literature provides significant insight into the workings of physician-patient interactions and PPR. In this chapter, key aspects of PPR and associated patterns of interaction were described. It is well established that tone of voice, body language, empathy, empowering patients to co-lead, encouraging patient wellness, and fostering physician wellness can all positively affect the PPR, resulting in improved patient satisfaction, adherence, and even clinical outcomes. While these aspects of HCP-patient interaction were explored and documented, there still remain opportunities to study other factors, such as patient education and engagement of care-takers and family members. To summarize, the authors of this chapter emphasize that LBP can be a versatile tool in building a sustainable, long-term, positive, and therapeutically effective PPR.

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The Impact of Coronavirus Disease 2019 (COVID-19) on Graduate Medical Education (GME): An Exploration of Behavioral Health Aspects

Jordan C. Holter, Christine Marchionni and James A. James III

Abstract

The Coronavirus Disease 2019, regularly referred to as “COVID-19”, has had an unprecedented impact on not only the state of graduate medical education (GME) for post-doctoral trainees, but also their well-being and welfare. Trainees comprise approximately 14% of physicians in the United States. This crucial portion of personnel in healthcare has irrefutably represented the resilience that personifies the medical community. The prevalence of physical and emotional exertion by these trainees, necessitated by the pandemic, has precipitated behavioral health ailments like mood disorders including depression and anxiety, diminished satisfaction in their corresponding specialties and impaired their ability to achieve balance between professional and personal responsibilities. This excerpt examines the pervasiveness of the adverse psychosocial implications the COVID-19 pandemic has had on this susceptible practitioner population in addition to the examination of physical and emotional exhaustion that exacerbate physician burnout including the implementation of policies and procedures to address the emergent problem of physician burnout throughout the COVID-19 pandemic by the GME. Also, this excerpt examines the adaptation of GME, including the reformation and implementation of innovative policies and procedures that has incontestably created an imprint on medical education for descendants of ACGME residency and fellowship programs in the United States.

Keywords: ACGME, behavioral health, burnout, Coronavirus Disease 2019, COVID-19, fellow, fellowship, GME, pandemic, psychiatry, public health, resident, residency, safety, vulnerability, welfare, well-being

1. Introduction

A pandemic, by definition, is an epidemic of an infectious disease that has progressed across a large region, for instance multiple continents, affecting a substantial number of people [1]. COVID-19 is caused by an infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus strain, initially isolated from individuals with pneumonia and a constellation of acute respiratory

signs/symptoms signs and symptoms in Wuhan, China in December 2019 [2]. Signs and symptoms include: fever (71%), cough (80%), fatigue (62%), muscle aches (61%), headache (46%) and shortness of breath (43%) in addition to loss of taste or smell (32%) [2]. Approximately 93% of patients encountered a triad of signs/symptoms including fever, cough and shortness of breath [3].

Initially, COVID-19 was identified in the United States in January 2020 and in March 2020, the World Health Organization (WHO) affirmed COVID-19 as a pandemic [3]. About one year after the initial identification, approximately 92.7 million individuals have been diagnosed as having COVID-19 worldwide [4]. As of January 2021, approximately 2 million individuals have succumbed to COVID-19 worldwide [4]. Prior to the COVID-19 pandemic, the 2009 Influenza A (H1N1) pandemic infected approximately 1.4 billion individuals worldwide and killed approximately 575,000 of said individuals [5]. The 2014 Ebola Virus Disease (EVD) pandemic infected approximately 28,656 and killed approximately 11,325 of said individuals [6]. In contrast, these figures pertaining to previous noteworthy pandemics that were ultimately restrained, illustrate that the present pandemic is unparalleled, particularly pertaining to mortality.

The pandemic incited a considerable response regarding cautionary and counteractive measures by both state and federal administrations to address an uptick in incidence including legislation like the Coronavirus Aid, Relief and Economic Security (CARES) Act and the Coronavirus Preparedness and Response Supplemental Appropriations Act [7]. At \$2 trillion and \$8.3 billion respectively, they were to help expand assessment for COVID-19, vaccine research and PPI procurement [7]. This legislation, particularly the CARES Act, allocated monetary reimbursement to the American public and provided supplemental unemployment payments subsequent to imposed quarantines throughout the country. Aside from legislation, partnerships among constituents of the Department of Health and Human Services (HHS) including: Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), the Biomedical Advances Research and Development Authority (BARDA) and the Department of Defense (DoD) donned Operation Warp Speed in May 2020, in a concerted attempt to develop 300 million doses of efficacious FDA approved vaccines available by January 2021 [1]. As of January 2021, the FDA has approved two vaccines for emergency use to battle the pandemic: co-developed Pfizer-BioNTech and Moderna [8]. Additionally, Operation Warp Speed has been integral in promoting the use of alternative therapeutics against COVID-19 like FDA-approved REGN-COV2, a combination of monoclonal antibodies casirivimab and imdevimab [1].

2. Methodology

Several studies have assessed the association among the COVID-19 pandemic, the pervasiveness of adverse psychosocial stressors encountered by trainees and the detrimental effects on the trainee's well-being regarding GME. Resultantly, these studies indicate that it is imperative to perpetuate the transfiguration of procedures and policies through the Accreditation Council for Graduate Medical Education (ACGME) and subsequent GME constituents of respective residency training programs, as a means to address the negative impact the COVID-19 pandemic has had on post-doctoral training. Prior to the COVID-19 pandemic, there were a plethora of studies that examined physician well-being and welfare including the prevalence of physical and emotional exhaustion that exacerbates burnout, using reliable psychological assessments like the Maslach Burnout Inventory. Nonetheless, the predominance of said studies disregard the post-doctoral trainee population,

particularly throughout a pandemic that poses personal and professional challenges to a previously susceptible practitioner population.

A website search engine was used to assist in the selection of an assortment of studies examining the negative implications the COVID-19 pandemic has had on post-doctoral training pertaining to the prevalence of physician burnout. Scholarly sources such as the National Library of Medicine, particularly the National Institutes of Health, including peer-reviewed literature catalogs like PubMed were used. Keywords used were burnout related to intern, resident, residency, fellow and COVID-19. Additionally, the keywords welfare and well-being were used in relation to the previous specifiers pertaining to post-doctoral trainees. Inclusion criteria included: studies about physician burnout including at least one of its primary symptoms (emotional exhaustion, depersonalization or decrease in personal satisfaction), studies composed using the English language, studies that illustrate empirical results using reliable instruments to measure instances of burnout like the Maslach Burnout Inventory, more specifically the Maslach Burnout Inventory – Human Services Survey for Medical Personnel (MBI-HSS MP) and studies that examined a patient population primarily comprised of post-doctoral trainees (i.e. residents and/or fellows). Exclusion criteria included: studies composed using a non-English language, studies possessing no preset criteria pertaining to physician burnout, studies that disregard the examination of burnout related to residents and/or fellows.

3. What is physician burnout?

Burnout was a term originally defined by psychologist Herbert Freudenberger in a 1974 article titled, “Staff Burnout”, essentially discussing job dissatisfaction precipitated by work-related stress [9]. Physician burnout is defined as a syndrome related to the healthcare profession involving emotional exhaustion, depersonalization or decrease in personal satisfaction [9]. In May 2019, the 11th revision of the International Classification of Diseases (ICD-11) included a more detailed definition

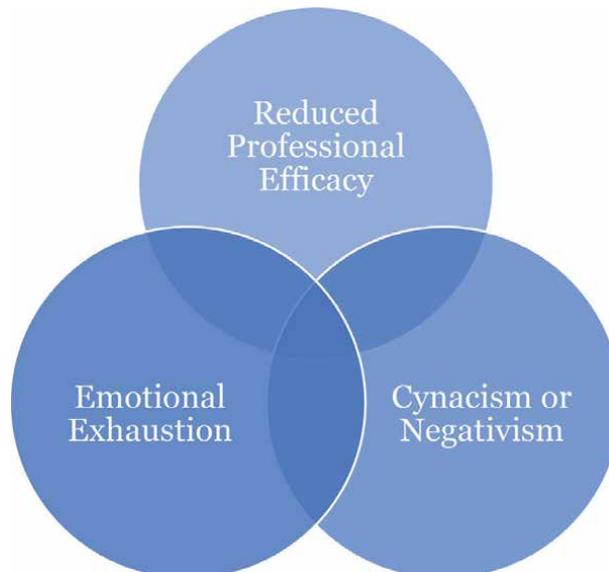


Figure 1.
The 3 domains of physician burnout as adapted from west et al. [10].

of burnout, characterizing it as a chronic work-related syndrome that can be assimilated into the healthcare profession. This definition of burnout incorporates three different domains including: feelings of energy depletion or emotional exhaustion, increased mental distance from one's job or feelings of cynicism or negativism about one's job and reduced professional efficacy [10]. Additionally, the WHO designated burnout not as disorder, rather a phenomenon. Physician burnout correlates to lower patient satisfaction, higher rates of medical errors and malpractice, higher physician turnover and predisposition to substance abuse, addiction and suicide [11]. Presently, the epidemic of physician burnout in the United States is being appreciably addressed in the setting of post-doctoral education to deter the adverse consequences that contribute to the conveyance of substandard healthcare that quite often originates as a resident/fellow and propagates into one's practice as an attending physician (**Figure 1**).

4. Physician burnout in physician trainees before COVID-19

Prior to the COVID-19 pandemic, physician burnout among post-doctoral trainees was becoming immensely problematic with an alarming increase in the prevalence and pervasiveness of this phenomenon. A 2018 excerpt in the *Journal of the American Medical Association (JAMA)* illustrated this alarming increase in physician burnout through two studies. One of the studies surveyed about 3,600 second-year residents and illustrated that approximately 45% of the residents encountered burnout whereas approximately 15% of said surveyed residents regretted practicing medicine [12]. Also, this study indicated a higher prevalence of burnout among physician trainees versus non-healthcare personnel (28.4%). Per the second study included in the 2018 *JAMA* excerpt, 182 articles spanning 1991–2018 surveyed approximately 100,000 trainees in 45 countries in regard to burnout. The prevalence of burnout varied from 0%–81% including emotional exhaustion, depersonalization or negativism, reduced professional efficacy or a combination of all three domains [12]. In contrast, Monsalve-Reyes et al. (2018) demonstrated that a lower prevalence of burnout existed among about 1110 primary care nurses versus their resident trainee counterparts [13]. These examinations exemplify that although burnout is a phenomenon that is able to be encountered by any laboring individual, it is evident that the physician trainees suffer from a higher prevalence of burnout, even in comparison to other individuals involved in healthcare.

Analogous to the COVID-19 pandemic, previous pandemics including the 2009 Influenza A (H1N1) pandemic and the 2014 Ebola Virus Disease (EVD) pandemic, exemplify that an emotional burden exists pertaining to not merely alterations in an individual's behavior, rather predilection to mood disorders. This is consequential of medically managing symptomatic patients infected by a deadly disease and encountering deceased individuals of said deadly disease including the bereavement of deceased individuals in your support system. A 2017 excerpt that examined observers of the Ebola pandemic illustrated that 39% experienced difficulty concentrating on errands, 33% experienced difficulty sleeping subsequent to worry and 5–10% experienced feelings of worthlessness, diminished decisiveness or loss of confidence in one's self [14].

Conversely, this excerpt emphasized the significance of a sensation coined "post-traumatic growth", commonly referred to as PTG. This is defined as a positive change in one's behavior as a result of struggle regarding a major life crisis or trauma [14]. PTG is described as an augmentation in different domains including an increase in appreciation for one's existence and others in addition to an improved sense of closeness and cohesion in interpersonal relationships that is conducive to an individual's ability to contest adversity [15]. This is in opposition to remaining in a disparaging

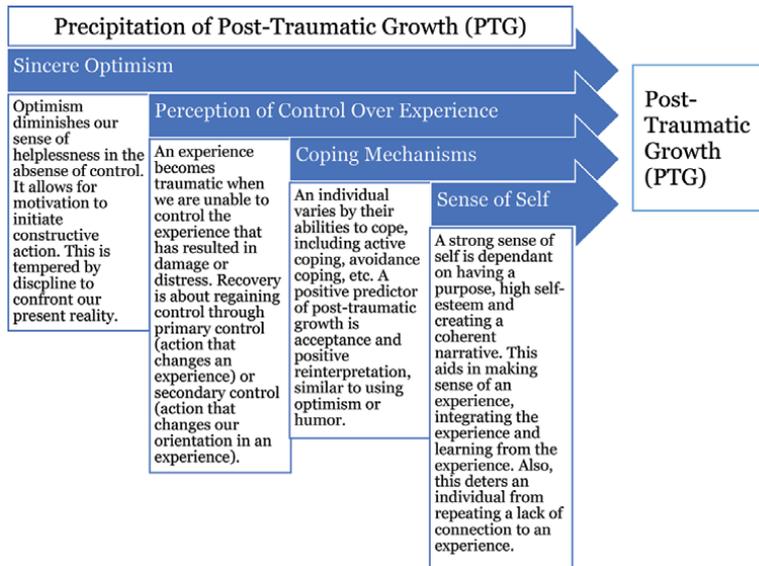


Figure 2.
 The 4 precipitating factors of post-traumatic growth (PTG) as adapted from Godbold et al. [16].

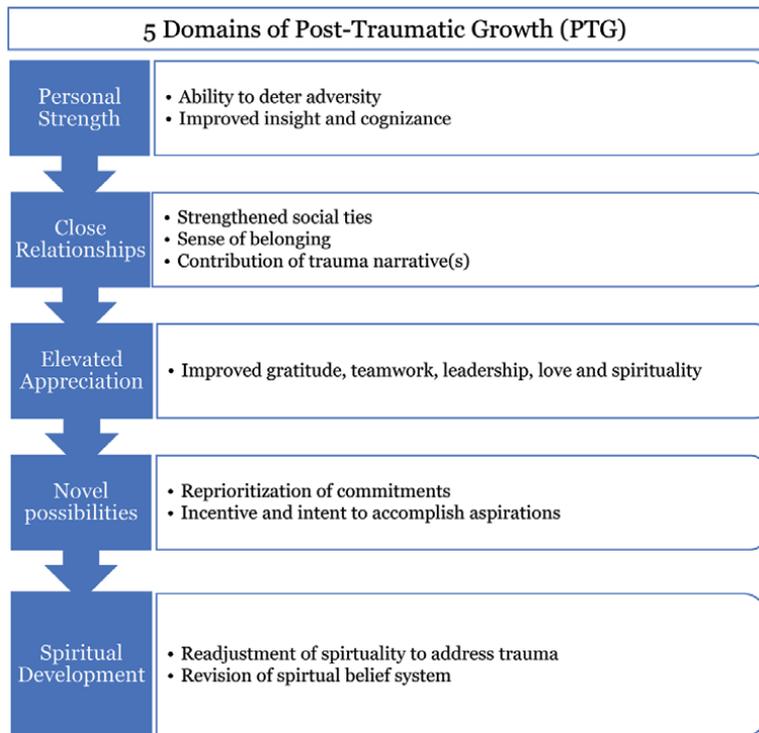


Figure 3.
 The 5 domains of post-traumatic growth (PTG) as adapted from CT et al. [17].

rotation of maladaptive behavior that is common in mood disorders including post-traumatic stress disorder (PTSD). Also, encountering trauma or substantial distress promotes reprioritization of an individual's commitments through incorporating a revision in their spirituality or sense of self [15]. Therefore, additional studies are merited to examine physician burnout and post-traumatic growth pertaining to

adaptive behaviors as opposed to maladaptive behaviors that are routinely recognized in traumatic experiences, particularly amidst a pandemic (**Figures 2 and 3**).

5. Physician burnout in physician trainees after COVID-19

Presumably, the COVID-19 pandemic has presented inimitable challenges to the delivery of healthcare, particularly by post-doctoral trainees in residency and fellowship programs. Post-doctoral trainees are predominantly on the forefront of healthcare to acquire an unmediated, practical proficiency in the practice of medicine in addition to addressing the increasing demand for appropriate healthcare. The COVID-19 pandemic has certainly stimulated an increase in the demand of healthcare as substantiated by the cumulative COVID-19-associated hospitalization rate of 364 hospitalization per 100,000 population through January 2021 in contrast to the hospitalization rate of 4.6 per 100,000 population at the beginning of March 2020, prior to the pandemic [18]. The COVID-19 pandemic has undoubtedly exacerbated the preexisting problem of physician burnout, particularly pertaining to post-doctoral trainees. Several studies have examined the presence of behavioral health ailments like mood disorders including depression, anxiety or stress and diminished satisfaction in their corresponding specialties, corresponding to their particular exposure to COVID-19 versus non-COVID-19 patients. Physician trainees exposed to COVID-19 patients encountered higher prevalence rates of mood disorders like depression (28%), anxiety (22%) and overall stress (29%) compared to their non-COVID-19 exposed peers (26%, 15% and 19% correspondingly) and the ordinary populace (12%, 11% and 11% correspondingly), as illustrated by comparable scoring using the Beck Depression Inventory, Beck Anxiety Inventory and the State-Trait Anxiety Inventory [18]. Exposure to COVID-19 patients increased the prevalence of burnout in physician trainees (46%) compared to 33% in non-COVID-19 patient exposure, as illustrated by examination of physical/emotional exhaustion, interpersonal disengagement (depersonalization) and professional satisfaction, using the Stanford Professional Fulfillment Index (PFI) [19]. Exposure to COVID-19 patients did not contribute to the low professional satisfaction scores pertaining to clinical concerns (25.2% vs. 25.9%) [19].

Aside from an increased prevalence of behavioral health ailments like depression, anxiety or stress and diminished satisfaction in their corresponding specialties, the COVID-19 pandemic has impaired the trainee's ability to achieve a balance between professional and personal responsibilities. Physician trainees were queried about common psychosocial stressors, if applicable, including monetary concerns, childcare and eldercare. Additional queries included ability to take time off and interference regarding a trainee's personal responsibilities. Exposure to COVID-19 patients increased the prevalence of stress related to childcare (62%) versus trainees not exposed to COVID-19 patients (39%), an increased prevalence of inability to take time off (74%) versus trainees not exposed to COVID-19 patients (48%) and interference in personal responsibilities (68%) versus 55% in non-exposed trainees [20]. In comparison, exposure to COVID-19 patients did not contribute to an increase in prevalence of monetary concerns (67% for each cohort) or eldercare (82% for each cohort) [20].

6. Negative impact of COVID-19 pertaining to GME training

Considerable reformation of ACGME/GME policies and procedures pertaining the adverse clinical settings created by the COVID-19 pandemic and physician burnout

have been implemented to mitigate the disadvantages and detriments of physician burnout. The ACGME assigned six core competencies to assure competency-based assessment and specialty-specified milestones include: patient care, practice-based learning and improvement, interpersonal and communication skills, professionalism, systems-based practice and medical knowledge [21]. Historically, these competencies were created to assist not merely in ACGME accreditation of 12,500 corresponding residency and fellowship programs to assure appropriate training of approximately 140,000 trainees, rather to assure that trainees are prepared to address the increasing demands imposed on the healthcare system [21]. This has become increasingly imperative as a result of the COVID-19 pandemic.

Consequential of the increase in demand of healthcare propagated by the COVID-19 pandemic, the ACGME has reiterated the importance of prioritizing the response to the COVID-19 pandemic versus previous GME protocols except appropriate work-hour restraints and resident oversight by attending physicians [22]. This has adversely affected the compulsory volume of patients evaluated by trainees in the inpatient and outpatient settings, including the cancellation of elective procedures. Unfortunately, this has adversely affected proficiency in the practice of medicine derived from pragmatic experience, particularly in specialties that are constructed around procedures. Additionally, trainees have encountered instances of reassignment to assist in the delivery of COVID-19 related medical management, often outside the realm of one's specialty of study and concurrently in the pervasive presence of a shortage of personal protective equipment (PPE) [22]. Although this allows for diverseness in experiential education, the uncertainty of resident rotations including electives and reassignment to the forefront of the pandemic lessens experiences in a trainee's respective specialties. The archetypical medical lectures and symposiums have undeniably been susceptible to the COVID-19 pandemic because of the present CDC's suggestions to abandon in-person instruction. Therefore, transitioning post-doctoral training to adhere to the requirements for distance learning has required innovative implementation to diminish the disruption to medical education delivery and sense of comradery that comes from socialization.

7. GME implementations pertaining to the COVID-19 pandemic

The response of the ACGME and related GME programs has been rapid and robust to avoid an abrupt deterioration in the educational experiences of post-doctoral training that is of the utmost importance to develop adept practitioners. This response has been aimed at numerous stages of medical education, extending from forgoing ACGME activities regarding accreditation of training programs to the preferment of telemedicine and virtual video conferencing to continue instructive endeavors [21]. Regardless of the stage of response, the commonality among said responses subsists in adequately addressing the preservation of the trainee's educational experience derived from the appropriate medical management of patients using an attentive albeit cautious approach. Remarkably, this approach has had the inherent ability to be altered in relation to the uncertainty to the COVID-19 pandemic.

In an attempt to assure proper patient care and mitigate institutional challenges imposed by the COVID-19 pandemic, the ACGME delayed the direct surveyal of sites including accreditation and clinical learning environment review (CLER) [22]. The ACGME has deferred the assessment of a post-doctoral trainee's proficiency to the program director and Clinical Competency Committee (CCC) because of the adversely affected compulsory volume of patients evaluated in inpatient and

outpatient settings in addition to the reassignment of trainees to assist in the medical management of COVID-19 patients [21]. Likewise, the ACGME deferred the determination of a trainee's capability to practice medicine unsupervised, indicated through completion of their residency training program, because of rotation resignation [21]. The ACGME and corresponding GME programs have increasingly implemented telemedicine including the redefining of "direct supervision" as the supervising physician and/or patient not being physically present with the trainee, consequential of concurrent patient care by the supervising physician and trainee through telecommunication [23]. The transition of post-doctoral training from in-person education to telecommunication for educational instruction has required innovative implementation to diminish the disruption to medical education delivery and sense of comradery that comes from socialization. Irrespective of the integral role of telecommunication in patient encounters or in-person conferences, adherence to 80 hours of clinical and education work per week, the maximum of every third day call and the minimum of one day per seven days free of clinical duties approximated over four weeks, including the reception of appropriate training regarding PPE, is compulsory to preserve proper work-hour restraints and oversight [23].

The transfiguration of GME policies and procedures in the setting of adverse clinical conditions imposed by the present pandemic has concentrated on trainee well-being to contest physician burnout. The ACGME has created coalitions with the National Academy of Medicine (NAM) to create the 'Action Collaborative on Clinician Well-Being and Resilience' in addition to promotion of their 'AWARE' program to promote well-being, mitigate the adverse effects of psychosocial stressors encountered in training and prevent burnout by-and-large [21]. Particular to the COVID-19 pandemic, the 'Well-Being in the Time of COVID-19' guidebook contains responses to illness and death due to COVID-19 by incorporating six strategies to promote well-being including: optimizing a challenging working and learning environment, promoting connectedness, building skills and mindsets, providing virtual resources for well-being support, identifying and assisting residents and fellows in distress and delivering coordinated crisis planning and management [24].

Numerous institutions have implemented Stanford's WellMD Initiative to disseminate positive transformations at the GME level. Created in 2015, this initiative discusses a culture of wellness including behaviors, attitudes and values that promote self-care, organizational responsibility regarding value of time and energy in clinical practice and personal resilience regarding behaviors and attitudes that contribute to personal well-being [25]. Initiatives like the aforementioned have advocated for added examinations of different interventions to diminish the extensiveness of burnout in the healthcare setting. A 2017 study by Busireddy et al. illustrated that a reasonable decrease in ACGME duty hours improved emotional exhaustion and burnout, evident by 42% lower odds of the percentage of residents reporting high levels of emotional exhaustion (OR = 0.59; 95% confidence interval 0.45–0.79; $P < 0.001$) [26]. A 2019 study by Spinelli et al. illustrated that interventions predicated on mindfulness possessed moderate effect on anxiety (Hedge's $g = 0.47$), depression (0.41), psychological distress (0.46) and stress (0.52) [27]. Small to moderate effects were present for burnout (0.26) and well-being (0.32) [27]. Therefore, there is substantiating evidence that cognitive and behavioral interventions on personal and institutional levels ideally lessen the severity of trainee burnout. An abundance of GME programs have adopted the application of wellness interventions into their curricula like St. Luke's University Health Network lifestyle medicine. Lifestyle medicine integrates positive transformation in an individual's nutrition, physical activity and coping mechanisms to lessen the precipitating and perpetuating factors that worsen physician burnout (**Figure 4**).



Figure 4.
The Stanford wellness framework as adapted from Stanford medicine et al. [28].

8. Conclusion

The ACGME and corresponding GME programs have afforded analogous post-doctoral trainees an ability to retreat from the pervasiveness of adverse psychosocial implications the COVID-19 pandemic has inflicted on this susceptible practitioner population. Through policies that promote enhanced well-being and an increased emphasis on behavioral interventions that endorse resilience, precipitated behavioral health ailments including depression and anxiety, diminished satisfaction and an impaired ability to achieve balance between professional and personal responsibilities have been dissuaded. Likewise, cautionary and counteractive measures have been endorsed by both state and federal administrations through enacted legislation, assuring that there has been a dynamic response to deter inconducive clinical settings regarding medical education. Additional examinations are essential to assess the advancement and application of present ACGME/GME approaches that address post-doctoral trainee burnout, irrespective of the avail present-day approaches have had on administrative and clinical levels. Notably, added examinations are essential to assess the awareness and implementation of resiliency training targeting the medical school and medical student population prior to their progression into post-doctoral trainees. Seeing as the consequences of the COVID-19 pandemic are continuous and noticeably apparent through the lapse of time, supplementary study is necessary in the presence of an unresolved pandemic.

Conflict of interest

The authors declare no conflict of interest.

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Virtual Interviewing for Residency/Fellowship during the COVID-19 Pandemic

Jameson Petrochko, Jeffrey Panting-Crespo, Christopher Smith, Megan Minor, Holly Stankewicz, Thomas McGinley, Meredith Harrison, Erin Bendas and Stanislaw P. Stawicki

Abstract

Virtual interviewing for graduate medical education (GME) had been experimented with on a small scale in the late 2000s and early 2010s, but it became a necessity for the 2020–2021 match season as a result of the COVID-19 pandemic. We will briefly discuss the history of virtual interviewing and the published literature on virtual interviewing in GME. Based on the literature and recommendations from various organizations, we address preparation for virtual interviews including special considerations for programs and fellowships. We discuss the pros and cons of virtual interviewing both in order to better understand the current situation and to make informed choices moving forward regarding continuation of virtual interviewing versus returning to in-person interviewing.

Keywords: virtual interviews, residency, fellowship, graduate medical education, covid, coronavirus, covid-19

1. Introduction

The origin of virtual meeting dates back to the 1870s when the concept of transmitting an image alongside audio over wire was introduced. In 1927 the first video conference was held between Washington, DC and NYC with a two-way audio feed and one-way video feed. However, the first publicly available commercial/residential video conferencing product, Picturephone Mod II, wasn't available until 1970 [1]. Nearly 40 years later in 2009, video for graduate medical education interviews was introduced and recorded in the literature [2]. In the years since, several small-scale experiments of video interviewing (VI) have been performed comparing VI to face-to-face interviewing (FTFI) [3–7]. Only one program performed a randomized trial of VI versus FTFI [8] and one other piloted all-virtual interviewing [9].

One constant among the results of the numerous studies was that VI is significantly less costly to applicants than FTFI [6, 8, 10, 11]. It has been hypothesized that this may inflate the number of programs that applicants apply to [10], knowing that they would not have to pay travel, lodging, and meal expenses. Having a greater number of applications to sort through could impair the ability of programs to evaluate each applicant holistically [12]. Proposed solutions include limiting the

number of programs each applicant can apply to [13] and introducing the ability to ‘signal’ a limited number of high-interest programs [12]. Another agreed-upon benefit of VI is that it would result in less time away from work/school for applicants [8, 10, 11] by eliminating travel days. This is likely a more significant benefit for current residents [6] who often require coverage for days taken off. Faculty and interviewers tended to respond favorably to VI [8, 14] and felt that they were able to adequately evaluate the candidate. Results varied significantly, however, when it came to applicant perceptions. Some studies showed that applicants were comfortable with VI [7, 9, 14] but many demonstrated that applicants were generally dissatisfied with VI [4, 6, 10, 15]. Common complaints included limited informal and social interaction [10, 11], decreased non-verbal communication [16], and inability to adequately present themselves [6]. Applicants also perceived an inability to gain a feel for the hospital and city [10, 11, 16], but inexpensive smart-phone virtual reality may offer a solution to this problem [17]. Lastly, applicants at times felt uncomfortable ranking programs that they interviewed for virtually, and noted a negative effect on how they ranked the program [9].

Virtual interviewing in GME did not catch on for the first decade or so, likely because the downsides of poor applicant satisfaction and perception of the program via VI outweighed the benefits of cost savings and convenience compared to the traditional FTFI. The outbreak of COVID-19 and subsequent travel restrictions has left VI as the most viable solution for GME interviews in the 2020–2021 match season. How VI affects rankings/admissions compared to FTFI is unclear [3, 5, 7] but the playing field was level as no one conducted FTFI for the season. Similarly, the possible negative impact of VI on applicant and program ranking relative to FTFI could not occur without FTFIs. As a result of the move to all-virtual interviewing, there has been an explosion in the amount of ‘how-to’ papers both in the medical literature and by various organizations and institutions with suggestions on how to best interview virtually.

It is possible that VI will continue to remain a part of GME interviewing past the 2020–2021 interview season, and as such it’s important for applicants and programs to understand how to prepare in order to make the best impression. Understanding the pros and cons of virtual interviewing will benefit all parties as we plan for and navigate this new era of interviewing.

2. Methods

To collect content for the literature review portion of this chapter, a literature search was conducted by inputting the phrase “virtual interviewing graduate medical education” into Pubmed, Google, and Google scholar. The references sections of included articles were reviewed to find additional articles. Colleagues forwarded to the authors several articles that did not appear in the search results. Articles that were not written in English or not relevant were excluded.

3. General considerations

A major key to success is to approach the virtual interview as an in-person interview [18, 19]. The following general considerations that apply for in-person interviews should be followed for virtual interviews (See **Table 1**).

Dress Professionally – Professional attire should be worn as if one were interviewing in-person (i.e. head-to-toe professional attire).

Dress Professionally	Professional attire should be worn head to toe as if performing an in-person interview.
Punctuality	This goes both ways; lack of punctuality is seen as being disorganized and scattered.
Eye Contact	Position the camera as to allow for as best eye-to-eye contact as possible.
Reliable Internet Connection	Wired is preferred over wireless as it is more stable and less prone to disconnects.
Ensure Operational Hardware	Both the microphone and camera should be tested beforehand.
Distraction Free Area	Ideally should have a neutral background in a silent room, preferable to avoid bedroom or kitchen.

Table 1.
General considerations.

Be On-Time – On time for an interview is generally accepted as 10–15 minutes prior to start time. Many virtual interviews are set up that interviewees meet in a virtual waiting room prior to moving to individual breakout rooms.

Maintain Eye Contact – Being mindful that virtual eye contact is not true eye contact is the first step in bridging this personal disconnect. Many recommendations are found online to optimize screen setup to assist with virtual eye contact. Also be cognizant of other non-verbal behaviors as one would in person.

virtual interview specific considerations:

Reliable Internet Connection – A wired connection via ethernet cable is more stable than “A” wireless connection, with less interference and more reliability.

Ensure Operational Mic/Camera – In addition to a functional computer, required equipment includes a high-definition camera and a reliable microphone setup. Test audiovisual equipment prior to interview start to ensure full functionality without issue.

Keep Area Free from Distractions – The background not only will impact the perception of the interviewee but may also act as a distraction during the interview. Some helpful suggestions:

- Use of neutral background
- Use of quiet room
- Silence all cell phones, computer alerts, etc.
- Arrange care of children, pets, etc.

4. Fellowship considerations

Outside of the obvious focus on clinical and research experience, the fellowship and residency interview share a great deal of overlap with each other. However, unique fellowship considerations may focus on fellowship size and length of training, the potential for faculty retention, unique scheduling challenges, and the concept of no-longer-a-resident-not-quite-an-attending.

Fellowship programs are generally smaller than residency programs and many are often limited to one or two trainee positions per year [20]. Compared with prior

residency training, trainees may experience less sense of camaraderie with a potential for learner isolation. Residency length of training ranges from three to seven years, whereas advanced fellowship training typically ranges from one to three years [20]. The accelerated nature of subspecialty training may hinder trainees ability to form professional relationships within the training institution.

Fellows may remain on as faculty after training, therefore, applicants not only interview as a potential fellow, but as a future colleague. Interviewees should observe personal congruence with institutional culture and harmony within the team dynamic. Bear in mind that a positive institutional culture engenders an equitable framework which celebrates diversity, inclusivity, and accessibility of care which, in turn, fosters the development of learners with aligned values.

Fellowship interview scheduling during residency poses a unique challenge to ensure adequate resident coverage and to limit duty hour violations [21]. Virtual interviews allow for greater flexibility in scheduling between resident shifts with minimal time off required for travel, lodging, and geographic clustering of multiple institutional interviews [21].

Overall, the virtual interview adds a unique opportunity to addressing these unique fellowship considerations. As the old proverb goes, necessity is the mother of invention.

5. Program considerations

A program's preparation for virtual interviewing is very similar to the preparation for fellows and residents in the setup of their space, including lighting, reliable internet, and a quiet, professional environment. Reviewing applications should be done prior to the start of the interview to improve time management and maximize their ability to get to know the applicant. Having an idea of what questions they want to ask of the applicant can also aid in the flow of the interview itself. Programs should ensure that the interview platform they are using is easy to follow and easy to explain to applicants. For example, a platform in which the applicant can stay in one "room" or on one link and the interviewers come to them helps to eliminate some of the stress for the applicant. They click on one link and everyone comes to them. When selecting interviewers, programs need to consider that the applicants likely will not be able to see their facility or meet with the residents and faculty and see how they interact. They may want to consider having a current resident do interviews or perhaps schedule a meet and greet with current residents before or after the formal interviews, so that applicants can get a feel for the culture of the program. Virtual tours may also be necessary to show the hospital and the area. If possible, allowing applicants to visit the hospital for an "in person" look is a good idea. Allowing for some flexibility and understanding the stress that may be associated with virtual interviews is imperative for everyone involved. However, staying organized and planning ahead can certainly help decrease some of those stressors.

6. Pros of virtual interviewing

6.1 Financial

Every fall, medical students from all over the country embark on the beginning of their interview and match season. Medical students are well known for having invested a significant amount of both time and financial resources to get this far in their journey. According to the most recent reports by the AAMC, the average

medical student debt by the time of graduation has surmounted over \$200,000 [22]. Of note, according to the most recent AAMC annual survey, interviewing for residency costs a student between \$1000 and \$11,580, with a median amount of approximately \$4,000 [23]. Virtual interviewing may potentially broaden interview opportunities for students who would otherwise not be able to attend interviews due to lack of financial capacity.

Another important factor to consider is the financial implications for residency programs themselves. Social events like the pre interview dinner and interview day meals as well as time off clinical duties from key faculty. The use of virtual interviewing may decrease lost productivity in times where the pandemic has already caused massive revenue losses for hospital networks [24].

6.2 Time

It has long been a matter of concern that medical students miss out on valuable clinical training during their interview season, that lost time may lead medical students to lose valuable practice with key clinical skills needed during the beginning of their intern year in July. At the same time, several residency programs throughout the country have conflicting interview schedules, leading many medical students to have to choose between two equally attractive programs [8]. Eliminating travel time has the potential to decrease idle time by over half and allow students to attend more desired interviews. At the same time, faculty performing interviews may potentially lose less time as they may schedule their interviews remotely.

6.3 Advantages for rural programs

Another potential advantage is smaller, rural programs may potentially have an increased pool of applicants that would not have otherwise been able to travel to remote locations. This has the potential of providing cultural and ethnic diversity to a programs pool of residents.

6.4 Advantages for foreign medical graduates

There is a large pool of competitive foreign medical graduates that may not be able to come to the US or an interview secondary to visa constraints, or they may be hard pressed to attend multiple interviews at different sites due to financial constraints. Video interviewing makes it incredibly practical for these qualified applicants to get the opportunity they deserve and help level the playing field. This is of particular importance in the current day and age, where there is a shortage of USMDs entering primary care specialties and these spots are increasingly being filled by FMGs.

7. Potential cons of virtual interviewing

7.1 Behavioral aspect

It is a well-known fact that while a candidate may look good on paper, that candidate's personality may or may not be a good fit for the respective program's culture. Personality plays a large role in how well a trainee fits in, and how happy and satisfied they are with their peers; this in turn has an effect on their medical training, how comfortable they feel approaching their faculty and coresidents. Without a doubt, in person interactions facilitate the observation of nonverbal cues,

body language and micro facial expressions, which in turn, allow the interviewer a better grasp on how good a fit the respective applicant is for the current program. The concern with video interviewing being that it is harder to gauge these interpersonal skills. Fortunately, in the author's personal experience this interview season's high quality video streaming has allowed a better-than-expected measure of noncognitive and interpersonal skills. The accuracy of our interpretations remains to be seen.

7.2 Living situation

Another aspect to consider is that the future resident will be living in the area for the next 3–7 years depending on their program. It is difficult to gauge whether one will be happy living somewhere without having been physically there and evaluating potential neighborhoods, school districts and recreational activities.

7.3 Number of applicants

It is possible that programs will be faced with higher numbers of applicants as it is easier for students to schedule interviews virtually for the reasons discussed a priori. However, it is possible applicants will be attending program interviews they have no genuine interest in, just to adjust to the new playing field. This may need to be circumvented by programs interviewing more applicants.

8. Response to the current match

Although long-term follow-up will be the greatest indicator of success of for virtual interviewing in the 2021 NRMP match, initial analysis suggests that the first large-scale test of virtual interviewing in GME was a success. Despite a 2.3% year-over-year increase in the number of available PGY1 positions, the percentage of unfilled positions decreased by 0.3% [25]. The 2.3% decrease in number of applicants that successfully matched is likely driven by the (6.0%) increase in the number of match lists submitted [25] rather than an inability to connect programs to applicants. This is evidenced by a similar distribution of interviews conducted as compared to prior years [26], alleviating concerns that a disproportionately high proportion of interviews would go to a small group of highly-qualified individuals while a large portion of the applicant pool went unnoticed. While large-scale surveys of how applicants and programs feel about the match are sure to come, at least objectively the initial results are promising.

9. Future of virtual interviewing

In the near future, trends in the number of current and new COVID-19 cases, as well as vaccination rates, will determine when a return to in-person interviewing can be safely considered. Once a return to in-person interviewing is considered safe, the question shifts from 'can we?' to 'should we?'. The response to this question will likely be driven by large-scale analysis of program and candidate satisfaction and preferences, as well as in-depth analysis of the downstream effects on GME. Such analysis should include whether candidates that interviewed virtually tend to be considered a good 'fit' for their programs, which will not be known until well after the first class of virtual interviewees starts residency in July 2021.

One possibility to consider is a hybrid approach [27], and although there are many ways to implement this, the overall goal would be to minimize social contact while maximizing the ability of the program and candidate to evaluate each other for fit. Even an in-person campus visit would afford an opportunity to for the candidate to interact with faculty and residents in a nonformal in-person manner [28].

10. Conclusion

Virtual interviews seem daunting at first, but the main recommendation is to prepare in a similar fashion as for a virtual interview, plus making sure that one's technology is functional and home/office environment are appropriate. The main benefits of VI are decreased cost and increased access for rural and/foreign medical school students, while the main potential disadvantages are a decreased ability to assess 'fit' and the potential to inflate the number of interviews each candidate takes.

A major question emerges from the 2020–2021 (predominately virtual) interview season: 'What to do moving forward?' Further research is required to focus on the overall impact of the virtual interview as compared with the traditional in-person interview, the financial impact of virtual interviews during the 2020–2021 match season versus prior match seasons, and identifying virtual interview techniques to better discern applicants' personality to determine fit within a program.

Whether there is a return to in-person interviewing, a refinement of the virtual interview, or a hybridization of the two, the 2020–2021 interview season highlighted a deviation from the established way we interview for Graduate Medical Education.

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Starting New Accreditation Council for Graduate Medical Education (ACGME) Residency Programs in a Teaching Hospital

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Abstract

Starting a new ACGME approved residency program can positively impact patient care, medical education, hospital operations, and the community as whole. This requires a significant amount of commitment, time, and preparation. The initial application and accreditation process should start early and requires a thorough understanding on the ACGME requirements. Building a new residency program involves collaboration among various stakeholders, starting with the teaching hospital, ACGME, and the Center of Medicare and Medicaid services (CMS). It is prudent to also consider the operational and logistical issues such as budget, faculty and administrative staff hire, faculty time for administrative duties, and educational space for faculty and residents. It is vital to recognize how the institution's strengths and weaknesses match up to these requirements. A robust educational and clinical curriculum in line with ACGME's core competencies and useful educational collaboration among various programs is critical for effective program. Recruiting and developing the appropriate faculty members is another important aspect for a successful program. The final challenge is recruiting residents that will fit well into the new residency program. Lastly, we discuss the challenges and tips to mitigate the risks of disappointment in the process of starting and creating a flagship residency program.

Keywords: new residency program, ACGME accreditation, site visit, faculty development, faculty collaboration, residency curriculum, time line, marketing, benefits, challenges, tips

1. Introduction

In a report released by the Association of American Medical Colleges in June of 2020, United States could see a projected shortage of between 54,100 and 139,000 physicians, including gaps in both primary and specialty care, by 2033 [1]. The report

also emphasizes the systematic differences in the annual use of health-care services by urban-rural location, insured-uninsured status, and race and ethnicity. US population is projected to grow by 10.4% from about 327 million to 361 million during the period of 2018–2033 [1]. The challenge of having sufficient doctors to serve our communities will get even worse as the nation's population continues to grow and age [2]. In addition, COVID-19 pandemic is likely to have short- and long-term consequences on the nation's physician workforce. The gap between the country's increasing health-care demands and the supply of physicians to effectively fill has become even more palpable during COVID-19 pandemic [1]. Thus, it is incumbent upon governments, academic institutions, hospital systems, and us as educators to work diligently toward addressing this problem. One such way is to increase the number of quality training opportunities for medical school graduates by initiating a residency and fellowship training program. Very little has been published on the steps and benefits of starting a new residency program accredited by ACGME. The ACGME is a private, 501(c)(3), and not-for-profit organization that sets standards for US graduate medical education (residency and fellowship) programs [3]. The ACGME renders accreditation decisions based on compliance with these requirements. The process is not without challenges, however, we have tried to create a guide built on personal experiences.

2. Benefits of starting a new residency

The community benefits of residency programs spread far outside the teaching hospital boundaries and provide profits far beyond the standard annual hospital reports. Graduate medical education residency programs provide an overall positive impact at various levels right from residents and institutions to communities and the nation as whole.

GME programs deliver a disproportionate share of the care to historically underserved minorities and patients requiring transfer from other institutions for advanced care [4, 5]. More than 50% of the nation's health-care "safety net" is provided by the GME training programs in the university and community-based institutions which is an important justification of the "not-for-profit" status of these institutes [6]. The probability of a family physician settling in an underserved community increases by three to four times if they train in a community health centers affiliated with a teaching hospital-based program [7].

Besides imparting the medical knowledge to resident physicians, GME residency programs support the institution by continuing the medical education of the faculty, nursing staff, and other members of the health-care team, thus improving an overall quality of care in teaching hospitals [6, 8]. Major teaching hospitals were associated with lower 30-day mortality rates for common medical and surgical conditions ranging from pneumonia to hip replacement among hospitalizations for US Medicare beneficiaries [8]. The findings in another study suggest that mortality rates for even low-severity patients seem to be lower at teaching hospitals [9]. The attention to detail inherent in a teaching setting with a focus on innovation, frequent use of current medical literature to guide clinical decision-making, and more frequent and thorough case reviews may contribute to a lower incidence of adverse occurrences [2, 4].

Resident physicians not only provide around-the-clock coverage but also provide an economic advantage with lower Medicare spending at 30 days compared with Medicare patients at nonteaching hospitals [10]. Academic medical centers had slightly lower overall total costs compared with nonteaching centers mainly because of lower spending on post-acute care and readmissions. Better intensity of care

during the index hospitalization, more integrated post-acute care, and/or more robust care management services during the period immediately after discharge in teaching hospitals could be the reasons for these differences [11].

The teaching clinics affiliated with the hospital can increase the referral, hospital-based outpatient services, hospital admissions, and eventually revenue of teaching hospitals [6, 12, 13]. It can also help retain and recruit physicians in the health systems, especially at places with physician shortage areas. By hiring their own residency program-trained physicians, the hospitals can not only save the recruitment costs but these new physicians can also hit the ground running, thus saving both time and money for the institutions.

Data from a recent American Hospital Association survey suggest that teaching hospitals tend to have superior adoption rates of telehealth [14]. Compared with nonteaching hospitals, teaching hospitals have better odds of offering telehealth visits, chronic care management remote patient monitoring, post-discharge remote patient monitoring, telepsychiatry, and tele stroke [15].

Teaching hospitals tend to attract and cultivate people who are at the top of their fields and deeply committed. Patient care, medical education, and research come together at teaching hospitals to generate an environment that not only innovates health care but also benefits individual patients.

Examining the benefits of GME programs to the institutions and communities that sponsor them can provide a fundamental approach for preparation, resource distribution, improvement, and quality impacts within those institutions [6].

3. Building the infrastructure

3.1 Institutional accreditation and sponsorship

Per ACGME institutional requirements, “Residency and fellowship programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) must function under the ultimate authority and oversight of one Sponsoring Institution” [16]. The ACGME’s designated institutional official (DIO) will need to gain initial support from senior leadership and the board of trustees to embark on a new endeavor of starting a residency program at the institution. This support will be integral in successfully establishing the pillars that allow for a sustainable educational vision for the health network.

Hospitals or other health-care entities that seek to start new residencies/fellows have one of two options for sponsorship. Those options include partnering with an existing entity [hospital, medical school, federally qualified health center (FQHC), consortium, etc.] that sponsors ACGME accredited programs, or becoming its own sponsoring institution. There are pros and cons to each approach.

One advantage to partnering with an existing sponsoring institution (SI) is that the new teaching site could start a new residency application process without having to first obtain the ACGME institutional accreditation. Prior to applying for a new residency, the ACGME requires that there is a sponsoring institution to ensure the provision of resources and to foster a healthy learning environment. The mechanics to do this are straightforward; an existing sponsor’s program would identify the new teaching hospital as a “participating site.” The existing sponsor’s program initiates a program letter of agreement to govern the relationship between the two entities unless the new site is under the sponsor’s existing governance structure. Residents from the existing sponsor could start rotating at the new participating site, or the new participating site could apply for new residency programs.

This leads to the second advantage of partnering with an existing SI which is that resident rotations to a new participating site gives clinicians and administrators insight into what to expect when they decide to start their own residency programs. Many administrators like the idea of recruiting, training, and retaining their own workforce; however, few are aware of the cost/benefit analysis of such a venture. Thus, gaining experience in training residents without being fully committed is beneficial to all stakeholders.

A third advantage of partnering with an existing SI is that such an academic partnership could lead to a clinical affiliation, especially if the participating site has a strong and robust clinical scope within that given specialty (e.g., orthopedic hospital) and/or provides the sponsor with access to a new patient population (e.g., rural hospital or FQHC). In return, the new participating site receives the sponsorship needed to apply for new residency programs.

One downside of partnering with an existing sponsoring institution is that it can be confusing to the internal and external stakeholders as to who has the “ultimate authority” and “oversight” of the program. Governance structures are different from organization to organization and lines of accountability can be misplaced, misunderstood, or mislabeled. As a result, the question of “who has ultimate authority” can turn a once visionary proposition into a bureaucratic quagmire, especially when there are changes in leadership, organizational objectives, and internal politics. Ambiguity around “ultimate authority” and “oversight” dissipates if a site decides to sponsor its own residency programs and, as it turns out, is one of the advantages of becoming your own sponsoring institution of GME.

Sponsoring institutions are ultimately responsible for ensuring the provision of support systems, resources, and administrative structures and to foster the clinical learning and working environment. The SI’s execution of these responsibilities becomes essential when recruiting, training, and retaining the right residents for the community. The SI’s governing body has ultimate responsibility for GME activities and must weigh the rewards and risks of sponsoring GME programs. The risks being that the sponsor provides the necessary financial support for the administrative, educational, and clinical resources, including personnel. For example, each sponsoring institution of GME must identify a designated institutional official (DIO) and provide them with sufficient resources, time, salary, and professional development to effectively execute their duties [16]. A sponsoring institution must also ensure compliance with all ACGME institutional requirements while fostering a healthy learning environment, all of which can be additional costs as compared to partnering with the existing sponsor of GME.

Essentially, the decision of whether to partner with an existing sponsor or become one on your own comes down to three factors (the three Fs): faculty, finance, and facilities. Sponsors of GME are required to provide residents a broad, diverse, and in-depth training experience regardless if they own or partner with facilities that provide the clinic scope needed to comply with residency program requirements. The key is that the sponsor has “ultimate authority” and “oversight.” Although this can be obtained through affiliation agreements, it is challenging for a sponsor to enforce oversight when they lack control of the training sites. Sponsors of GME are also required to provide a sufficient number of faculties who are interested in, qualified to, and have the time for teaching and supervising residents. Lack of sufficient faculties can have serious consequences for a sponsor as demonstrated in the 2017 case when the emergency medicine residency at Summa Health lost their accreditation and the sponsor was placed on probation for not adequately negotiating for faculty coverage when replacing their ER contract with a new ER group [17]. Lastly, sponsors of GME need to ensure adequate financing of new programs either through grants, operations, or Medicare GME reimbursement, the latter having a unique set of challenges.

3.2 Budget and funding

A key factor to the success in the budgeting process takes in all start-up costs and projected operating expenses of the new residency program. The bulk of these costs and expenses include resident salaries, faculty stipends for teaching, and administrative personnel, which creates an efficient system of management and program organization. The budgeting process includes accounting for costs such as protected time for program leadership [program director (PD) and associate program director], core faculty, along with faculty stipends that foster continuing education and research. Gathering data from other residency programs which are already in operation can be invaluable in terms of budgeting and forecasting costs for a new residency program start-up. It is pivotal that when starting the new program, the faculty costs are as accurate as possible. This can be achieved by using a fair market value (FMV) estimation when assessing the physician compensation.

The financing of GME programs mainly includes reimbursement from the federal government via Medicare that will, in turn, help sustain a residency program in the long term. For instance, the size of the federal investment in GME—estimated at \$16 billion in 2015 [18], helps to spur the growth of maintenance and conception of residency programs. The reimbursement offered through Medicare can help create profitability of a new residency program. A hospital is categorized into a certain reimbursement rate based on the guidelines set by the Centers for Medicare and Medicaid Services due to location and other factors. “In general, Medicare direct GME payments are calculated by multiplying the hospital’s updated Per Resident Amount (PRA) by the weighted number of Full-Time Equivalent (FTE) residents working in all areas of the hospital complex (and at non-provider sites, when applicable), and the hospital’s ratio of Medicare inpatient days to total inpatient days” [19]. It is important to consider that if a resident were to spend time in two different hospitals, then each hospital would count the proportion of the FTE time spent at its facility for reimbursement.

To properly plan for the space and facilities needed for a new residency program, it is important to understand the inpatient and outpatient accreditation and certifying board requirements for training. Even if most residents spend the majority of their training within an inpatient setting, it is pivotal that a resident also trains in an outpatient setting due to the high probability that they will practice in an ambulatory and community-based setting [20]. The primary training site will need adequate facilities, patient volume, and faculty for resident education. Evaluating inpatient volume data and the case mix of the hospital ensures a quality and diverse mix of patient cases for residents. Also, analyzing the capacity and forecasted volumes for outpatient sites is critical to ensure ACGME compliance and quality of resident education.

Recently, St. Luke’s Hospital - Anderson Campus in Bethlehem, Pennsylvania, built state-of-the-art facilities for new resident education. During this phase of starting up new residency programs, the GME senior leadership incorporated a full-staffed GME administrative office with on-site private program director and faculty offices, research support resources, residency program coordinators (PCs), and additional conference rooms dedicated to education. The goal of this unique GME space design was to encourage interdisciplinary collaboration between different residency programs to create a dynamic and high-quality educational experience for residents. At the St. Luke’s Anderson Campus, the collaborative model allows for more open-door discussions and sharing of ideas between program directors in specialties such as internal medicine, psychiatry, neurology, family medicine, dermatology, and emergency medicine. Additional education facilities include a full simulation center, skills lab, and standardized patient rooms for trainees to learn. Collaborative space design is also another way to model interprofessional collaboration behaviors for trainees.

3.3 About readiness assessments

The GME office, in collaboration with the network business planning, offered a “first-cut analysis” of the business and workforce feasible of starting new and right-sizing the existing programs in the network. Readiness assessments determined how “ready” a department was to start or right-size its program, identify gaps, refine relevant/expected projections, and develop action plans including time lines (Table 1). After finding the leads for various departments like Accreditation/Project Management Office (PMO), Community/FQHC, Research Reimbursement, Capital/Operational Expense, and Clinical, Physician Leads received accreditation standards and application, while GME office helped them draft a rotation schedule prior to planning meeting. The goal of the meeting was to score the department’s readiness. The readiness assessment helped to structure the way we launched the change and minimize the time and resources spent on implementing the changes. Pro-forma development and workforce forecasting were also instrumental in the assessment. With the assessment, we learnt: (1) current state of department compliance, capacity, personnel, and resource, (2) what the curriculum rotation schedule could look like, and (3) the department’s experience and belief in the value of the change.

Stakeholders and recruitment	H-M-L
What will be the impact of the program on St Luke’s?	
What will be the impact of the program on the community?	
What is the medical student market demand for this program?	
What is the quality of the department’s relationship with needed external partners?	
What is the department’s level of interest? Evidence of prior success? See the benefit?	
<i>Readiness score:</i>	
Finance	H-M-L
What is the program’s cost–benefit projection?	
What is the program’s cost–benefit revision (after a rotation schedule draft)?	
<i>Readiness score:</i>	
Operations	H-M-L
What is the capacity of the department to provide education?	
To what degree does the department meet faculty requirements?	
What is the department’s existing clinical capacity?	
What is the department’s projected clinical capacity in 5-7 years?	
What existing resources does St. Luke’s currently have to support this program?	
What are the legal implications of the program (lower is worse)?	
<i>Readiness score:</i>	
Accreditation	H-M-L
How many rotations will SLRA be able to host? (48 total months per resident)	
% Compliant with accreditation standards:	
What physical space does the department currently have to run the program?	

Accreditation	H-M-L
What is the department's expertise with this GME program?	
What is the department's experience in teaching residents?	
What is the department's performance in producing scholarly activity?	
Does department's attending meet current number of faculty needed?	
Readiness score:	
Rating scale: H = fully ready (7-9 pts), M = partially ready (4-6 pts), and L = not ready (1-3 pts).	

Table 1.
Readiness assessment.

4. Program accreditation

4.1 Complete the ACGME application

The initial accreditation process should be started early as the application process is the “final product” and many things need to be discussed, outlined, and developed before the application is submitted. The DIO must initiate the application process in ACGME's Accreditation Data System (ADS). The DIO must name the program director at this time. The program director is responsible for completing the application and submitting it through Accreditation Data System (ADS) for the DIO to approve. The program director is ultimately responsible for the application submission, but the advice and expertise of key faculty, department chair, and/or recent graduates should be utilized. It is strongly advisable to become well acquainted with the ACGME requirements and have them at hand while completing the application [21]. ACGME does have a video on “Completing an Application for ACGME Accreditation” that is a great resource, providing specific details on sections of the application [22]. The ACGME has a specific section for program directors on accreditation, which should be reviewed prior to starting the application as it provides an overview of the accreditation process [23]. If a requirement is not clear, the ACGME publishes “FAQs” that may be of assistance. *This would also be a good time to meet with your designated institutional official (DIO) to discuss any other requirements that are unclear. It is also suggested that you review other documents in the Program Resources section, which could include case log requirements, definitions, etc.*

Each specialty has a specialty-specific application form. Read each question carefully and answer only that question in the space provided. Ensure the answer is complete, detailed, and if requested, provide specific examples on how something may be handled within the specific program. Many applications ask about hospital data and resources, including the number of beds, average daily census, faculty numbers, and patient care resources. Plan to include the expected schedule for the residents. *For most applications, you will need a current copy of all core faculty's curriculum vitae (CVs) (with an updated list of scholarly activities), Board Certification status, and most recent date of ABMS Subspecialty certification.*

Many citations occur because the application is incomplete or inaccurate, required education experiences are not demonstrated in the schedule, scholarly activity requirements for the faculty have not been met, or the minimum number of core faculty is not identified. *It is imperative when addressing the questions in the program information form (PIF), you answer completely, concisely, and above all, with complete honesty. If your program has flaws or weaknesses, as do all programs, do not exaggerate or attempt to mislead, as this will undoubtedly be picked up during the site*

visit leaving an irreconcilable black mark against your program. If the program has weaknesses or flaws, it is best to concisely describe how they will be addressed and corrected with a time line. Once the application is completed, the program director submits the application to the DIO for final review and approval, after which the DIO submits to the applicable ACGME Review Committee. It is important to note that applications can only be submitted once and cannot be revised after submission. Although it seems obvious, one might be surprised by the number of applications that are submitted where directions were not followed, or the application lacked proper grammar: neatness and grammar do count. A poorly prepared application sets the stage for what could be a difficult process, as noted by John Gienapp, M.D., former executive director of the ACGME, “when a site visitor reads a poorly prepared PIF he/she comes prepared for the worst.”

Once the application is completed, fellow members like faculty, residents, educators, and/or DIO should read the application and propose their suggestions and offer amendments. This is helpful to ensure that all aspects of the residency/fellowship program have been correctly presented and the document is internally consistent. It is not uncommon to have slips and/or inconsistencies in a document that has been worked on for many months. Review should include an examination of all sections of the application for accuracy, including the faculty rosters and curriculum vitae (CVs) [24]. Before submission, the program should find someone not familiar with the program but familiar with the ACGME policies and procedures to review the requirements and applications. This person should read both documents fully and identify areas that may need more details or that do not make sense.

After the application is submitted, program staff should interact with RC team to confirm that the application has been received. The RC team can also help with information about deadlines for forthcoming meetings. These meeting dates are posted on the ACGME website and are typically 8–10 weeks in advance of the meeting date. The goal for submission is several months prior to the site visit [24].

4.2 Preparation of site visit

This will take a year or more from finding a sponsoring institution to matching the first class of residents. In between those two bookends is the site visit from the ACGME. From our experience as newly accredited residency programs, there are pieces of the process, that on reflection, were key to our success.

Before thinking of the site visit, becoming familiar with the ACGME common program and program-specific requirements is essential. Having established, veteran program directors review the application in advance can give you the benefit of feedback and ability to troubleshoot. *Preferably, use one from your specialty to review the PIF and then one from outside the specialty for the site visit, who can challenge you on parts of the application unfamiliar to them and make you explain your rationale.* The most helpful part for our programs was the mock site-visit with other program faculty and having all parts of the application in folders with easily identified tabs so that all questions could be addressed quickly during the actual visit [21]. This gave us confidence and it showed the site visitor how much time, attention to detail, and effort went into application. Preparation began while creating all the applications and PIF and knowing the “purpose” of every rotation, every needed document [25]. *Understanding all the ACGME requirements and how your program will address them in the future is key during the site visit and having thought of contingency plans will impress the review committee with the level of preparation and thoroughness.*

While the ACGME assigns the site visitor and outlines the agenda for the day, it is paramount to know your program inside and out, especially if those at the site visit

One year out	Review program and institutional requirements, preview the PIF, document education meeting attended by involved and faculty, revise goals and objectives as needed, and update and organize all program letter of agreements (PLAs)
Six months	Reread the requirements and write the PIF. <i>Remember your site visitor and your RRC do not know you or your program, be clear and concise. Your site visitor and the Residency Review Committee (RRC) review multiple programs PIFs—make a good first impression</i>
3 months	Once notified, reread requirements, complete PIF, schedule a meeting with institutional officials and key faculty, schedule appropriate room for meetings, schedule transport, lodging and meals, and select residents for meeting
One month	Prepare residents and faculty, impress the importance of the meetings, share the PIF, and ask to read and ask any questions. Remind to answer questions from the site visitor clearly and accurately. If they do not know the answer, they should say so and ensure the site visitor that they will find the answer and get back to them before the end of the site visit. The program director should be notified so he/she can discuss further with the site visitor if necessary. Stress the importance of having a positive and productive attitude toward the establishment of the program. Reread requirements
One week	Meet with faculty after they have reread the PIF and clarify any questions or concerns, reconfirm all dates, times lodging, and transportation logistics. A mock interview with faculty and the PD, with the DIO acting as the site visitor can be very helpful to ensure all questions have been well thought out and all documentations are well organized and readily available. PD should have a binder with the completed application with tabs to easily and quickly find information the site visitor may inquire about. The binder should include a copy of the PIF, educational goals and objectives, written supervisory lines of responsibility, acceptance/promotion/dismissal policies, planned conference schedules, template of resident/faculty /program evaluations and plan for filing this data, copy of internal review, resident contract and manual, copies of affiliation agreements, institutional letters of agreement, and PLAs. Additionally, one should have available a copy of the program and institutional requirements as well as a block schedule of resident rotations
One day	REREAD REQUIREMENTS AND PIF, check all documentation twice, GET A GOOD NIGHT SLEEP!
Day of visit	<i>Approach with confidence, knowing you are well prepared and have an exceptional program to show off</i> Day of the visit is typically 4-5 h. The site visitor usually meets with the program director and program coordinator first, then department chair, followed by the DIO, core faculty, possibly a tour of the hospital, and then meet with residents, sometimes over a lunch. At day's end, the site visitor will have a final meeting with the program director. The site visitor typically reports a review of the program's history review of institutional issues or citations. They may ask for clarification of the PIF or questions raised during faculty or resident interviews and anything else that is needed. They typically provide their perceived strengths and weaknesses of the program and answer any questions.

Start early on accumulating and updating faculty CVs. You can use a well-written PIF as a model template, which paints the program in clear and concise manner and have another experienced PD's critique it along with other faculty.

Table 2.
 Preparation of site visit timeline.

were not involved in PIF preparation. This starts with the being confident in the details (from the time of the visit and the locations to the program specific requirements) will ensure a less stressful environment for you and the site visitor. This includes blocking vacation time for all key personnel until the site visit is complete. Likely, your visitor will not be from your specialty and you cannot assume they are familiar with all the program specific nuances, so you need to. Also, the core faculty being interviewed should be familiar with the PIF and the mission statement of the new program. If not then, at the minimum, they should know their expectations (core faculty, Core Competency Committee (CCC) or Program Evaluation Committee (PEC) members, and the rotation schedules).

4.3 Time line

One should think of the site visit as an open book test—good preparation should yield no surprises. Dr. Ingrid Philbert, Ph.D., MBA, Senior Vice President, Director, Field Activities for the ACGME, borrowed this analysis from the five stages of grief by Elizabeth Kubler Ross. Denial: “They not coming again, already”; Bargaining: “We can get a postponement”; Anger: “She says, we cannot get a postponement”; Depression: I will never be ready”; Acceptance: “We will be ready!”

In general, information gathering for the PIF should begin approximately 1 year before the application due date. Begin focused writing 6 months before the due date and finish the first draft 3 months prior to the due date (**Table 2**).

After the respective resident review committee (RRC) has reviewed the program, an e-mail notification of the accreditation status will be sent within 5 days. This e-mail note will not provide any details about the findings from the review, only the status. The letter of notification is sent approximately 60 days after that. This letter outlines areas not deemed to be substantially compliant by the RRC (citations), other areas in need of improvement, and actions the program is asked to take. This letter should be read carefully and discussed with faculty, residents, and department as well as institutional leadership.

5. Educational development

5.1 ACGME requirements

As the new program application to the ACGME begins with the designated institutional official (DIO) by submitting a program application to the ACGME’s Accreditation Data System (ADS),^[24] the DIO also must select a program director (PD). PD is not only responsible for completing and verifying the accuracy of application information but also responsible for running the program successfully. The program director must be approved by the sponsoring institutions’ Graduate Medical Education Committee (GMEC) as well as the RRC. The program director must be appointed for the length of the program plus 1 year. The PD must have educational and administrative expertise as well as certification in their respective specialty by the American Board of Medical Specialties. The PD must also be currently licensed and have a medical staff appointment at the sponsoring institution. Additionally, the PD must demonstrate adequate scholarly activity and be 5 years removed from residency/fellowship training or have worked as an associate program director for 3 or more years. To successfully oversee a program, the ACGME recommends at least 20% protected time for the PD. To assist the PD in running the program, each program is required to have a designated program coordinator (PC). The PC is responsible for assisting the PD in the day-to-day administration of the training program. The ACGME website precisely dictates the academic requirements while also mandating that the PD “embody personal qualities of integrity, confidence, and model outstanding professionalism, high-quality patient care, educational excellence and promote an environment where respectful discussion is welcome, with the goal of continued improvement of the educational experience.” The above should be viewed as absolute requirements for a program director; however, for a PD to maximize the potential of those individuals under his or her charge, the PD must act as a disciplinarian while maintaining the confidence and respect of the trainees. To maximize trainee morale and a conducive educational environment, the PD may act as a confidant, counselor, and at times, therapist.

Furthermore, it is imperative for the PD to establish good working relationships with the other program directors. Aside from providing support and advice, PDs must often work together. Because the ACGME does not permit integration with another sponsoring institution with the same specialty, programs are often required to work together to meet requirements. For instance, medical residents are required to rotate through cardiology; if a poor relationship exists between the two program directors, there is no option for the medical residents to rotate through another institution's cardiology training program.

ACGME sets standards for residency and fellowship programs that are comprised of common program requirements (CPR) that all programs regardless of specialty must meet and specialty-specific program requirements. Each program must provide program-specific details in the form of the program information form (PIF), which should be provided by the program director (PD) as they will know the program best and no one has a more significant stake in the program outcome. The PIF contains questions related to the CPR and the specialty-specific requirements and provides a clear understanding of why your program's mission and vision should exist and how it will serve the residents/fellows, hospital, and community at large.

Each program must have an accredited institution as its sponsor and designated primary training site(s). The ACGME requires accredited residency/fellowship programs to operate under the authority and control of one sponsoring institution. The sponsoring institution must comply with the ACGME institutional requirements and must ensure that all accredited programs remain in compliance with institutional-, common-, and specialty-specific program requirements as well as ACGME policies and procedures. Additionally, the sponsoring institution retains responsibility for the quality of GME, including when resident/fellow education occurs at other sites. The sponsoring institution defines and regulates compliance through affiliation agreements. Master affiliation agreements (MAAs) are the overriding agreements between the sponsoring institution and all its major participating graduate medical education sites involved in residency/fellowship education. If training was to occur at sites not governed by the sponsoring institution's primary training site's Board of Directors, a program letter of agreement (PLA) is required. In contrast to MAAs, PLAs are program-specific, originating at the program level, and offer details on faculty, supervision, assessment, educational content, size of the assignment, and policy and procedures for each essential assignment that occurs outside of an accredited program's sponsoring institution. These documents are designed to protect the program's residents/fellows by confirming a proper educational experience under sufficient supervision and must be renewed every 5 years [26].

Following initial program accreditation by the ACGME, the Residency Review Committee in your given specialty will, in subsequent years, monitor key performance measures to determine programmatic effectiveness and value. Data points are derived from the resident and faculty surveys, and board certification pass rates and performance by program graduates will determine the program accreditation status. The program must also submit every year to the ACGME program information via the Accreditation Data System (ADS). This includes reports of trainee development as measured using the specialty-specific milestones. Site review intervals will extend to 10 years if the program continues to meet performance goals. Prior to the once-a-decade site visit, it is expected that the programs will conduct, at least yearly, self-studies to consider accomplishments and opportunities for improvement [27].

The ACGME and other medical societies, especially the Association of Program Directors for the specialty, have a robust collection of resources to assist program development for everything from preparation for an ACGME initial application to

the 10-year accreditation site visit and everything in between. *One should consider attending the association of program directors meeting in your given specialty and the annual national ACGME Education Conference, usually held in the spring, join the GME committee at your institution, and call on other PDs at your institution and others in your specialty for advice* [24].

5.2 Creating a “successful” residency curriculum in graduate medical education

Developing a “successful” curriculum means designing and implementing an effective program of study and discovery in a focus area. In graduate medical education, this “focus area” may represent a rotation, that is, cardiology, ambulatory rotation, critical care, etc. It may also represent an educational activity (i.e., grand rounds presentation) or research and scholarly activity (i.e., quality improvement project). A resident’s skill level within this area is then evaluated within the “lens” of the core competencies as established by the ACGME. This “lens” includes the ACGME core competencies and their associated milestones [28]. The six core competencies include patient care, medical knowledge, systems-based practice, professionalism, practice-based learning and improvement, and professionalism [29].

The curriculum that you design for each of your focus areas should include the skill set needed within the “lens” of the competencies and milestones. Your “curriculum format” should include the following key areas:

- Overview
- Goals and objectives
- Methods of teaching/instruction
- The educational content
- Evaluation and feedback

For the purposes of providing a more concrete example, consider what a curriculum for a first-year internal medicine resident [30] who is about to begin a cardiology rotation would look like using this format.

5.2.1 Overview

This describes and sets the tone for your “focus area.” It would provide a little background about the focus area (in this example, cardiology) and may briefly describe aspects including the subject matter and clinical interactions. It may also briefly touch on other areas including educational content and methods of teaching that you will describe more in depth later in the curriculum [29].

5.2.2 Goals and objectives

The goals and objectives of a rotation or activity need to be clearly defined within the framework of the ACGME core competencies. For example, the goals and objectives of an internal medicine resident on the cardiology rotation would be defined within the framework of the six core competencies. Each of the core competencies should be listed in the goals and objectives section and the milestones

can be further defined considering the respective competency discussed. Each core competency should be listed as a separate heading under your Goals and Objectives section. Two examples of a cardiology-focused goals and objectives under **patient care** could be:

- Demonstrate updated knowledge of assigned patients on rounds.
- Demonstrate an improvement in development of a treatment plan under the cardiologist's supervision.

The wording of the goals and objectives should be in the active voice. The first word of each objective should be a behavioral verb like: define, develop, review, identify, obtain, demonstrate, correlate, present, use/utilize, and/or communicate. They are dynamic words that are important when trying to convey each of your individual goals and objectives. Communicate, for example, may be the initial “buzzword” under specific goals and objectives under the section on **interpersonal and communication skills**. Look at the following examples:

- Communicate effectively with patients and families.
- Use effective listening, nonverbal, questioning, and narrative skills to communicate with patients and families.

You will find as you are developing your curriculum for different focus areas that the patient care and medical knowledge competencies will vary greatly depending on your focus area. Pulmonary and nephrology, for example, are likely to have very different goals and objective in these areas. As you continue to develop and design curricula, you will also find that there is significant overlap in the content of the other core competencies (especially professionalism, systems-based practice and practice-based learning and improvement) and their associated milestones.

Note that the resident must have access to the curriculum, especially the goals and objectives. Many residency programs maintain these on the residency management system, whether it is New Innovations or MedHub. Another option is to save them on a shared drive on the computer which is readily accessible. The resident should review the goals and objectives portion prior to the beginning of each rotation.

5.2.3 Teaching methods

This section defines the methods by which the residents learn the different topic areas. Common examples of teaching methods germane to most resident rotations include:

- Direct patient care.
- Didactic conferences.
- Daily teaching and management rounds with team and attending physician.
- Assigned reading topics depending on the focus area.
- Other topic areas depending on the specialty; for example, the resident in cardiology may have dedicated sessions regarding ECG interpretation and review.

5.2.4 Educational content/venue

This can be considered a separate area or be included in the above Teaching Methods section. Basically, what is the nature of the clinical exposure on the rotation? Is it an inpatient or outpatient rotation or a mix of both? If it is an inpatient rotation, would patients be seen by the resident on the general medical floor or also in the ICU/CCU? Is it a general cardiology rotation or are there specific patient populations the resident would encounter on this rotation, that is, patients with congenital heart disease?

5.2.5 Evaluation and feedback

After the Goals and Objectives section, this is probably the most important section. Two of the most common questions residents ask at the beginning of any rotation are: “How am I being evaluated?” and “Is feedback provided during the rotation?” These are important questions to address in this section of the curriculum so that the resident has a clear understanding how s/he will be evaluated [31]. Important aspects to consider including this section:

- *The specific evaluation system that your residency program utilizes.* Two of the most common are MedHub and New Innovations.
- *That you provide both written and verbal feedback. Ideally, verbal feedback one-to-one should be provided at the midpoint of the rotation depending on how the rotation is run at the hospital.* If the attending of record changes on a weekly basis (which may occur on hospitalist or some subspecialty rotations), then weekly evaluations would need to be performed.
- Your resident should review the goals and objectives of the rotation at the beginning of the rotation and your resident has easy access to these goals and objectives.

Note that the rotation evaluations for the rotation should be directly related to the goals and objectives that you define in your curriculum initially.

5.3 Faculty development

The foundation for starting a residency program lies in the layering of the right faculty framework. Faculty remains one of the biggest assets for any training program. Dedication to teaching, commitment to education, and passion to share the love of learning are all aspects of academic medicine that propagate scholarly activity. Historically, there are many challenges to faculty development in any department, but most especially in new program development, in an academic setting. This issue was specifically addressed at the World Conference on Medical Education in 1988. It was intended to improve medical education worldwide. The Edinburgh Declaration made 12 recommendations, the fifth recommendation was to train forerunners as educators, not just content experts, and reward distinction in this arena as in biomedical research or clinical practice [32, 33]. This was also addressed as part of the ACGME Outcome Project initiative that faculty must be qualified to provide and evaluate education that is level-specific, competency-based, standardized, integrated, and accessible [34, 35]. The evolution of a physician into an educator does not happen overnight. The acknowledgement of the importance of faculty development cannot be overemphasized, especially in training of future physicians.

There are many challenges to a sustainable faculty development curriculum. The requirement for faculty development has increased as a result of growing demands by the regulatory agencies [36–38]. American Association of Directors and Psychiatry Residency Training membership reported lack of funding and lack of time as well as excessive clinical demands as the main barriers to seeking career in graduate medical education [36]. Clinically, the concerns for excellent patient care while teaching residents or students, with the demands of RVU production can be daunting. Other barriers noted in this survey included “faculty attrition, faculty burnout, lack of recognition, and paucity of GME positions within institutions” [36].

Traditional faculty development consists of faculty development workshops, grand rounds, leadership conferences, and faculty retreats. These sessions typically require faculty to block clinical hours to be present face-to-face in one designated location. These usually occur in larger group settings due to the cohort nature of the exercises. These sessions usually address faculty development competencies including education theory. Topics can include curriculum development, competencies, milestones, and EPAs. Other helpful topics to assess teacher effectiveness would include preparation and delivery of didactic teaching skills, clinical teaching skills, specific audience targeting, and incorporation of technology into teaching sessions. Topics specific to the resident evaluation would include assessment and evaluation, giving feedback, the 1-min preceptor, small group teaching, learner styles, and flipped classroom sessions. Other models include teaching and mentoring skills. Topics to be considered under this umbrella would include advising/mentoring techniques and evaluation of any resident expressing difficulty with academic or behavioral issues. Due to new curriculum and new roles for faculty as educators, management and leadership training should also be at the foreground of new faculty training in new programs. Management and leadership styles vary greatly depending upon the physician’s prior experiences, their own role models, and their own prior mentors. Useful topics under leadership areas include time management, work hours, delegation, emotional intelligence, networking, team building theory, work/life integration, communication skills, conflict management, strategic planning, and career development of an educator’s portfolio.

Another important component in faculty development includes the incorporation of research, especially early in residency design. The expectation of quality and process improvement (QI/PI) projects for both residents and faculty fosters a foundation of evidence-based medicine and quality standard measures for patient safety. Faculty education on research study design, statistical methodology, utilizing the Plan-Do-Check-Act (PDCA) cycle for project implementation, presenting and writing study results, project feasibility, IRB submission, poster presentations, grants submissions, literature searches, publications, evidence-based medicine (EBM), and quality improvement are essential for propagation of scholarly environment. These faculty development workshops are all valuable resources for faculty to stimulate personal research opportunities but also ignite resident intellectual curiosity. New programs that initiate faculty development in all these areas show a commitment to education to the residents. Faculties are expected to have core knowledge in their specialties. This is maintained by board certifications, recertifications, Continue Medical Education (CME), faculty appointments, and recognition within the field of interest. However, a dedicated commitment by the residency programs to structured faculty education is essential to the success of the residency itself. Capturing all areas of research, leadership, education theory, and teaching skills will undoubtedly advance the program and the residents within it.

Innovative methods to faculty development can also be explored through other social platforms. Due to the explosive nature of technology in academic medicine, exercises in flipped classroom settings, online prep courses, Skype presentations,

and lectures further help to spread the availability of resources outside the typical face-to-face lecture/conference settings. It is essential in the busy clinical setting to have flexibility in the location and timing of training activities. 2010 I-PASS study among 11 academic institutions was launched to determine the effectiveness of patient handoffs and patient safety [39]. It required faculty at multiple institutions to first be trained on best practices on patient handoffs, which then in turn would be taught to the residents. This study prompted the development of new faculty curriculum across multiple sites and the need for standardized training. Faculty development was in the lead to advance patient safety among various institutions through innovative modules, online conferencing, combined with live training workshops [39]. Another example is video observation with guided reflection using peer review of videotaped teaching encounters [40]. Another article from Klein and associates reviewed the use of social media with excellent participation, that is, Facebook in providing online faculty development for a larger venue. Participants were involved in knowledge exchange (discussing, questioning/answering, and learning new tools and opportunities) and social capital (networking, sharing ideas, and peer learning). Outcomes showed overall positive impressions with ease of use, rapport, and community building. The biggest challenges were the asynchronous nature of participation and concerns for privacy and professionalism using social media [41]. “Online learning in general is neither superior to nor inferior to other approaches, but simply a method that overcomes some challenges while creating others.” Educators should innovatively balance face-to-face and online approaches in teaching [42]. This mix of approaches offers the best combination for faculty adherence and feasibility.

Finally, the future recruitment of excellent faculty educators also lies in praising and rewarding those educators who are the role models for our new residents. These faculty members need to be recognized for the role they fulfill every day in teaching our future physicians and scholars. It will require making changes in academic policies and performance expectations, offering a well-defined career path and identity for educators, increasing faculty development programs, supporting health professions education scholarship units and academies of medical educators, and generating means to ensure high standards for all educators [32]. These resources need to be standardized and shared within the academic learning communities both in undergraduate and graduate forums. Many roles have shared responsibilities within the academic world. Professional development occurs at all levels in academic medicine with the same ultimate goals. “Ensuring that all educators receive the essential knowledge and skills for teaching should be a policy priority” [32]. Joining forces with other established programs can greatly help new program faculty development. This is evidenced in national meetings of educators who welcome shared input to advance both established and new programs for the ultimate advancement of excellent programs. The rewards of graduating a residency class with knowledgeable, compassionate, and competent future physicians remain the ultimate draw into a career of academic medicine.

5.4 Collaboration between residency programs

The benefits of collaboration in industries from information technology to professional sports have been clearly demonstrated. “We are often better served by connecting ideas than protecting them” [43, 44]. Within medical education, residency collaboration has borne fruit in several fields [45–47]. A noteworthy example is the Preparing the Personal Physician for Practice (P4) project, an initiative undertaken by 14 family medicine residency programs tasked with seeking innovation in residency education [45]. The collaboration between these programs

allowed for the sharing of “best practices,” while also granting participating programs latitude for experimentation that has led to significant advances in the education of residents [47, 48]. Similarly, a collaborative health advocacy training program developed by California’s pediatric residency programs allowed each of the constituent residencies to demonstrate clear adherence to the ACGME’s requirement on the subject [46]. In a publication that described this joint venture, the authors explain that the effectiveness of the project in accomplishing its goal has led the group to expand the scope of their collaboration [46].

New residency programs offer fertile ground for collaboration in several dimensions. First, the new residency may look at the other programs available for collaboration. Are there existing residencies of the same specialty in the health network or fellowships with ties to the new program’s field? What other new residency programs are starting in the network at the same time, or within several years, of the new program? Second, a new residency program should consider what domains are best suited for collaboration with other programs. Is it feasible and mutually beneficial to create collaborative educational content in the form of didactics and workshops? Would shared clinical experiences offer growth opportunities that are missing in single-specialty or single-program scenarios? What research and scholarly activity might grow from inter-program collaboration? Exploring these questions and their answers allows the new residency program to capitalize on opportunities to collaborate and enhance training for all of the residents involved.

At St. Luke’s Hospital - Anderson Campus, several avenues of collaboration have been established. During the planning phase for the new family medicine and internal medicine residency programs at the Anderson Campus, the decision was made to collaborate in the implementation of a curriculum in lifestyle medicine. This approach to clinical medicine, with a focus on the modification of lifestyle as a first line for disease prevention and management, is attractive to both patients and prospective residents. Working together, with the help of lifestyle medicine-trained adjunct faculty, the family and internal medicine residencies were accepted as a pilot site for the American College of Lifestyle Medicine’s “Lifestyle Medicine Residency Curriculum,” (LMRC) which prepares residents for dual board eligibility in their core specialty as well as lifestyle medicine at the end of their training. Residents participate in shared lifestyle medicine didactics and will rotate together through a lifestyle medicine specialty clinic. It was the inter-specialty nature of this collaboration that distinguished St. Luke’s from other programs vying for acceptance as LMRC sites.

Residents in the new residency programs at St. Luke’s Hospital - Anderson Campus also participate in a scholarly activity collaborative; trainees enjoy joint sessions on foundational concepts in research and work together to develop quality improvement projects spanning inpatient and outpatient settings. In addition to the clear patient care benefits of this program, residents can enhance their skills in communicating with other health-care professionals and in considering the impact of a quality improvement initiative outside of their clinical domain.

6. Marketing and recruitment

Recruiting residents for a new program must be done in a strategic manner to allow for the best outcome for the trainees and the training institution. The first three classes of a residency program can help shape the program and the community it serves. It is important to bring in residents who will contribute to the program development and are flexible in working through the challenges a new program has to offer. Over the past decade, there have been multiple studies regarding resident selection that have seen an increasing trend that USMLE score do not correlate with

performance during residency [49–51]. Many surgical and emergency medicine programs have started to look at “GRIT” as an important aspect of being successful in residency. GRIT is defined as growth, resilience, intensity, and tenacity. Identifying residents who are passionate about medicine and are willing to go beyond the job description, thus ensuring the highest patient care [52–55]. This concept has been in existence since the conception of residency by William Halsted but has been forgotten as the field of medicine has become overburdened with an increasing number of applicants and more regulations in Graduate Medical Education (GME) [50, 55].

When recruiting future residents to a new residency program, it is vital to select candidates based on the following qualities: leadership ability, strong sense of comradery, willingness to adapt and learn, GRIT (resilience), and emotional intelligence.

Academic rigor and test scores will be a part of GRIT [55]. When evaluating candidates for a residency position, it is important to create a standardized procedure to prevent biases. In terms of resident leadership, we can use Kouzes and Posner’s approach to identify those who inspire a shared vision, enable others to act, and encourage contributions and positive outcomes [56, 57]. It is also important to select individuals that work well in team; candidates that have experiences of working in a team outside of medicine should be considered an important quality. High-quality teamwork will have resulted in a candidate who has effective communication skills and demonstrates a high degree of professionalism. Willingness to adapt and learn is an important quality for candidates in a new program as it requires a great degree of flexibility and the ability to learn from challenges that will be faced as a team. A well-respected psychologist who focuses on high-functioning teams, Mihaly Csikszentmihalyi, states: “Of all the virtues we can learn, no trait is more useful, more essential for survival, and more likely to improve the quality of life than the ability to transform adversity into an enjoyable challenge.”

GRIT, as previously mentioned, is defined as growth, resilience, intensity, and tenacity. This is a vital component of resident selection. It should include the resident’s previous academic abilities. A form of this characteristic was used as a part of the criteria of the original Halstead resident for training academic surgeons at Johns Hopkins. Selecting the right set of candidates will create a unique sense of community. It is also important to select candidates with a high level of emotional intelligence in a new program. Residents will be put in environments with staff who are not familiar with having physician trainees and will require residents to handle those situations with poise and humility.

A final important consideration when recruiting residents is promoting diversity. This can be done by selecting an interview panel that encompasses staff from different areas of health care with whom the residents will be required to interact. This inclusive interview team will also be responsible with creating a standardized and structured interview process. Faculty should also be trained to avoid anchoring bias based on the application or resume alone prior to interview [51].

7. Challenges and tips

Aside from the “3Fs” model (faculty, finance, and facilities), starting a new teaching hospital poses challenges around reimbursement and accreditation. Once sponsorship and training sites have been identified, the new teaching program must determine if it has the regulatory right to start and develop a GME resident FTE cap and to be reimbursed for the residency training through CMS. Building a resident FTE cap large enough to support the hospital and the health network’s needs, not only operationally and financially, but strategically, to

provide workforce solutions in response to community health needs assessments. The Congressional Research Service (CRS) recently published an overview of how Medicare Graduate Medical Education Payments work [58]. CRS identified selected GME funding issues for the Congress to address including that Medicare GME payments do not reimburse hospitals for their up-front investment to begin new residency programs. Lack of up-front or even retro funding is a significant challenge to hospitals starting new residency programs as well as the increase in medical school enrollments and projected physician workforce shortages. As a result of absence of up-front funding, hospitals need to intertwine physician workforce initiatives into their strategic plans and business objectives rather than seeing residency training as separate from the strategy vision. By doing so, hospital executives incorporate residency training costs into their growth proformas and establish community-based recruitment, training, and retention goals as part of their growth outcomes. Hospital executives see the value of residency programs when viewing them as a workforce development initiative rather than solely an educational program that is part of a community mission.

There are many factors that determine if a hospital is eligible for Medicare GME reimbursement, which can be found at cms.gov. CMS regulations define a “new medical residency training program” simply as “a medical residency that receives initial accreditation by the appropriate accrediting body.” CMS will reimburse eligible hospitals for starting new residencies albeit under challenging and sometimes ambiguous guidelines. For example, as the end of a 5-year cap building period, CMS completes a balancing test to determine if a program is new for Medicare GME reimbursement purposes during a new teaching hospital’s 5-year cap-building window. In addition to obtaining ACGME initial accreditation status, CMS considers the following factors: (a) whether the program director is new, (b) whether the teaching staff is new, (c) whether residents came from an existing program, (d) relationship between hospitals, (e) degree to which hospital with an original program continues to operate its own program in the same specialty, (f) whether a program was relocated from a closed hospital and if so, whether it was part of that hospital’s caps, and (g) whether a program is part of any existing hospital’s caps [59]. While the balance test of “newness” might appear to be straightforward, every health-care system or entity struggles with some elements depending on their situation. There are numerous factors that could affect “newness” of a program, such as meaning all curriculum requirements, having sufficient number of qualified faculty, recruiting high quality candidates, etc. One area that programs can find challenging is recruiting residents with prior training. For a new program, this can put a damper on the depth of a recruitment pool. CMS’s guidance on the “new resident” has been that in order to maintain newness, most of the residents in the program must be residents who are also new, again, with no prior training, or the resident’s initial residency period (or IRP) not triggered.

Another CMS newness challenge faced by new programs is the comingling issues. As a new program, residents cannot participate in side-by-side training with other residents of the same specialty, as that is not deemed as “new.” Yet another area that programs can find challenging in passing the “newness” test is using new people, resources, and sites and not from existing programs. This poses a particularly significant hurdle when an organization likes to internally promote. If a health system has one family medicine program and wants to start a new family medicine program at another campus, promoting the associate program director from the existing residency to program director of the new residency can pose a problem. The keyword in this last paragraph is “can.” The CMS balance does allow for some wiggle room and, overall, much of a program should pass all elements of

the balance test, hence the name “balance” in order to qualify to receive Medicare GME reimbursement.

A few tips for mitigating the risk of losing up-front investment to failure to pass the newness assessment include but are not limited to: (1) getting a Medicare GME reimbursement consultant to conduct a “newness” assessment of your new residency programs. This should be conducted at the beginning and all throughout the 5-year cap building process. (2) Hiring a project manager to help keep new program builds in sync with the larger objective which is ensure the provision of necessary financial support for administrative, educational, and clinical resources, including personnel. A project manager will also help programs remedy obstacles to pass the balance test of newness, which inevitably require logistical support. (3) Organizing the project in terms of faculty, facility, and finance tasks and activities. Accreditation work is assumed and a significant piece of the up-front feasibility study, for example, who would be interested? What rotations would we be able to keep in-house versus out-of-house? How much will things cost? etc. Physician Leads receive accreditation standards and application and work to draft a rotation schedule prior to a planning meeting. The goal of the planning meeting is to score the department’s readiness (**Table 1**). The readiness assessment will help to structure the way we launch the change and minimize the time and resources spent on implementing the changes. With the assessment, we can learn: (1) current state of department’s compliance, capacity, personnel, and resource; (2) what the curriculum rotation schedule could look like; and (3) the department’s experience and belief in the value of the change.

8. Conclusion

The process to start successful and dynamic residency programs appeared a bit overwhelming at times, but it was a meaningful experience. The main pillars of implementation for a successful graduate medical education program encompass all “3Fs”; program faculty, facilities, and finances to build and support a cutting-edge, competency-based medical education. The advice to other programs is to embrace the experience and help encourage growth in graduate medical training positions to create succession and increase the number of physicians to help prevent reduce of physician shortage.

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Graduate Medical Education Program Mergers: Key Aspects and Considerations

Abigail Gotsch and Meredith Harrison

Abstract

The recent restructuring of the healthcare reimbursement system has led to financial pressure on all aspects of healthcare delivery. Naturally, this financial pressure will also trickle down to graduate medical education, resulting in mergers of residency programs. Historical examples of residency mergers will be presented and discussed in this chapter. Guidelines for merging residencies will be suggested for those programs undertaking this difficult process. These guidelines will address aspects of organization and leadership, educational philosophies and environment, program goals, culture, interpersonal relationships, communication, day-to-day operations, and finances. Special considerations for program mergers will also be discussed, including cultural differences, medical students, and surgical programs. The chapter concludes with a discussion on the relevancy of this information and important key concepts.

Keywords: graduate medical education (GME), merger, leadership, communication, culture, guidelines

1. Introduction

Reorganization of the U.S healthcare system began in the early 1980s as hospital ownership and affiliation began to move toward health care network conglomerates. Prior to this, there were a large number of freestanding hospitals, both nonprofit and for-profit, which existed independently from other hospitals in the area. The system was such that each hospital functioned without any reliance on – or interactions with – neighboring hospitals. However, by the early 1990's, many of these hospitals had entered into agreements to merge with each other. Additionally, many of these hospitals began to acquire autonomous physician groups to form a health care network conglomerate. This restructuring of the U.S. health care system continued throughout the begin of the 21st century. Much of this was driven by the introduction of new payment models in the Patient Protection and Affordable Care Act in 2010, which only served to further initiate mergers and acquisitions as a way to contend with ongoing payment reform.

These mergers were advantageous for a variety of reasons, but financially they were favorable based on the amount of market overlap between separate institutions. Based on previous research by Brooks and Jones [1], two major factors in increasing the likelihood of a merger were identified: the opportunity to increase efficiency and the opportunity to enhance market power.

The expected outcome of enhancing the market power was to increase profitability. By decreasing the amount of competing facilities, there was an opportunity for each healthcare network or set of hospitals to dictate certain prices for healthcare goods and services. The merger of hospitals tended to make the market power of the combination much greater than that of either hospital independently. This substantive alteration of power also served to change the market structure itself. Subsequently, this remodeling of the structure would then place pressures on other competing firms to engage in merger agreements as well.

Gains in efficiency would be made by incorporating the relative strengths of each independent hospital or physician group into a larger structure. Most often, one member of the merger benefits immediately from management expertise of the other merged affiliate. These increases in efficiency can only be seen when facilities combine their collective operations. The amount of market overlap is somewhat predictive of the amount of increase in efficiency seen with mergers. In those facilities with overlap between served markets, consolidating to decrease duplication of services will likely not only be easy, but also rewarding.

Hospital system mergers are well-established in the available literature. Of those that are reported, three significant mergers in major metropolitan cities are the most well-known and time tested [2]. In Philadelphia, in 1995, the University of Pennsylvania Health System acquired the Presbyterian Hospital, followed shortly thereafter by the Pennsylvania Hospital in 1997. This was part of an overarching goal to form an integrated city-wide academic healthcare system. In Boston, in 1994, Massachusetts General Hospital and the Brigham and Women's Hospital merged to form a new healthcare system: Partners Healthcare. Both institutions were affiliated with Harvard University; the goal was to preserve each distinguished institute's identity and renown while also forming a more inclusive healthcare system. Finally, in New York, in 1998, New York Hospital merged with Presbyterian Hospital to form New York-Presbyterian Hospital. Each institution was affiliated with a separate medical school (Cornell and Columbia, respectively); despite the merger, they have maintained a clinical independence from one another.

With an increasing number of hospital system mergers, a known sequela is the merging of the healthcare educational system. There is a considerable amount of literature reporting the trends in health care market concentration [3], in addition to the impact those trends have on healthcare costs and quality of care (arguably two of the most important factors in the health care system). However, there is a paucity of literature in regard to the outcomes of residency programs when their associated institutions have a merger or acquisition event.

The economics of residencies have been increasingly difficult during recent changes in the healthcare system. Historically, postgraduate medical education has been subsidized through a combination of public (Medicare and Medicaid) and private insurance payments. Teaching hospitals have, however, faced issues with decreasing reimbursements for a variety of reasons. A major difficulty that teaching hospitals encounter is the large amount of patients who are uninsured; some of their unpaid medical bills are financed by the hospital, while some is simply a debt that will never be repaid [4]. Another complex issue is the shifts in what type of reimbursement model is utilized by insurance companies. These issues overall result in a lower amount of total reimbursements, which trickles down to graduate medical education. These overall cost deficiencies put a tremendous amount of pressure on residency programs for collaboration to resolve these financial burdens.

With the ever-changing paradigm of healthcare delivery in the United States, the education of future physicians and surgeons remains a dynamic process. Residency mergers have become more common and will continue to occur more frequently. Establishing best practice to successfully merge residencies is important

for seamlessness in training. In this chapter, we will review the available literature regarding reported residency mergers, with a focus on models and guidelines proposed to make an effective residency merger, including strategies to overcome the difficulties that present themselves during the process.

2. Methods

We began our literature review in August 2020 by conducting a search for “residency program merger” on PubMed and Google Scholar from all years available (1968–2020). There were a total of 33 results for this search query. We then narrowed down these results to those only describing mergers of graduate medical education. Additionally, we incorporated several papers that did not appear in our original search, but were listed as references in one or more publications that appeared in our search. Our aim was to include as many examples of residency mergers to develop a comprehensive view of graduate medical education mergers and the successes and challenges that have been identified.

2.1 History of residency mergers

The first reported residency merger was between two psychiatry residencies, one from The Institute of Living, and the other from the University of Connecticut [5]. In 1989, leaders from each program came together to discuss what the combined program would look like and how they would implement the changes; in July 1990, the combined program began. Both programs had their own set of strengths. The Institute of Living, which is located in downtown Hartford, Connecticut, is one of the oldest private psychiatric hospitals in the US; its reputation and location provide a diverse patient base and the opportunity for long term follow up. On the other hand, the University of Connecticut Health Center, which is located in a Hartford suburb, is an academic institution with a strong commitment to the education of both medical students and residents.

Based on these complementary characteristics, the respective institution leaders were hopeful that the merger would be successful. A task force to construct the new residency program was assembled and was comprised of both faculty and residents from both institutions. Salaries of the residents had differed between residency programs, so once merged, all salaries were standardized. Similarly, call requirements differed, so those too were standardized. Overall the merger was successful; both institutions used the merger to improve their educational experience as one cohesive unit.

There is limited literature available regarding residency mergers, but the most widely referenced specialties include pediatrics [6], psychiatry [5], family medicine [7], and surgery [8]. For the most part, the publications generally present the process behind the merged programs, the challenges they faced throughout the process, and the advice they offer for future mergers. Success of the merger is very subjective and is not typically measured objectively, with the exception of some literature which follow residents’ perspective of the process through surveys evaluating how positively or negatively they felt about the merger.

Unfortunately, the limited amount of information available about residency programs that have merged or are undergoing a merging process is compounded by the fact that there is no official record or list which is published by the Accreditation Council for Graduate Medical Education (ACGME). Not only does the ACGME not keep records of this, but previous personal communication with ACGME administrators have revealed that no data on residency mergers is maintained [9].

Although not specifically a merger, a well-publicized closure of a large academic institution made national news in the United States in 2019. Hahnemann University Hospital, a 500-bed teaching hospital in Philadelphia, Pennsylvania, announced its closure abruptly in June 2019, soon after it had recently welcomed 140 new residents to its varied residency programs. This chaotic sudden closure suddenly displaced more than 550 residents and fellows, who then had to quickly find residency positions elsewhere. Fortunately, all trainees were able to find educational opportunities within 43 days [10]. This is a worst-case scenario result of financial pressures placed upon teaching hospitals. The goal of raising this discussion about residency mergers and collaboration is to avoid a similar unfortunate event.

2.2 Guidelines for residency mergers

Rider and Longmaid, both of Harvard Medical School, have had personal experience with mergers as well as conflict resolution and therefore published an article in 2003 detailing their advice for merging residency programs [9]. They identified 10 specific guidelines to keep in mind while going forward with the merging process, which we will discuss briefly.

2.2.1 Lead with vision

The success of any merger is dictated by having a definitive plan that is effectively carried out. This can only be achieved with establishment of a leader who is capable of not only creating this plan but also putting it into action. Whether that is one of the previous residency program directors (PDs), a combination of individuals, or even another individual entirely, the leader should be clearly identified and communicated to all involved parties.

A plan should be established which addresses a few particular issues for the new program: goals of education and training, educational philosophy, governance of combined program, institutional cultures, and the impact of merger on faculty and trainees. The vision of the leader should be used to formulate a plan for these issues as well as a timetable for that plan to be fully operational. A more rapid timetable for the enactment of the plan is preferable, as the goal is of course to minimize the amount of disruptions during the process of combining programs.

The importance of a dynamic leader is not to be neglected, either. Although the leader may have his or her own vision, it should be combined with the input of faculty and residents from both institutions. Differing opinions will allow for the creation of an ideal program, to which all faculty will then be motivated to contribute. A suggestion based on previous successes in other health care mergers would be to create a committee of involved individuals who are dedicated to shaping the goals and vision for the future residency program. This would be a concrete way to incorporate the influence of all departments interested, as well as those of the residents. Flexibility is a necessary characteristic of a leader to establish a plan that not only fits the original vision but combines with the constructive input of others.

2.2.2 Establish and reinforce communication links early

Communication is key! While the vision and plan are put into action by the leader, obstacles that challenge the success of that plan will always be encountered. Having clear channels of communication already established can be helpful when trying to address some of these obstacles. Frequent updates via multiple modes of

communication will ensure that a communication link is available should any issues arise. Email would be the easiest, but not always the preferred method for everyone. An in-person meeting that is scheduled either weekly or bi-weekly could be helpful in making sure that all parties remain involved in planning and enacting change.

2.2.3 Talk about the discomfort of change

Generally, most people do not feel like change is a positive construct. Whenever change is initiated, it is sometimes felt as if it is a negative comment on how programs were already operating. This can be detrimental to staff and program morale, which can lead to a host of negative results including staff attrition/resignation or feelings of inadequacy/anxiety. Leadership for the merger should be responsible for helping faculty and residents cope with the change by “giving them time to react, validating and respecting their feelings, keeping them up to date and creating a safe environment in which they can talk about the change” [9].

While it initially may not seem like a good idea to allow involved parties to express their displeasure in the merging process, it does allow those individuals to feel as if they have been heard and their opinions matter. Even acknowledgement itself can sometimes satiate a person's displeasure in the process. This can lead to acceptance, begrudging as it may be, rather than tension or conflict with many involved parties.

2.2.4 Challenge everyone to think about and own the process of change

During a residency merger, it is not just the institutional structure of the overall program that has to and will change, but also the personal structure of how individuals carry out their daily activities and tasks. This may not necessarily be accepted, but rather “physicians may react to the changes brought about by a merger in a predictable pattern, usually reflecting a combination of denial, anger and frustration as their professional lives become progressively more disrupted by a process they may not support” [9].

Personal commitment to the success of the merger will be essential in overcoming the disruptions presented by the operational and structural changes, which is why it is so important to make sure that all individuals' concerns are heard. The more the merger feels like it is a cooperative effort, the more individuals are willing to push through and own the discomforts of the process.

2.2.5 Acknowledge and consider different cultures

No institutional culture will be the same. Even if one larger program is enveloping a smaller program, it will be crucial to incorporate the cultures of both programs. The residents and faculty in each program chose their particular program for a unique set of reasons. Often, a major reason why a medical student would choose a program is that the culture fits with their particular value system and needs. Being able to assimilate the strengths of both programs, while abandoning the weaknesses, will allow for both sets of residents to succeed in the new environment. Without endorsement by each program's residents and faculty, the program will flounder in the setting of resentment and tensions between the two separate groups. In a merger between Howard University Hospital (HUH) and Children's National Medical Center (CNMC), the institutional leaders address a specific example of cultural differences experienced in the merger of their pediatric residencies that we will discuss in detail later in the chapter [11].

2.2.6 Start with a clean slate and respect each other

While this may seem like a simple concept, mutual respect is not always a given. Parties from either residency program may come into the merging process with pre-conceived notions and hostilities. One program may feel as if it is being “taken over” by the other, or one may feel as if it is being “invaded” by outsiders. When two groups merge, the natural instinct is for people to stay within their own group and be loyal to themselves, rather than incorporating with the second group. With time, this chasm between groups should begin to close, as they begin to interact with each other on a more frequent basis. Making sure that these interactions are positive is essential, and starts with making sure all residents and faculty have a mutual respect for one another.

2.2.7 Develop mechanisms for and solicit physician input

The more an individual feels as if they are a part of the process to create a new and improved residency, the more dedicated they are to enduring the process. Regular meetings and an inclusive committee will be essential in making staff feel as if they are able to provide input and help shape the process. The goal is to reduce uncertainty and make individuals feel more comfortable with the changes throughout the merger.

Residents, not just faculty, are an important source of constructive input during this process. While a residency merger does impact faculty and other hospital staff, the most changes will be felt by the residents. Disruptions in everyday life and operations will be most noticeable to them. It is critical that they are able to give input just as much as the input provided by leaders in the department. They may, however, not be able to dedicate the same amount of time to the process, such as attending frequent meetings, given how much time they are dedicating to their education. There should be some type of forum or meeting specifically dedicated to residents, so they feel as if their input is received while also still protecting their time to focus on their professional training.

2.2.8 Listen to and learn from each other

Each residency program will come with its own strengths and weaknesses. One may have a stronger academic program, while the other may have a stronger clinical program. Through the acceptance and assimilation of these separate resources, the combined program can be more successful than either program was individually. Identifying these strengths and weaknesses and discussing them among the leadership of the merger will be essential in deciding which components of each program to include in the combined program to create the most successful program possible.

2.2.9 Maintain equity and fairness

Salaries, benefits, and stipends must be made equal for residents and faculty to allow for mutual respect between these groups. Without this, there will be resentment and hostilities among individuals, which will be a hindrance to the programs coming together as one. This idea of fairness and equality must also apply to call assignments and workloads for the same reason.

2.2.10 Delegate and empower teams for action

It will be helpful to identify individuals who are dedicated to improving the program merger process. This could be a pre-appointed committee, as originally

Key Aspect	Suggested Actions
<i>Organization/Leadership</i>	Establish program director(s) Equal representation from each program Create committee of involved faculty and residents
<i>Educational environment</i>	Outline objectives by each PGY level Design a comprehensive curriculum Protected time for all residents Systematic evaluations of faculty and residents
<i>Program goals</i>	Develop combined vision for the future of the residency program
<i>Culture</i>	Acknowledge differences in institutional culture
<i>Interpersonal relationships</i>	Provide opportunities early on in the process for residents to work together Frequent social functions
<i>Communication</i>	Regularly scheduled meetings to provide updates Multiple modes of communication Acknowledge opinions (both negative and positive)
<i>Day-to-day operations</i>	Equal call responsibilities Access to hospital-provided tablet or computer for clinical responsibilities
<i>Finances</i>	Provide equal salaries and benefits between residents of same PGY level Equity in resident book funds

Table 1.
Key aspects and suggested actions for GME mergers.

discussed, which is comprised of individuals from both programs as well as those from a variety of departments including the resident groups themselves. Personal ownership and responsibility will then be felt by this team which is, together in cooperation, motivated to create the best residency program possible. This does have to occur in the background of all normal clinical activities, which means that the team or teams will need to be efficient and focused. Setting particular tasks and identifying sets of individuals to complete those tasks can be helpful in having them accomplished in reasonable time periods (**Table 1**).

3. Special considerations

3.1 Cultural differences

In the small pool of literature available regarding residency mergers, one of the major difficulties described with the process is institutional cultural differences. Different facilities will have their own backgrounds and their own ways of doing things. Recognizing these cultural differences and finding a way to incorporate them together is crucial to setting a program merger up for success. This allows for the residents and faculty from each program to feel as if they are a part of the new residency program without feeling a sense of identity loss. We know that successful physicians are created in a variety of training environments; a merger that integrates the strengths of each culture to create shared values will be more successful in the long run, as it engages faculty and residents from both programs in a common goal. Cooperation is a major factor in determining program merge success.

A prime example of a residency merger which united programs with vastly different cultural backgrounds was the merger between two pediatrics programs

at Howard University Hospital (HUH) and Children's National Medical Center (CNMC) as described in a case study by Cora-Bramble et al. [11]. Howard University and its associated medical programs are historically black institutions, while Children's National is predominantly white with relatively low representation of minorities. Respectively, the compositions of the two different residency programs differed in terms of the residents' race and ethnicity in addition to inclusion or exclusion of international medical graduates (IMGs). Sizes of the residency programs also differed substantially, as the HUH program was comprised of 30 residents, while the CNMC program was comprised of 72 residents. Perhaps even most notably, the levels of care at each institution differed in that CNMC was a tertiary care center with a high level of specialization including PICU/NICU capabilities, while HUH was more of a community hospital without advanced capabilities or intensive care units.

The merger occurred in 2003 and was prompted by the closure of one of the largest hospitals associated with HUH, which was responsible for the majority of their pediatric patient volume. This triggered citations of the program by the ACGME based on the low volume and lack of available subspecialty exposure. HUH recognized its own weaknesses and began to seek out an opportunity to form a collaborative partnership with another institution. CNMC, which had originally been a rival rather than a partner, stepped in to fill this need. This partnership would serve both institutions as well as the community. Goals of this partnership were identified by the CNMC leadership as "1) to increase the size of the residency program without additional cost, 2) to increase the racial and ethnic diversity of residents, 3) to provide needed support to the historic HUH pediatric residency program, and 4) to establish a community health track." [11].

Difficulties encountered during the merging process included clinical challenges, operational challenges, and interpersonal challenges. For the most part these impediments are the same that present themselves during any merger, as we have already discussed, but the most complex of these in this particular case was identified as the interpersonal. Apart from the typical difficulties such as unfamiliarity with the organizational structure of their new home hospital, the HUH residents also struggled against inherent biases. The CNMC residents were accustomed to the faster work pace that accompanied their more clinically advanced institution, while the HUH residents were particularly challenged by the higher demand. This lack of clinical acumen was concerning to both CNMC and nursing staff, and immediately put the HUH residents at a disadvantage. This disadvantage was further compounded by encounters of racism and elitism which they encountered during day-to-day operations.

A dramatic observation made in this study was the dichotomy between experiences of the two programs' residents. Only 13% of CNMC residents felt like the merger was positive for the institution as a whole, as opposed to 63% of HUH residents. The disjunction between opinions was even more distinct when residents were asked if the merger was positive for the residency program in particular – 63% of HUH residents identified it as positive, versus 10% of CNMC residents. Although these striking differences were initially alarming, as time went by after the initial merging process, the dichotomy between the separate programs' residents did begin to disappear. This was attributed to both the influx of new residents with each year, in addition to a gradual acceptance of the daily reality by pre-existing residents.

The authors of this study did identify some salient points from their merger which have implications to other residency programs undergoing mergers, particularly those with cross-cultural conflicts. Out of concern for the ethnic and racial biases expressed toward HUH residents, a zero-tolerance policy was adopted by the

CNMC leadership. This did benefit the HUH residents and their interactions with other staff, but it also had the undesired effect of making the CNMC residents feel uncomfortable expressing any legitimate negative opinions, even those that were associated with patient safety issues. The suggestion made to combat this difficulty would be to engage in more frequent feedback with all residents (in this case the CNMC residents) to ensure that all residents are able to express concerns and have those addressed by faculty or other leadership.

Another recommendation in this study was to use social events in a constructive manner. Gatherings set up between the HUH and CNMC residents were not always successful due to the different cultural norms. It is important, then, when trying to merge two independent, culturally-divided groups, that a common social ground must be established. Allowing constructive interpersonal relationships between resident groups to blossom in the setting of a shared social ground would alleviate some of the conflicts felt by both factions.

The most critical lesson identified by the Howard University Hospital-Children's National Medical Center merger was that of creating a "safe space" for the residents of both programs. This was presented as an opportunity for residents to discuss and resolve issues, especially those concerning racism, elitism, or other cultural challenges, in an atmosphere of open respect and tolerance. By creating this environment, many concerns were able to be addressed, with the goal to improve the merging process as it happened.

Developing a strong core of cultural competence is vital to a successful residency program merger. By instituting a positive set of attitudes, behaviors, and policies, a health care system can protect its residents as they undergo the difficult transition of a merger. This will not only benefit the residents themselves in terms of the level of satisfaction with their experience, but should also improve the quality of care that residents provide to their patients.

3.2 Medical students

When merging a residency program, often times the medical students affiliated with the institution are not considered. However, their education and how they fare is just as important as the residents. Most residency programs are associated with a medical school, whether it be through an academic institution to which they both belong, or as a clinical site through which medical students regularly rotate. An essential task for the resident is being involved in the education of future physicians. In fact, residents typically spend much more time with students than do the faculty members and can provide complementary educational opportunities than that provided by faculty. In addition, many medical students will often choose a specialty based upon their experience with the residents.

Various studies have been completed and attribute approximately one-third of a medical students' knowledge to resident teaching [12]. Educating medical students includes supervising, instructing, and evaluating medical students, which can take up a significant amount of time and effort on the part of the resident. This task, important as it may be, can then be occasionally lost in an extremely busy work week.

The merging process could lead to positive ramifications such as increased resources for medical students. By consolidating resident responsibilities, it is possible that residents may have more time available to engage with medical students. This would provide for a more satisfying experience for both the resident and the medical student, as a good rapport between resident and medical student can often be the deciding factor for whether or not the student enjoys the rotation and furthermore whether or not they decide to ultimately pursue that specialty.

Conversely, negative ramifications of the merger could include a diluted clinical experience. The same number of patients or procedures may have to be distributed among a greater number of residents, therefore decreasing the overall quality of education for each medical student. Similarly, any negative feelings or perceptions that the resident may harbor toward the merging process may impact the way that residents interact with faculty, co-residents, or medical students alike, even if only subconsciously.

There is a single study by Hines et al. in 1999 which discusses the impact of obstetrics and gynecology residency mergers on the medical student experience. Medical students from the Uniformed Services University for the Health Sciences were studied, as two new obstetrics and gynecology residency programs (one formed by two programs in San Antonio, Texas; the other formed by two programs in Washington, District of Columbia area) were clerkship sites. Medical students were given a questionnaire following the rotation. The questionnaire evaluated the students' perceptions of the case load, instruction, and overall clinical experience. There were no statistically significant differences between experiences before the merger and after the merger.

Likewise, the National Board of Medical Examiners (NBME) subject examination in obstetrics and gynecology, which is given at the end of the rotation, was reported by the student. This served as an objective measure to evaluate the medical student experience. There was no statistically significant negative impact on NBME scores; in one program there was even a statistically significant positive impact on NBME scores. While this area could clearly use more investigation, this seemingly posits that the merger of residency programs has little to no significant deleterious impact on the education of medical students – either their satisfaction or their performance on standardized exams.

While the most obvious characters to consider during the residency merger process may be the residents, it is imperative that we too keep in mind the medical student. Doctor, after all, does have its origin in the Latin *docere*, “to teach,” and an essential role of residents is to act as educational leaders and shape the doctors of the future. Protecting the medical student and their learning goals should be an important matter to be addressed by any formal plan for a residency merger.

3.3 Surgical programs

As the authors of this chapter do originate from a surgical residency, we have a special interest in how a residency merger for a surgical residency should unfold. Additionally, surgical residencies have a factor to consider that is singular to surgery – the case log. In order to graduate from a surgical residency, trainees must meet a particular number of cases in each surgical category which is specifically set by the ACGME. This makes merging residency programs somewhat more comprehensive, as the case availability for trainees must be carefully evaluated before and after the merging process to ensure that the case mix requirements can be met for every resident, even if they are starting with vastly different numbers. This issue is one area that will need special consideration with surgical residencies.

A study published in 2015 evaluated the impact a merger between an academic surgical program (Yale New-Haven Hospital) and a community surgical program (Hospital of Saint Raphael) [13]. This publication is significant as it is one of the only studies that includes a Likert survey which was developed specifically to evaluate the perspective of the resident regarding the merging process. Categories included on the survey include relationships among residents, relationships with faculty, systems interactions, clinical training, surgical training, scholarship, and career plans. This survey, which was independently evaluated by 11 residency

program directors for its generalizability, is a tool which may be valuable for future program merger evaluations.

The survey was completed at a single point in time after the merger, so the information provided by the survey responses is somewhat limited in its applicability. It was suggested by a commentary that to improve future studies a similar survey tool could be administered pre-merger and post-merger to eliminate some limitations [14]. However, responses that were received were generally positive. Community-trained residents felt as if their exposure to complex cases and scholarly or research activities had improved. Academic-trained residents, on the other hand, did not feel as if they had new deficits in their experience with the influx of new trainees; in fact, with the incorporation of community institutions, they felt as if they had an increased number of “bread and butter” surgical cases which improved their operative experience and made it easier to meet their case log numbers. Overall this study is hopeful; it identifies particular areas that should be considered in order to keep trainees satisfied with their training to make the experience as positive as possible for all involved.

Another piece of the available literature which focuses on issues unique to surgery is a survey-based study to evaluate the merging process between two general surgery programs in Grand Rapids, Michigan in 1999 [15]. A survey was administered to both faculty and residents after said merger. This survey assessed characteristics such as curriculum, administration, teaching, atmosphere, and career goals, such as graduation and preparation level for attending-ship versus fellowship.

Positives aspects of the process were identified as academic and educational opportunities. This may have been secondary to a very organized educational system, which benefited both sets of residents. Negative aspects of the process were identified as establishing a combined clinical rotation structure, defining resident coverage without significantly increasing clinical load, and reconciling program policies that were discrepant. These areas, particularly those that were identified as negative, can be a stepping stone for other surgical residencies, so that these challenges can be specifically addressed during similar program mergers.

Even surgical subspecialties are not immune to the pressures to merge or acquire one another. Two vascular surgery programs in Long Island, New York merged to form a collective program in 2001 in order to maximize their individual strengths [16]. Although there is no information on how successful their merging process was, the combined program was able to compose an educational schedule which they published with a goal of standardizing vascular surgery training as mergers and acquisitions continue to persist.

4. Relevancy

At this point, there is limited data regarding residency mergers. Additionally, those examining the impacts of hospital system mergers do raise some important issues which should be addressed with future studies regarding residency mergers. A recently published study in 2020 demonstrated a clinically significant decreased patient satisfaction score when examining multiple hospitals before and after their merger or acquisition [17]. While there have been several studies that examine the perspectives of the trainees, these have not incorporated the perspectives of other important members involved in the healthcare system – most notably the patient. Faculty are also a significant aspect of the training program; they have an essential perspective that needs to be considered.

Ideally, as residency mergers are likely to continue occurring, there should be a structure for future evaluation and studies of these mergers. A survey should

be constructed to fully examine feelings of residents, faculty, and patients on the patient care experience and the academic experience (as applicable). The survey should then be administered pre-merger and post-merger in order to have a direct comparison and contrast to itself that is inherently reliable. This would not only give an assessment of the “success” of the merger, in addition to identifying areas that may be particular concerns to trainees, faculty, or patients throughout the merging process. This would allow those concerns to be addressed early so that all involved can feel as if the process is as positive as possible.

5. Conclusion

The health care industry continues to evolve. Economic pressures can have unpredictable results, including mergers in health care systems and therefore associated graduate medical education programs. While there is not a wide breadth of published information regarding previous merged programs, we can learn from the successes of those programs that have published data to set up future mergers for success. A comprehensive examination of the publications which have been reviewed in this chapter have identified some key points of importance in the process of graduate medical education program mergers: leadership, communication, and culture. Establishing an effective leader who can formulate a plan and then institute that plan is the first step to success. He or she must be a dynamic individual who is able to solicit and take advice and criticism from all those involved in the process, both residents and faculty alike. Productive communication with leadership will be key for ongoing success during the process of the merger. This will allow for the process to evolve as challenges arise, to ultimately create a program from which all will benefit. Institutional cultural differences must be acknowledged in order to create a cohesive merged program. Through establishing a positive set of attitudes, behaviors, and policies, cultural competence can be a characteristic of the newly formed program.

There is still much regarding residency mergers that is unknown. In order to have a more concrete evaluation of the success of graduate medical education mergers, a survey that is externally validated should be administered to residents and faculty. This would allow for an objective evaluation of the merging process, so that common issues could be identified and addressed in future mergers. Overall, residency mergers are not well described. The goal of this chapter is to provide a conglomerate of available information and to identify issues that may occur. As mergers continue to occur, we hope that this chapter may prove valuable to not only the leadership responsible for the merger, but also anyone involved in the process.

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Surgical Education: Focus on Gender Equality in Academic Surgery and Related Areas

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Abstract

Despite progress and advancements made to achieve gender equality, a glass ceiling still exists for women in surgery. Women remain largely underrepresented in academic surgery, with appointments to only 18% of surgery program director roles and 6.3% of surgical chair positions in the United States as of 2018. Inequities across various surgical subspecialties are also significant, especially in the areas of neurosurgery, orthopedic surgery, otolaryngology, and plastic and reconstructive surgery. Additional barriers exist for women in academics, including lack of high-quality female mentorship, implicit bias within letters of recommendation, and a greater incidence of reported moral injury and burn-out. Further efforts to address these inequities are necessary to retain the talents and contributions of women in surgery. Interventions that may counterbalance the continued gender gap within surgical fields include the implementation of implicit bias training, increasing institutional support, establishing formal mentorship initiatives, the introduction of early exposure programs during medical training, transparent institutional promotion policies, childcare support, and accommodation of maternity leave. The purpose of this chapter is to educate the reader regarding gender inequality in surgery and related fields and to highlight key issues central to the propagation of gender biases specifically as they relate to female surgeons across various roles and responsibilities (e.g., clinical practice, education/training, and leadership) within the contemporary academic landscape.

Keywords: academic surgery, equity and inclusion, gender equity, surgical education, women in academic medicine

1. Introduction

In 2019 women comprised about 52% of medical school graduates as compared to approximately 48% in 2009, which is a milestone for parity efforts in medicine [1]. Although medical school classes are roughly half female, women in surgery continue to be significantly underrepresented. For example, recent reports indicate that only 12.4% of active physicians and 29.1% of residents over five surgical fields (general surgery, plastic surgery, thoracic surgery, neurosurgery, and orthopedic surgery) were females [2–4]. Of note, this represents a slight improvement from

3. Women as surgeons

Existing research shows that there is a significant gender inequity in surgery [6] despite demonstrating that women are equally successful in their surgical residency training [7], and that operative performance and outcomes are not significantly different between men and women surgeons [7, 8]. Moreover, there is an increasing amount of evidence strongly suggesting that physician diversity benefits both the clinical team and patients [9, 10]. There are also important differences between men and women in regards to patient and team communication; research suggests that patients feel female surgeons are more likely to explain things with improved understanding, listen carefully, and spend sufficient time with them when compared to male surgical providers [11]. Despite such well-documented findings, gender disparity and biases continue within the surgical field. In the subsequent sections, we will explore some of the manifestations of gender disparities and bias, from subtle to overt, with a focus on potential actionable solutions and improvements.

4. Implicit bias in letters of recommendation and resident evaluations

Letters of Recommendation (LORs) are important components of the residency and fellowship application process. A survey examining the attitudes of surgical attendings and residents at the Mayo Clinic found that 73% of attendings and 82% of residents believed that LORs effectively stratify applicants into the upper and lower halves of candidates being considered [12]. LORs have been key in the ability to research implicit bias within the surgical field. In this context, implicit bias is the unconscious stereotype that is held against people or certain groups [13]. Though recent research shows an insignificant linguistic difference in LOR between male and female surgical applicants [14, 15], other studies support the existence of detectable inequality in letters written for male and female applicants [16–18]. More specifically, LORs written for women applicants are more likely to contain mentions of physical appearance [16], communal (teamwork, caring, and sympathetic), and caring themes [14, 18]. Moreover, the LORs were shorter for women than for their male counterparts [18]. LORs written in support of men had more mention of achievement and use of superlatives than their female counterparts [18]. For example, when LORs for transplant surgery fellowships were examined, those written for men contained more terminology highlighting competency and leadership [19], whereas females were more likely to be described with communal terms (e.g., friendly) [17]. The different tones, overall length, and word choice in LORs could represent a subtle manifestation of implicit bias, effectively making it more difficult for women to enter and advance within highly competitive fields [18, 20]. Since objective research clearly shows equal surgical skill across genders [7, 8], the observed linguistic disparity within the analyzed subset of LORs could be indicative of a broader issue of implicit bias in the historically male-dominated surgical field [21]. A summary of potential approaches to help address this problem is provided below:

- Use titles and surnames consistently for all candidates/applicants, with an effort made to objectively evaluate the final recommendation letter for the same
- Introduce established criteria for particular types of letters, and within this framework, focus specifically on the following criteria:

- Emphasis on professional activities, without editorializing
- Consistent focus on scholarship and professional productivity
- Maintaining an evidence-based approach and sharing of direct observations only
 - Emphasis on actual accomplishments and professional productivity
 - Ensure that various types of academic and professional contributions are clearly defined and treated accordingly
- Identify and evaluate accomplishments, as opposed to focusing on “effort”
- Maintaining an appropriate balance between interpersonal skills and other, more objective candidate characteristics
- When referring to stereotypically female traits, consider carefully if the characteristics are relevant within a particular context. Also, determine methodically whether other applicable characteristics or achievements may have been overlooked
- Avoid invoking stereotypical language, references to age, sex, disability, race, nationality, or religion. Each of these, despite being well-meaning, may invoke various degrees of reader bias
- Avoid providing personal information, including a review of the final written letter for such content
- For any particular type of letter, make every reasonable effort to ensure the approximately similar length and content quality for each applicant/candidate

(Source: https://gustavus.edu/committees/concertFiles/media/faculty_personnel_committee/KCEL_Strategies_to_Reduce_Bias_in_Recommendation_Letters.pdf)

5. Burnout: impact and gender differences

Burnout is a psychological phenomenon characterized by depersonalization, emotional exhaustion, and reduced personal accomplishment, which disproportionately impacts those in the medical field and leads to many downstream consequences, including suboptimal quality of care and decreased patient safety [22–24]. Reducing burnout in surgical residents is important not only for patient safety but also to retain precious and scarce talent in the surgical field. Of concern in this context is the finding that senior female residents are more likely to quit medicine entirely if they are dissatisfied with their job as compared to male counterparts [25]. Several risk factors for burnout have been identified such as female gender, diminished decisional autonomy, and decreased institutional support [24, 25]. A survey of 81 surgical residents found that 89.5% of university hospital residents and 95.2% of community teaching hospital residents had symptoms of burnout with female residents being 2.7 times more likely to have burnout and 2 times more likely to have suicidal thoughts [26]. In a survey of nearly 570 general surgery residents, women

reported higher rates of alcohol abuse, mental health concerns and diagnoses, sleep loss, and lower self-confidence than their male colleagues [27].

There are several phenotypes of burnout [28]: Depersonalization (e.g., viewing patients as impersonal objects; being callous and not caring about patient outcomes) is more common in men, while emotional exhaustion (e.g., fatigue; strained working with people; burnout from work) is more common in women [28]. It has been hypothesized that this difference may be explained by varying coping strategies. In addition, burnt-out female residents also reported experiencing greater amounts of gender discrimination as compared to their non-burnt out same-sex counterparts [28]. Recent research suggests that gender discrimination, decreased autonomy, and decreased resilience could each be contributing factors to the increased burnout experienced by female residents [26, 28, 29].

A prominent contributing factor to reduced autonomy is self-doubt. In a study of autonomy in the operating room among female residents, it was found that self-doubt caused them to project lower confidence in their abilities to operate, though each surgeon's actual ability was notably and objectively higher. In response to this projected lack of confidence, attendings subsequently reduced levels of autonomy in surgical residents, thus sending a message that they were not ready to or capable of operating. In turn, this process reinforced the female residents' unsubstantiated sense of self-doubt and decreased the opportunity to practice autonomously in the operating room [30]. Since transitioning out of surgical residency into an attending role is bolstered by increased operative experience and self-confidence, this cycle of reduced autonomy and reinforced self-doubt directly threatens a critical element of surgical residency training and the future careers of female surgeons. Moreover, this added cycle of self-doubt additionally contributes to burnout in female residents.

Important protective factors against burnout include resilience, program support [26, 28], and high-quality mentorship [31]. Resilience, in particular, is the ability to manage stress and work through adversity. Increased levels of resilience are influenced by personal achievement, family support, program support, and the male gender. Thus, burnout appears to be a multifactorial phenomenon with intrinsic and extrinsic factors that disproportionately impact female surgeons [26]. Awareness of the factors contributing to burnout and support provided on a personal and program level could help decrease or even prevent this phenomenon [26, 28].

6. Women in academic surgery

Although U.S. medical schools have been able to reach numerical gender parity, the same cannot be said about surgery as a specialty. More specifically, during the last 14 years, diversity in surgery has remained largely unchanged and predictions based on current trends suggest that at the level of surgical residency training, parity may not be reached until close to the year 2028, and the projected parity in female full professorship may not happen until 2096 [32, 33]. Research also suggests that while increases in female medical students and surgical residents appear to be similar, the rate of women rising to an academic leadership position is significantly lower when compared to their male counterparts. A study examining academic conferences determined that women conduct research of equal or greater quality than their male counterparts [34] but continue to be underrepresented at major academic fora (especially in leadership positions such as plenary speakers) proportional to the number of women in the field [35–38]. As of 2018, women only comprise 18% of surgery program directors [39] and 6.3% of surgical chairs in the United States [40]. Additionally, male surgeons are twice as likely to become

department chairs as compared to their female colleagues [41] and women are less likely to be recognized with tenure track positions [42]. Some barriers identified as important in this context include lack of effective mentorship and role models [42, 43], vague promotion expectations [44], social/cultural expectations [42, 44], and gender discrimination [43, 45, 46]. In the subsequent sections, we will address some of these key considerations with a focus on potential actionable solutions, real-world scenarios, and answers.

6.1 Mentorship in academic surgery

In a study reporting on interviews involving 15 mid-career and senior-level female academic surgeons, it was noted that essentially every participant emphasized that multiple mentorships were vital to their development in academic surgery [44], thus outlining the substantial impact mentorship provides on one's academic career and successes. Although mentorship is critical in the development of female academic leaders, a small survey out of Canada reported that women constituted only 11% of available surgical mentors, suggesting a significant deficit of female mentors with highly relevant experiential overlap [43]. Another study found that 63% of female faculty cited inadequate mentorship as a perceived reason why women are less likely to attain promotion [42]. There also appears to be a gender difference in terms of role models in academic surgery: 65% of men believed they had sufficient role models whereas only 38% of women felt they had access to role models in their field [42], further highlighting the critical need for the development of robust mentorship presence among women in academic surgery. The lack of mentorship and an insufficient number of role models for women in academic surgery could in itself contribute to the continually broken talent pipeline. The only viable solution in this context is to connect aspiring women leaders with suitable, high-quality academic role models and a variety of leadership mentors to the same extent available to their male counterparts.

6.2 Promotion in academic surgery

When female academic surgeons were interviewed regarding the perceived barriers to their career, many cited the fact that their institution had either absent or ambiguous criteria for promotion [44]. One large university hospital study found that the average time to promotion was 6.5 years for women compared to 5.2 years for men ($P < 0.05$), with women being remarkably less likely than men to be asked to serve in leadership roles (6% vs. 25%) [47]. Creating standardized subjective criteria for promotion has the possibility of leaving too much room for implicit bias, ultimately affecting promotion opportunities. Additionally, women have been found to take on the majority of family duties, including childcare and housework [47]. These competing responsibilities of home and work life may preclude women from devoting the essential and necessary time to achieve the milestones essential for academic promotion [47]. Of note, men have acknowledged that the advancement of their career is attributed to sacrifices made by their wives [48]. This could provide an explanation for why males are two times more likely to be promoted to department chair as compared to their female colleagues [41]. One study further suggests that women are more likely to leave academic surgery entirely due to sex discrimination, career dissatisfaction secondary to lack of opportunities for professional development, and networking difficulties from lack of mentorship, which further worsens the gap in promotions between women and men [44].

6.3 Social and cultural barriers in academic surgery

Efforts for equality have significantly changed the culture surrounding gender roles, although female surgeons continue to feel the effects of traditional roles and expectations. A survey of academic surgeons found that despite all participants reporting similar amounts of housework each week, women reported more than twice the amount of parental duties [42]. Of note, men were more likely to miss family activities due to competing work obligations, whereas women were more likely to miss work due to family obligations. The above observation could be associated with women receiving relatively less support from their spouses (78% of men and 67% of women), potentially due to their spouses being more likely to have full-time jobs (26% of men and 80% of women) [42]. One notable response from a female surgeon portrays this *status quo* eloquently, “Family responsibilities still end up—whether it is child-rearing or child-supporting or taking care of sick family members—it still tends to be in the domain of female surgeons” [44]. This heavy family burden could significantly contribute to burnout and thus make it more challenging for women to succeed in academic surgery and academic leadership.

6.4 Gender discrimination in academic surgery

The year 2021 marks the 185th anniversary of women in surgery in the United States [47], yet there still remains an obvious underrepresentation of women in academic surgery, especially in leadership positions [49]. Despite record numbers of women pursuing surgical careers, women continue to be at risk for gender discrimination and harassment in a historically male-dominated field [42, 43, 45, 46]. While women make up at least half of graduating medical students, a mere 12% of full-time professors in academic surgery are women, and there are only 28 female chairs leading Departments of Surgery across the United States [49]. Previous studies have outlined factors contributing to challenges and barriers affecting the advancement of female surgeons in academic leadership positions, including surgical culture, work-life balance, adequate mentorship, gender bias, sexual harassment, and approaches to promotions [49]. When asked, 48% of female surgical faculty believed that their career ambitions were not taken seriously by men [42]. Achieving professional milestones in academic surgery follows a process outlined by preceding surgeons, who historically, have been males. These standards fail to account for the timelines and additional priorities of female surgeons who balance significant responsibilities outside of work, such as caregiving and having fully employed spouses [50, 51]. Despite the discrimination and harassment experienced by female surgeons, longitudinal analysis showed that female surgeons who reported the highest amounts of sexual harassment were more likely to reach full professorship during a 17-year follow-up period, thus exposing deep-seeded issues in surgical leadership while demonstrating the resilience of women in academic medicine. Addressing academic medicine’s sex equity challenges requires identification that structural, institutional and cultural change is not just necessary, but required. Doing so involves creating new policies that differ from the current decades-old policies at institutional and national organization levels [50, 51].

7. Specialty specific considerations

As of 2019, general surgery led the surgical fields in percentages of practicing female physicians (approximately 42% of residents and 22% of attendings). At the other end of the spectrum, neurosurgery and orthopedic surgery had the smallest

percentage of women in the field (19.5% residents, 9.2% attendings and 16.0% residents, 5.8% attendings, respectively) [2–4]. Research also shows that the number of women entering surgical specialties is not sufficient to reach parity in the near future, and that in some surgical specialties, additional measures may be needed to increase workforce diversity [52]. Research generally maintains a greater incidence of sexual and emotional harassment, as well as discrimination directed at women within male-dominated fields [53]. This may be further compounded by a lack of mentorship and higher associated stress and anxiety levels [54].

7.1 Orthopedic surgery

Orthopedic surgery is traditionally a male-dominated field [2–4, 55]. There continue to be barriers to women entering orthopedics, despite research providing evidence that such status quo is not due to patient preferences, and thus presumably, more of a function of systemic issues within the specialty [56]. Issues related to female entry into orthopedics manifest early in medical training, with female medical students reporting negative perceptions about the discipline because of the lifestyle, male-dominated environment, and physical strength needed [57, 58]. The relative lack of exposure to orthopedics in medical school, combined with few female role models in orthopedics, could result in the persistence of associated negative perceptions. Fortunately, research shows that simple intervention consisting of even brief orthopedic surgery exposure could be sufficient to encourage female medical students to pursue a residency in orthopedics [59]. Of those medical students that participated in the initiative, 37% were matched into orthopedic surgery (as compared to the long-term baseline of approximately 16%) [3, 59].

7.2 Neurosurgery

Neurosurgical post-graduate education requires 7 years of training and the duty restrictions cap working hours at 80 per week for residents; however, there are no limitations on hours or intervals for attending neurosurgeons [60–62]. This demanding professional lifestyle is cited as a major barrier to gender parity, as well as an apparent deterring factor for medical students considering their surgical career choices [63, 64]. This, in turn, may contribute to the decreased retention rate of women in neurosurgery (83% female and 94.7% male retention) [63–65]. A study of Japanese female neurosurgeons found that more understanding of male leadership, combined with support for surgeons who wish to start a family could help enhance female retention rates [65]. Similar to orthopedic surgery, educational sessions for undergraduates and medical students have been offered to promote gender parity, and while they generally increase positive perception of the field, they also tend to increase concerns regarding the lifestyle of a typical neurosurgeon [64]. Consequently, the recruitment of medical students, and especially women into neurosurgery, is a much more complex area of discussion and controversy. Important pillars toward more equitable recruitment may include integration of mentorship promotion, baseline undergraduate education, early research exposure, considering student needs, providing educational resources, addressing financial concerns, and fighting the phenomenon of “neurophobia” (e.g., perceived difficulty attributed to the field of neurosurgery) [66].

7.3 Other surgical and procedural subspecialties

Although our discussion thus far has focused on general surgery, orthopedics, and neurosurgery, similar observations have been noted across a number of surgical subspecialties. According to recent data, issues related to equal gender participation

are prevalent across many other procedural and operative specialties. For example, about 16% of practicing otolaryngologists (ENTs) in the U.S. are women [67, 68]. Furthermore, female ENT surgeons tend to receive lower compensation, perform more unpaid and unrecognized work, and similar to other fields, are more likely to be subject to harassment [68].

Plastic and reconstructive surgery (PRS) has also been documented to have unequal treatment of women [69]. The “leaky pipeline” is a metaphor commonly used to describe the progressive decline in the number of women at each subsequent step of the professional ladder. This has been noted in PRS as well, despite the fact that women are more represented here as compared to other surgical specialties [70]. Similar to ENT, female plastic surgeons are less likely to advance in rank, societal board membership, invited speaker opportunities, and compensation [70]. Nevertheless, the field of PRS may be making strides toward transformation, with recent evidence of greater female presence at educational meetings, including podium presentations, publications, panelists, and moderator roles, as well as invited speakers [71, 72]. Additional surgical and medical subspecialties, including oromaxillofacial surgery, gastroenterology, obstetrics and gynecology, and urology report similar gender biases and challenges for women [73–85].

8. Pregnancy and maternity leave: residency and attending practice perspectives

Traditionally, pregnancy was considered controversial during surgical residency [86, 87]. A resident’s commitment to the field may become questioned, along with colleagues becoming frustrated about the prospect and reality of having to deal with the added responsibilities that are created by a resident’s absence after childbirth [88]. Based on one author’s personal experiences and observations of nonverbal reactions to her pregnancy of her peers, as well as no discussions to create accommodations in work/operating schedule during the last trimester of pregnancy to ensure the safety of herself and her unborn baby, she felt pregnancy during residency created additional mental and physical challenges to those already experienced by female surgical residents [88].

The ability for women to have children during residency has become more common, more supported, and much more accepted during the past decade. That said, more than half of women choose to wait until after residency to start a family [89], and are more likely to delay having a child until after training when compared to their male counterparts [90]. While childbearing in residency is becoming more common, women continue to fear the stigma of appearing weak, are concerned that working during the third trimester may cause risk to fetal health, and must be conscious of the lack of lactation support available at the workplace [88].

A study of pregnant orthopedic residents may give basis to their health concerns; orthopedic surgeons were two times more likely to experience pregnancy complications than a reference population when controlled for race, age, health, and socioeconomic status [91]. Research shows 85.6% of women work with an unmodified work schedule until they go into labor [92]. Moreover, working 60 or more hours per week was associated with increased pregnancy complications [91]. It is further suggested that current culture and policies around maternity leave may indeed be harmful to maternal and fetal health. Though policies are mandated, they are not often enforced; for example, the ACGME mandated that residency programs need private rooms for lactation [58]; however, few programs have been found to meet these requirements [93].

As of 2017, only slightly more than 1/3 of female surgical residents reported that their program had formal maternity leave policies with 78.4% of women taking

6 weeks or less of maternity leave [91]. As of the 2019–2020 academic year, new policies from the American Board of Surgery (ABS) allow for two additional weeks off from years 1–3 and in the last 2 years of residency for family leave with hopes of being more accommodating to women in surgery [94]. In addition to maternity leave, securing childcare is a challenge for female surgeons [44, 88]; 75% of female medical students agreed they would be more interested in surgery if there was childcare on-site [95] and 75.4% of residents thought childcare support would help them in their training [91]. In summary, to make surgery a more accepting space for women, it is important to enhance lactation support, childcare support, life-work mentorship, and also create more accommodating maternity leave policies.

Choosing to breastfeed as a mother is itself a substantial time commitment and requires adherence to maternal nutrition and a pumping schedule to ensure adequate milk supply for the baby. The grueling schedule of surgical residency, lack of support from administration and co-residents, and decreased resources such as a dedicated lactation area all lead to discouragement toward breastfeeding, an inability to maintain milk supply, and early termination of breastfeeding. In a recent study highlighting lactation challenges of resident physicians [96], the median duration of providing breast milk was 9 months. Only 21% of residents reported access to usable lactation rooms within their training hospital. Breast milk storage was an issue for 60% of lactating trainees, with 37% of the residents reporting unplanned and/or premature termination of lactation. Statements of faculty and co-residents created guilt, reported by 40% of lactating residents. Small changes in these areas can lead to big impacts on the mental health and ability of the post-partum resident to feel supported, and, in turn, perform at the workplace while being able to provide for her family at home.

9. Medical student perspective

Women enter medical school with relatively less interest in surgery when compared to other fields, are less likely to develop a new interest in the field, and are more likely to lose interest in surgery over time [95, 97, 98]. Exposure and recruitment across male-dominated specialties during medical school may help increase our ability to attract female medical students into these fields [99, 100]. Research has shown that it would be beneficial to expose medical students to surgery in their preclinical and clinical years to dispel negative perceptions of the field [97, 101]. Mentorship during the preclinical years is also associated with increased interest [102, 103], confidence, clerkship performance, and retention in surgical fields [104]. Although women tend to receive less technical experience in surgical training when compared to their male counterparts, they do report the same degree of enjoyment and interest in performing surgical procedures. Additionally, women tend to be less confident [99, 105] and underestimate their skills when compared to their male counterparts [106]. All of these factors could contribute to female medical students avoiding surgical specialties. Early interventions to facilitate mentorship and increase exposure could help recruit female medical students into the surgical field.

10. Mentorship

Mentorship is proven to be both crucial and beneficial for personal and professional development in surgery. From work-life balance to career advice, mentorship has many positive effects, such as increasing confidence [107], reducing burnout [31], and increasing interest in surgical fields [102, 103, 107]. In fact, a recent study showed that organizational support and mentorship were the two most important

factors determining if women pursue a career in surgery [108]. With the absence of such mentorship and seeing few to no other women colleagues, female residents can develop the so-called “imposter syndrome” (e.g., feelings of self-doubt and personal incompetence). This reiterates the importance of early same-sex role models and mentorship and how beneficial such initiatives are to women pursuing a career in surgery [108, 109]. One author worked with a female surgical mentor early in her career. This mentor was a well-respected surgeon who was also able to balance her home and family life. Seeing this was one of the top contributing factors that encouraged the author to pursue a career in surgery and to dispel thoughts of imposter syndrome. Finally, mentorship is traditionally characterized as a long-standing one-on-one relationship where the mentee relies on their mentor for guidance on a variety of topics; however, the so-called MOSAIC (see next section) mentorship approach may be more beneficial for female surgeons [109].

11. The MOSAIC model: mentoring of surgeons across identity and culture

Mosaic mentorship can take many different forms, such as a formal or informal relationship “to match specific, short-term personal or career goals” [109, 110]. Aside from one-on-one mentoring, there is also group mentoring, where one mentor takes on multiple mentees, and mentoring committees, providing a MOSAIC (Mentoring of Surgeons across Identity and Culture) approach. The use of MOSAIC allows multiple mentors (in different fields or subspecialties, across various regions or countries, and of different ethnicities and sexes) to influence the development of a surgeon. The Coronavirus Disease 2019 (COVID-19) pandemic has influenced the use of virtual methods which makes the use of long-distance mentorship more accepted and necessary [111]. No matter what form or combination of forms is chosen for or by the mentee, there is a predictable structure to mentoring. There are four phases to this relationship, regardless of the method chosen: preparation, negotiation, enabling growth, and coming to closure [112]. In preparation for MOSAIC implementation, there must be initial meetings, the setting of appropriate expectations, and discovery of motivations. During the negotiation phase, content, goals, and processes, such as the rules, parameters, and confidentiality procedures should be discussed. The enabling phase is where all the hard work occurs; this is a time for candor and constructive feedback. Finally, the closure aspect may occur earlier than expected, or it may go on for years. Whenever it occurs, it should take place on a positive note, where the positive / constructive aspects of the relationship are highlighted and celebrated.

Upon interview of individuals, academic faculty members identified altruism, honesty, active listening, and professional experience as the most important mentor qualities, whereas time and accessibility were the biggest challenges to mentorship according to their collective experience [113]. In light of the COVID-19 pandemic, many worried that surgical mentorship would suffer because of remote work; however recent research shows that online mentorship is possible and has positive results [113]. Perhaps this could be used in the future to connect female medical students and residents to same-sex mentors across long distances to encourage interest in surgery and career development.

12. Synthesis and conclusions

In summary, gender disparities are still prevalent in surgery, especially in orthopedic and neurosurgery. Major themes in recent research contributing to surgical gender barriers include gender discrimination, implicit bias, burnout, lack of

mentorship and exposure, vague promotion and tenure criteria, and social/cultural expectations. Specific interventions include mandating implicit bias training, increasing institutional support, establishing formal mentorship initiatives, implementation of early exposure programs during medical training, clear institutional promotion policies, childcare support, and accommodation of maternity leave. It is the authors' hope that with these interventions, healthcare teams can become more diverse and inclusive, having positive impacts on patients and healthcare workers alike.

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Community-Oriented Graduate Medical Education: A Gandhian Approach

Bishan Swarup Garg

Abstract

In the last century, there have been significant progress in the fields of health-care system and academics. The experience of implementing community-oriented medical education for more than last 5 decades at the Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sewagram, based on Gandhian ideology has helped us to develop a mutually beneficial partnership with local health system and community and to discharge our social responsibility. The institute has made several innovations in its academics and health care to raise the social consciousness of medical students as well as equip them to work in rural areas. We are sharing the innovations along with our experience of working in partnership with public health system and community for their further replication elsewhere.

Keywords: MGIMS, DCM, CBOs, Gandhian approach, community-oriented medical education

1. Introduction

“All other pleasures and possessions pale into nothingness before service, which is rendered in a spirit of joy.”

—Mahatma Gandhi

In the last century, there have been significant changes in the field of health-care delivery (both in private and public) system and in the functioning of academic institutions. On the one hand, there have been rapid progress in both fields, but at the same time, new challenges have also emerged. With the advent of market economy and globalization, both demographic transition and epidemiological transition have led to widening health disparities between the rich and poor segments of the society and also poor access of health care to a marginalized segment of population and also at times to the rural area. It is expected from the academic institutes to bring a change in the health status of the community, and they serve as well as to create a demand to provide a high-quality and cost-effective health system. Thus, the social responsiveness, social responsibility, and social accountability have posed a significant challenge to the academic health institutions [1, 2].

There is a substantial inequity in terms of health and development progress among the rural population in India. Among the states that are doing well, there also remain pockets where not much has changed since independence in 1947. This inequity further worsens with every passing year, resultant health being one of the

major determinants for worsening inequity. In India, paying for health care has become a major source of impoverishment for the poor and even for the middle class. In this situation, the Gandhian Philosophy of serving the underserved and reaching the unreached has become more important. The medical institutes can make the Gandhian Dream, “people’s health in people’s hand,” a reality.

1.1 Gandhian concept of village development

Mahatma Gandhi was always for “Swaraj,” meaning self-rule, where villagers would be able to exercise authority/control on the happenings around them in the field of social, culture, education, health, agriculture, etc. Thus, it is clear that Gandhiji’s “Swaraj” was to empower the village community in order to ensure that they have the control on the happenings around them. The Gandhian vision of ideal village or village Swaraj is that it is a complete republic, independent of its neighbors for its own wants and yet interdependent for many others in which dependence is necessary [3, 4].

Gandhiji said on ideal village, “An ideal Indian village will be so constructed as to lend itself to perfect sanitation. The cottages will have courtyards enabling householders to plant vegetables for domestic use and to house their cattle. It will have wells according to its needs and accessible to all. It will have houses of worship for all, also a common meeting place, a village common for grazing its cattle, a co-operative dairy, primary and secondary schools in which industrial education will be the central fact. It will produce its own grains, vegetables and fruit, and its own Khadi. This is roughly my idea of a model village . . . I am convinced that the villagers can, under intelligent guidance, double the village income as distinguished from individual income. My ideal village will contain intelligent human beings. They will not live in dirt and darkness as animals. Men and women will be free and able to hold their own against anyone in the world.” [3, 5].

At the Mahatma Gandhi Institute of Medical Sciences, we have strived hard to improve the quality, equity, relevance, and cost-effectiveness in the health-care delivery in order to discharge our social responsibility. The medical institutes’ capacity is judged on the basis of their response and interaction with the constantly evolving health systems and community in order to produce a medical graduate who has a sense of social responsibility. The big question is whether our medical institutes are prepared for this. Are they ready and willing to shoulder the responsibility so as to contribute to the development of a healthier society? [6].

The experts believe that incorporating this fundamental issue in the institute mission may be a stepping-stone toward ensuring that these medical institutes discharge their social accountability that is deeply nested at the MGIMS in all its activities related to health care, both at the institution level and at the community level. The medical students, both undergraduates and postgraduates (PGs), experience their social responsibility while working both at the institute level and the community level, and at times they also participate actively [7].

“Community-based education is not only learning in the community but also learning with and from the community. As the communities actively participate in CBE, they not only contribute but also benefit from the CBE process. The ultimate goal of CBE is to help the students understand social dynamics of health promotion and disease prevention and to impart a sense of social justice and cultural humility in the health professions through the education process.” [8].

Under “social responsibility,” the medical education program focuses on producing a “good” practitioner, leaving the onus on the respective medical institute to define which competences are the most appropriate to meet health needs of patients. Under “social responsiveness,” the medical education program focuses on attaining the clearly defined competences that are defined from an objective

analysis of people's health needs. Under "social accountability," the medical education program aims to produce health system change agents that would have a greater impact on the health system performance and ultimately on people's health status, implying a quest for innovative practice modalities combining the individual- and population-based services [9, 10].

The available evidence suggests that implementing such a social accountability framework is feasible and yields the desired results of producing socially responsive, competent medical physicians [11]. We therefore share the experience of implementing community-based medical education for more than 5 decades at the Mahatma Gandhi Institute of Medical Sciences (MGIMS), Sewagram. Our humble submission is that the attempt at the MGIMS is not the most perfect model and may have its own limitations and flaws.

2. Methodology

The literature search on community-oriented medical education, Gandhian philosophy, and social accountability was conducted. Further, a qualitative methodology was adopted to draw inferences based on personal interaction and interviews and discussion with the faculty and supportive staff at the Mahatma Gandhi Institute of Medical Sciences, Sewagram, with the health-care providers, with the public health system, and with community members representing various community-based organizations (CBOs), local panchayat members, and with village-level health functionaries like accredited social health activists (ASHAs) and anganwadi workers (AWWs). Wherever required, available secondary information was also utilized. It also includes the personal experience of the author over the last 27 years at the MGIMS.

3. The institute

The Mahatma Gandhi Institute of Medical Sciences is India's first rural medical college. It is nestled in the karmbhoomi (workplace) of Mahatma Gandhi at Sewagram. The institute was stated in the Gandhi centenary year, 1969.

3.1 Vision and mission

The vision of the institute is to develop a replicable model of community-oriented medical education that is responsive to the changing needs and is rooted in an ethos of professional excellence. The Mahatma Gandhi Institute of Medical Sciences, Sewagram, is committed to develop a high standard of medical education, research, and health care by adopting a holistic approach, integrating modern medicines with the traditional Indian system of medicine. The institute is committed to provide affordable health care to the marginalized and underserved community, especially the underprivileged segment of the society from the rural area.

3.2 History

When Mahatma Gandhi left the Sabarmati Ashram and set up his ashram at Sewagram in 1936, the epicenter of India's independence struggle shifted to this obscure village in Maharashtra. In 1944, when Gandhiji returned from his last imprisonment at the Aga Khan Palace, Sewagram was experiencing a number of epidemics. In this situation, Babu had no use of the guesthouse built for his guests.

He got it converted into a dispensary, and later, into a 15-bedded hospital for women and children. It was christened as “Kasturba Hospital” in memory of Kasturba Gandhi, who had passed away in 1942. Kasturba Hospital has the distinction of being the only hospital in the country started by the Father of the Nation himself.

Dr. Sushila Nayar joined Mahatma Gandhi in the year 1939 as his personal physician and, in independent India, she joined as Union Health Minister with the then Prime Minister of India, Pandit Jawaharlal Nehru, in 1962. When Shri. Lal Bahadur Shastri, who had a rural background, became the prime minister, he desired to start a medical college in the rural area which can deliver the rural-oriented medical education. Dr. Sushila Nayar took this as a challenge and, in the process, the Mahatma Gandhi Institute of Medical Sciences was started in 1969 in the Gandhi centenary year as an experimentation in the medical education to create a rural bias among the medical students.

MGIMS is 50 years old now. From a 15-bedded hospital in 1944, the Kasturba Hospital has gradually grown into a 934-bedded hospital. The institute also runs a 50-bedded Dr. Sushila Nayar Hospital, in the tribal areas, in Melghat, 250 km away from Sewagram.

4. Innovations in community-oriented learning at Sevagram

Various innovations have been developed at the MGIMS to create social consciousness among the medical students (**Figure 1**).

Few important innovations are described in the following sections.

4.1 Orientation camp

At MGIMS, Students are admitted in an undergraduate medical course (MBBS) from all over the country and are selected on the basis of a common eligibility examination at national level. Soon after admission to the institute, students attend a 15-day orientation course in the Gandhi Ashram (where Gandhiji lived from 1934 to 1946) to learn about a value system based on Gandhian ideology. The students

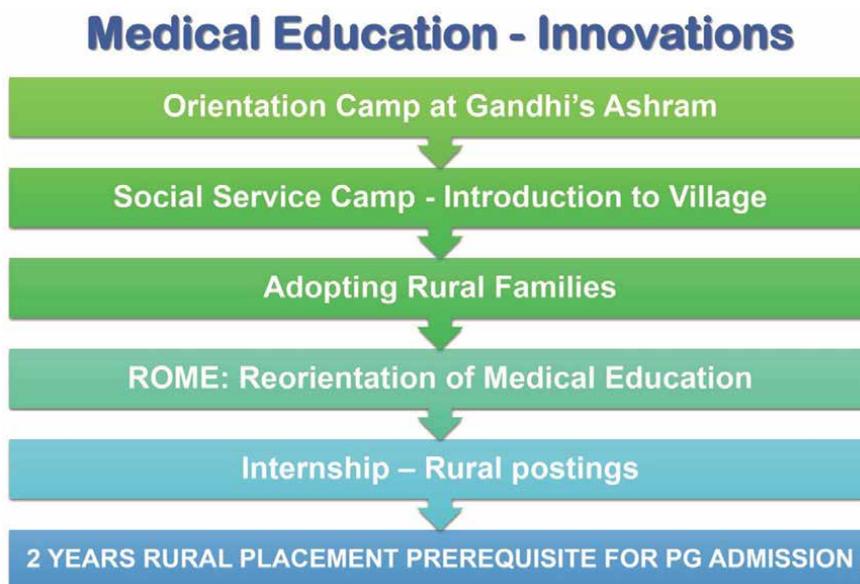


Figure 1.
Medical education—innovations.

during the orientation camp have to live in the Gandhi Ashram and have to follow all routines of the ashram, viz. participating in morning and evening all-religion prayers and participating in Sharamdan and community activities like spinning yarn which is popularly known as Khadi. The students are oriented toward value of dignity of labor (Sharamdan), religious tolerance, and simple living and high thinking. The students are also taught the relevance of Gandhian thoughts/philosophy in medical education with special context to personal hygiene, balanced diet and nutrition, and environmental health with the help of renowned Gandhians who are specially invited, and they share their experiences and interact with the students. The students are also exposed to the importance of yoga, meditation, and nature care as well as spiritual health, which was near and dear to Gandhiji.

During the camp, students are also provided an orientation toward the institute's code of conducts which are listed below:

1. Wearing Khadi (hand-woven) clothes
2. Eschewing nonvegetarian food, smoking, alcoholic drinks, and intoxicating drugs
3. Participation in all-religion prayer and Sharamdan
4. Nonobservance of untouchability
5. Equal respects to all religion

4.2 Village adoption scheme (social service camp)

4.2.1 The context

The medical graduates in India are trained mainly in tertiary care hospitals where they become completely dependent on technology. The villages of India need doctors who have to rely on their own knowledge, skill with sound community orientation, clinical competence, and good communication skills. The social service camp is an attempt to achieve the objective of the institute and to expose the students how to provide value-based and cost-effective medical education, especially in rural and resource-constrained settings.

4.2.2 The practice

The camp is organized as a 2-week residential camp during the first year of the MBBS course. Every year a new village is selected for organizing the camp. The criteria for the selection of the village include the following:

- **Demand from the village for holding the camp:** The villagers pass a resolution in the gram panchayat (local self-government at village level) meeting and request the MGIMS to adopt their village.
- **Population:** During the social service camp, each student is allotted 3–4 families consisting of 15–20 individuals for the family study. Hence, preferably the population of the village should be around 1500–2000, considering the number of 100 students.
- **Distance:** The distance of the village should be preferably less than 30 km from the MGIMS.

- **Infrastructure and space:** As the camp is residential, the villagers are expected to provide space for making lodging arrangements for boys and girls separately and for the staff staying at the campsite during the camp. They are also expected to provide space for cooking the food and for dining. They should also provide space for the camp's activities and for arranging the health exhibition. Usually, the village school building is used for accommodating the students. The permission to use the school is obtained from District Education Officer by the MGIMS. However, the alternative arrangement for the school students' classes is made by the MGIMS in tents.
- **Water and electricity:** The villagers should be ready to make provision for water as well as electricity for the camp's purpose. The actual charges of electricity are paid by the MGIMS.
- **Active participation and support:** The villagers are expected to give assurance to participate actively in the camp's activities and extend their support during the camp.

So far, 51 villages have been covered. Each student is allotted 3–5 families consisting of 15–20 individuals. The students make a detailed study in the allotted families with the help of a journal of Community Medicine Practice under the guidance of the faculty, postgraduate students, and the paramedical staff of the Department of Community Medicine (DCM).

The students visit the allotted families in the morning as well as in the evening to collect the information related to their socioeconomic status, environmental and housing conditions, dietary pattern, immunization status of the children, addictions, personal habits, health status of every individual of the family, etc. They also learn about the customs, ethnic groups, community-based organizations working at the village level, and the facilities available in the village level. During the camp, the demonstration of the chlorination of wells, construction of soakage pits, smokeless chulah (furnace), etc. are also given.

During these camps, the students get so much acquainted with the families as if they are the members of the adopted families. During the social service camp, all residents of the village are examined and are subjected to blood, urine, and stool investigations. Wherever it is required, they are provided advice or treatment, in the general outpatient clinic in the village itself. Those who require specialist attention are referred to the specialist clinics which are organized in the camp daily in the afternoon. Again, specialists provide their advice or treatment; if it is so required, the patient is referred to the Kasturba Hospital, Sewagram, for admission/special investigations. The health care is totally free of cost during the camp period.

The students also carry out the diet survey in the family and calculate the calorie and nutrients intake of individuals under the supervision of the teachers.

The students are trained on how to communicate with the villagers and are given briefing about the various models, charts, and exhibits placed in the exhibition hall. Later, they bring the family members to the exhibition hall and educate them with the help of the charts and models under the guidance of the health educator.

4.2.3 Monthly follow-up of the allotted families

After the social service camp, for the next 3 years, the students visit their adopted village every month on a fixed Saturday. In the first year of their visits, the students study personal hygiene, basic sanitation, housing, immunization, diet, nutrition, growth, and development.

During the subsequent period, the students are given exercise related to maternal, newborn, and child health; growth and development; breast and complementary feeding; antenatal and postnatal care (PNC); and nutrition education. Consideration is given to health education involving teaching aids developed by the students themselves and to fertility control.

In the final year of their visits, the students perform exercises pertaining to local endemic diseases and their association with environmental sanitation, housing, vectors, personal hygiene, and safe drinking water and develop IEC material on preventive measures. The role of the village-level health providers and Village Health Nutrition and Sanitation Committee (VHNSC) are also studied by the students [11].

4.2.4 Qualitative methods and participatory learning and action (PLA) techniques

The students are introduced to qualitative methods and PLA tools during the social service camp. They are explained about the qualitative techniques and are also demonstrated on how to apply those techniques in the villages to understand the views, perceptions, expressions, and opinions of the villagers about a topic. The students are exposed to the PLA tools such as social mapping, transect walk, Venn diagram, seasonal calendar, force field analysis, and focus group discussion.

4.2.5 Developing communication and leadership skill

Family visits are the mainstay of the social service Camp. The morning and evening hours are allotted for family visits where they interview family members regarding nutrition, hygiene, adolescent health, geriatric health, and other related issues. This helps them in developing rapport with the family, empathy, and communication skills. They are prepared for these visits through having sessions on communications skills—active listening, reflecting, importance of asking open-ended question, appreciation, empathy, and not being judgmental through role plays. They are also taught about age-specific communication, that is, how to communicate with different age groups. During the camp's duration, the students convince and mobilize the families allotted to them to avail the benefit of screening and curative services provided in the camp. This helps them to practice persuasive communication and negotiation skill. The students also get an opportunity to negotiate behavior change with the family member in their subsequent monthly village visits.

During the social service camp, formal interactive sessions are also arranged on topics related to leadership skills, viz. activism, working as a change agent, problem-solving, team building, assertiveness, etc. Group exercises during the field work and classroom teaching also help them to learn team building, negotiation, and conflict resolution. In group exercises, students also identify their own strengths and weaknesses for the leadership skills and prepare a personal improvement plan.

4.2.6 Impact of the practice

- **Orientation of the medical students to rural life:** Staying in the village for 2 weeks, the students observe the real characteristics of the rural area such as simplicity, poverty, and illiteracy. They also observe the social and health problems of the villagers. This helps in creating rural bias among the medical students and to bring a change in their attitude.

- **Orientation to qualitative methods and techniques:** The students are also exposed to various techniques of qualitative methods such as focus group discussion, social mapping, Venn diagram, seasonal calendar, etc.
- **Understanding the role of the family in health and disease:** They realize the importance of family study and role of the family in child rearing, socialization, personality formation, care of dependent adults, sick and injured, care of women in pregnancy and childbirth, and care of the aged and handicapped.
- **Management of patients with limited resources:** During camp, the students observe how the patients are treated at the village level and with limited resources.
- **Development of communication skills among the students:** Through interaction with the families and villagers and by educating the family members in the exhibition arranged in the village, they learn how to convey health messages in simple and understandable languages.
- **Learning of basic research methodology:** In the social service camp, the medical students appreciate the health problems and undertake a small research project. The students are trained in how to conduct small research through the essential national health research (ENHR) workshop.
- **Understanding health and health-related behavior by the villagers:** The reflection of the villagers in the focus group discussion has revealed that:
 - The villagers understand the importance of environmental sanitation as the villagers have been trained for how to chlorinate the well water, how to dispose wastewater, garbage, and refuse. They are motivated to construct soak pits, sanitary latrines, smokeless chulah, etc.
 - Villagers realize the importance and practice of proper handwashing before cooking and before eating.
 - The health-seeking behavior of the family is changed. During illness, they seek medical help as early as possible from the nearest health facility.
 - They understand how to take care during pregnancy, postnatal period and to care for children.
 - The home delivery has been almost abolished.
 - The villagers do not allow their daughters to marry before reaching the age of 18 years.
 - The adolescent girls and women have been educated for the gender-specific hygiene practice.
 - Breastfeeding practices and immunization coverage have improved.
 - The villagers become aware of various communicable and noncommunicable diseases, diet and nutrition, immunization, etc.

4.3 Reorientation of Medical Education camp (ROME camp)

The ROME camp is organized for students for 2 weeks, after the second professional examination. This time, students stay at one of the rural health and training centers of the MGIMS, Sewagram. The camp is organized with the following objectives:

1. To expose students to the organization and functioning of health-care delivery system and implementation of national health programs at the primary health center (PHC) level.
2. To make students understand the role of family and social environments in the disease causation and health-care-seeking practice.
3. To expose students to community health needs assessment methods.

During this camp, visits are arranged for students to different levels of health-care facilities and to interact with health-care providers. Over the years, we started involving the district-level program officers/managers including district health officer and civil surgeon, Wardha, for providing practical teaching to the medical students during the camp. They also share their experiences related to various facilitation factors, barriers, and challenges in the implementation of the health program. Usually, the clinical case presentation for undergraduate students takes place in the premises of the hospital, but taking the advantage of ROME camp, community-based clinical case presentation at the family level is organized under the supervision of the faculty members from the clinical specialties. Thus, students understand the role of social and environmental factors in health and diseases. They are also exposed to the various sociocultural factors and established community practices in the village, which have a strong bearing on health and diseases as well as with the health-seeking behaviors of the community. The students are also given opportunity to plan, collect the data, analyze it, and write the report on small community-based surveys on various priority health issues related to community health needs.

4.4 Essential national health research

While working with the students in the field, in 1995, few students approached me requesting that they have to understand the reason and ways to handle certain issues related to allotted families in the adopted villages. Consequently, using the participative approach, we decided to introduce an exercise on essential national health research with the undergraduate medical students. Accordingly, a 2-day workshop on research methodology was organized to give an overview on research methodology. At the same time, the students in the group (3–5 students) were asked to find out the health problems in the allotted families in the villages. In the second stage, students prioritized the health problems and reached to a consensus about the priority health problem to be addressed. In the group, the students were taught how to convert the health problem to a researchable question followed by developing a research protocol including literature search, objective of research, and detail methodology, and then the students conducted research projects in the groups under the guidance of the faculty members of the Department of Community Medicine.

Initially, a few students were interested to conduct research in a hospital setup. However, they were motivated to take up the research topic in the field. The emphasis was given to undertake simple interventions which may sometime require

a behavioral change process so that the family members get full advantage of the research. It has been highly satisfying both for students and for the community. Thus, in true sense, a prototype of action research in the field has been developed for the undergraduate students, which has been refined during last 20 years, and the process of undertaking a research project is continuing in the adopted villages on a voluntary basis.

4.5 Internship in rural area

Interns are posted for 3 months at both the rural health and training center and the urban health training center out of their 12-month internship training program. The interns are exposed to primary health-care delivery and Kiran clinics so that they can sharpen their clinical competence with limited diagnostic facilities. They also interact with CBOs and VHNSC to appreciate their role in health promotion and disease prevention.

4.6 Community-oriented education to nursing graduates and postgraduate students

For last 8 years, we are providing rural orientation to the undergraduate and postgraduate nursing students on rotation basis at our rural health and training center, Anji and urban health center, Wardha.

During their posting at the Rural Health and Training Center (RHTC), they work very closely with the primary health center staff in the delivery of the RMNCH program. They also assist the PHC staff in conducting deliveries. They visit the rural community and interact with the CBOs and VHNSC. The faculty posted at the rural health and training center supervises their activities and conduct academic sessions in the afternoon. During the posting, they are also given a small project either in the school or in the community on priority health issues.

Similarly, during their posting at the urban health training center, they are allotted few families in the field. Under the guidance of faculty and social workers, they conduct family study and present their brief report in the end of posting. The students are also posted at the outpatient department (OPD) of the center for clinical exposure in rotation.

4.7 Rural placement program for postgraduation admission

In 1994, the Mahatma Gandhi Institute of Medical Sciences, Sewagram, decided that those who desired to do a postgraduate program at the MGIMS will have to serve for 2 years at a designated rural site. At the MGIMS, we selected nearly about 100 rural sites that were managed mainly by nongovernmental organizations (NGOs) on a “No Profit No Loss” basis and were serving the marginalized community in the underserved rural area. We were able to identify these sites in every part of the country. The students are posted at these sites on a voluntary basis and while the doctors are working in the rural area, they are closely monitored by the faculty members of the MGIMS on a quarterly basis and sometimes the visits are paid to the NGO sites to ensure the proper utilization of manpower.

On successful completion of the 2-year program, the students were given admission to various PG programs. At the MGIMS, presently we have PG programs in all basic medical disciplines. However, the government has come out with the national entrance examination for admission to PG programs, and we have to keep this scheme in abeyance while our request to continue with the scheme is pending with the appropriate authority.

5. Partnering with public health system and community

In order to discharge the social responsibility of an academic institution, we have developed an interface between the Mahatma Gandhi Institute of Medical Sciences, Sewagram, and the district health system and community. This interface is being utilized to have an integrated approach in the health care and research program in the field. Over the years, we have taken confidence-building measures with the health system and have developed mutually beneficial partnership and, in the process, we are working very closely with primary health centers, sub-centers, and community health centers in the field. The MGIMS plays an important role in the capacity building of health-care providers on various health and health-related issues, and the district health system in return has contributed significantly by supporting the community-based health-care delivery and research as well as in teaching and training during the social service camp and ROME camp. In the process, the institute has developed two rural health and training centers at Anji and Bhidi and an urban health training center at the Gandhi Memorial Leprosy Foundation, Wardha. These centers act as a bridge between the MGIMS and district health system in discharging social responsibilities of the MGIMS in providing health care to the marginalized rural population and promoting community-based research by the faculty members of the MGIMS, Sewagram. All clinical faculties of the MGIMS, Sewagram, are regularly visiting these centers on a periodic basis to extend specialist health care at the primary health centers. Consequently, the MGIMS has signed a memorandum of understanding with the district health system to manage two primary health centers at Anji and Talegaon in the rural area and two primary health centers in the city of Wardha in the urban area 2 years back, which has further strengthened the partnership.

6. Community mobilization

The DCM is involved in providing services to 100 villages in the Wardha Block since 1985. Based on the experience over the years, we promoted various community-based organizations (CBOs) and built up their capacity for promoting health action in the community. Initially, we interacted mainly with the village panchayats (local bodies) and once we developed a good understanding with the panchayat, we started promoting the CBOs. Over the years, two important CBOs have been promoted and they are described in the following sections.

6.1 Self-help groups (SHGs) of women

In the initial years, we used to visit the villages while delivering the health education in the community. We noticed that every time we visited the community, a different set of people gathered. Hence, we decided to develop women self-help groups on the guidelines of the National Agriculture Bank for Rural Development (NABARD). These groups are informal groups and do not require any formal registration, however, number has to be restricted to 20 members. In the initial years, we spent a considerable time using SHGs only for economic empowerment of women and to provide them relief from the moneylenders. These self-help groups collect token monthly subscriptions from the members and utilize the collected amount for internal lending. Once the groups have a certain amount of money, then banks provide them a formal linkage by which they are eligible for bank loans to undertake small income-generation activities. Over the years, these SHGs have been proved as a good example of microfinancing at the community level. Once these groups were

financially stabilized, we started introducing health agenda in their activities by providing them with relevant information in a phased manner. At present, the DCM has nearly 300 self-help groups in the field practice area and they are promoting health actions on various health and health-related issues in the community.

6.2 Adolescent girls' group (Kishori Panchayat)

The members of self-help groups prompted to help adolescent girls who do not have proper information related to menstrual hygiene and are suffering rampantly with anemia. Accordingly, we started organizing community-based adolescent girls' groups known as Kishori Panchayat. These groups are mainly involved in adolescent to adolescent health program. They have been oriented toward various adolescent health issues, maternal health, child survival, environmental health, and family life education as well as on reproductive tract infection (RTI)/sexually transmitted infection (STD)/human immunodeficiency virus (HIV) control. These girls in turn also trained their peers and younger adolescent girls in the villages.

Later on, we have developed these girls' groups on the basis of activities of the Rashtriya Kishor Swastha Karyakram (national adolescent health program). At present, we are linking these community-based adolescent activities with the school-based adolescent health programs to ensure sustainability. Additionally, two adolescent health resource centers have been developed at our rural health and training centers at Anji and Bhidi, which act as reference centers for both the community-based and school-based adolescent health programs.

7. Community-owned health clinics (Kiran clinics)

Mahatma Gandhi Institute of Medical Sciences, Sewagram, is committed to provide accessible and affordable health care, primarily to underprivileged rural communities. In the community health needs assessment (using quantitative, qualitative, and participatory methods) in 60 villages, the findings emerged that the delivery of primary health care was available at the Primary Health Centre (PHC) or sub-center level but not at the village level. Villagers had to travel a long distance for seeking primary health care even for the basic ailments and it costed them a lot. Apart from the direct health expenditure on consultation, medicines, or investigations, patients had to forego their daily wages and spend on transportation. The VHNSCs of the respective village recommended to establish a village-based clinic to cater to the unmet need of providing primary health care at the village level, especially directed toward the marginalized, poor, and vulnerable section of the society—women, children, and elders.

The Kiran clinics were started in selected villages under the Community-Led Initiative for Child Survival (CLICS) program in 2004 to meet the health needs as defined above. The precondition set by the Department of Community Medicine (DCM) for partnering with the VHNSC to establish a clinic was that at least 60% of the population of the village should contribute to the village health fund. This was done to ensure the financial sustainability of the clinic in the long run. Apart from providing curative services, preventive and promotive services are also provided through the clinic. It is an attempt to overcome constraints that affect access to care like the distance, transport, and availability of services of the basic health-care facility.

Usually, services given under any research project will stop after the project ends. Kiran clinics have sustained through community ownership for a period of more than 15 years, which is a testimony to the simple but robust and transparent

management and reflects the “Value” the community gives to the clinics. One key learning is that the community does not really expect free health-care delivery but are willing to pay minimal cost, provided services are of desired quality and are able to cater to their needs.

Quality health services are provided in the Kiran clinic. One diabetic patient showed his satisfaction saying, “Doctors and sister give psychological support along with quality treatment. I am 100% satisfied with services given at very low cost.” [12].

In our field practice area, 23 such clinics have been established. The cost comparison in terms of the doctor’s fee, cost of drugs, transport, and lost wages has been strongly in favor of the Kiran clinic (approximately, 64 rupees at the Kiran clinic vs. 390 rupees for treatment outside the village which is a savings of almost 350 rupees).

In the Kiran clinic only, generic drugs are being purchased and made available to the patients at a no-profit, no-loss basis to ensure affordability. Apart from organizing the clinic, the VHNSCs also ensure the quality of services at the clinic. Again, the DCM supplied them with a tool in the form of a quality assurance (QA) checklist, which covers a number of quality parameters from the presence of health-care providers to adequate infrastructure and logistics, including drugs. The charges and the cost of treatment for the patient are also under scrutiny, as is the client satisfaction based on simple exit interviews. To top it all, it also looks into equity issues—whether the clinic manages to reach out to the disadvantaged and marginalized in the community, including the women and children.

The Kiran clinics also act as hub for health promotion by providing growth monitoring, antenatal care, and screening for hypertension and diabetes and also provide support in the organization of the Village Health and Nutrition Day (VHND) at village level. Thus, it offers a promise for new and innovative health initiatives.

The community is engaged at every stage (planning, implementation, and evaluation) in the functioning of Kiran clinics and has been able to successfully run the clinics for the last 15 years. The committee has flexibility and authority to make necessary changes in the functioning of the clinic, for example, addition of new services, registration fees, drug price and incentive to village volunteer, etc. Over the years, the committees have taken several decisions to improve the services through these clinics as per the demand of the community; for example, addition of new services like treatment of noncommunicable diseases and other health promotion activities.

Community dialog, voluntary participation, empowerment of people, and involving them in decision-making have been crucial for ensuring ownership. One member of the VHNSC expressed her gratitude saying, “It’s my pleasure to work for community. It gives nice feeling to me. Even if I am not doctor, I am able to contribute for improving health of my village.”

8. Strengthening the Panchayati Raj Institutions (PRIs) and village health nutrition and sanitation committee (VHNSC)

DCM continuously engages with PRI members in all villages in its field practice area. Orientation sessions are organized through the rural and urban health training centers to empower the PRI and VHNSC members for health action at the community level. Due to its continuous engagement with the VHNSC, in most of the villages in the field practice area, monthly meetings of VHNSC members are ensured.

VHNSC has a vital role in decentralized health planning and monitoring. National Health Mission (NHM) envisaged VHNSC to function adequately with the involvement of community members and promote people’s participation in the planning process. However, there should be a tool which facilitates in planning, implementation according to village-specific health plan, and community monitoring of health services at the village level [13].

Mahatma Gandhi Institute of Medical Sciences (MGIMS) has developed a community-led approach and ensures the provision of high-quality and affordable health care with emphasis on Maternal and Child Health (MCH), in partnership with local the community and health system. The strategy is to empower the communities to manage and own village-based primary health care. The DCM has initiated various community-based organizations in the villages—self-help groups of women, adolescents groups (more than 60 in numbers)—and empowered village health nutrition and sanitation committees (VHNSCs) in every village in a systematic manner.

The program uses the Integrated Model of Communication for Social Change (IMCFSC) to guide its BCC activities. IMCFSC uses an iterative process where “community dialog” and “collective action” work together to produce social change as shown in **Figure 2** [14]. The VHNSCs have been empowered for health planning, organization of Immunization Day, and monitoring of the health functionaries, and they work in close collaboration with the local health system and democratic body. There is an effort to link health and developmental activities at the village level.

Formal interaction of medical and nursing students with community-based organizations is arranged during their village visit; they witness the activities of community-based organizations. This helps aspiring doctors understand the role of individuals, families, and communities in preventing diseases; maintaining and promoting health; and improving health-seeking behavior.

Based on our experience of working with VHNSC, it can be inferred that most VHNSCs are moving in the right direction by addressing the social determinants

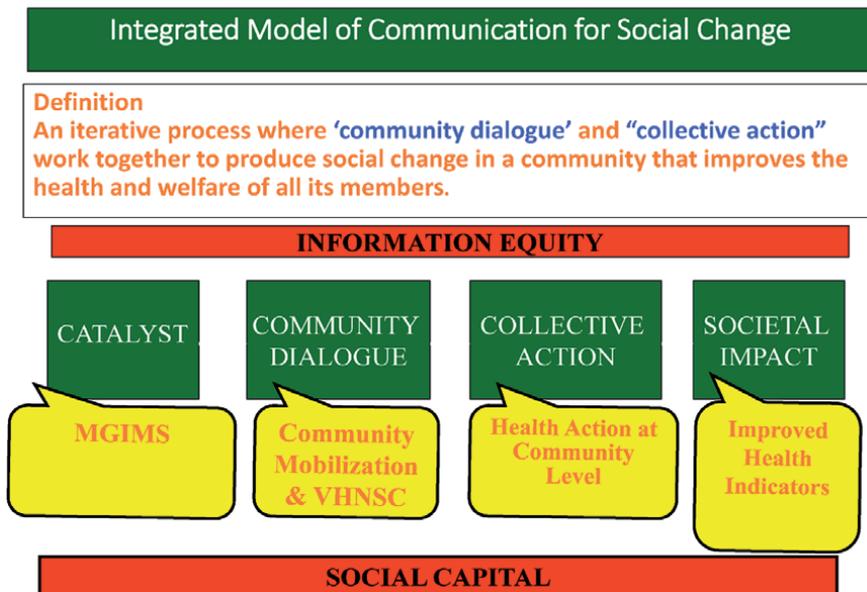


Figure 2. Integrated model of communication for social change.

of health (SDGs) for which they have been empowered to recognize the social determinants of health being important in improving the health of the community as a whole; however, it requires continuous support, hand-holding, and monitoring from both public health system and other stakeholders [15].

Community-based organization will be the key to bring about the overall development of the villages. Most importantly, communities need to control the process. The ultimate goal is for communities to have the confidence and competence to make informed choices from a range of appropriate options for sustainable and equitable development. The need of the hour is to bring about a holistic change in the lives of beneficiaries among the villagers by uplifting their socioeconomic and health status through effective linkages through community, governmental, and other developmental agencies. The VHNSC should be able to prepare an integrated village development plan with technical guidance from local organizations/agencies [16].

As a part of their social responsibility, medical colleges need to play the role of catalyst to bring all the stakeholders (village-level committees, PRI members, health functionaries—ASHAs, AWWs, auxiliary nurse midwives (ANMs), MPWs, school students and teachers, NGOs, etc.) on one platform and make an integrated plan for the development of villages in their community development block area. Capacity building of the community and household will be pivotal if sustainable development is to be ensured and the Gandhian dream of Gram Swaraj is to be realized.

9. Conclusion

At present, we have developed an interface between community, health system, and MGIMS, which requires further nurturing in a manner that all three stakeholders sustain their commitment. The MGIMS has been discharging its role to nurture and further develop this partnership in order to discharge its social responsibility in the short term and its social accountability in the long term.

“Gram-Swaraj, the economy of small scale: in the past 12 years, from the recession of 2008 to the economic crisis of 2020, we have seen that a globalised economy is too fragile. It crumbles in the face of local tremors like the real estate scam in the USA or the emergence of a new virus in Wuhan. Gandhi would remind us of the humaneness and stability of local production, local consumption, and local community of relationships. He called it Gram-Swaraj. Such change in economy would invariably be accompanied by the decentralisation of political power. Globalisation has produced authoritarian political leaders everywhere. For Gandhi, the true democracy, responsibility, and relationship can be better practised locally.” [17].

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Conflict of interest

The author declares no conflict of interest.

Acronyms and abbreviations

ANC	antenatal care
ANMs	auxiliary nurse midwives
CBE	community-based education
CBOs	community-based organization
CLICS	Community-Led Initiative for Child Survival
DCM	Department of Community Medicine
IMCFSC	Integrated Model of Communication for Social Change
MCH	Maternal and Child Health
MGIMS	Mahatma Gandhi Institute of Medical Sciences
NHM	National Health Mission
OPD	outpatient department
PHCs	primary health centers
PLA	participatory learning and action
PNC	postnatal care
RHTC	Rural Health and Training Center
ROME	Reorientation of Medical Education
SDG	social determinants of health
SHGs	self-help groups
UHC	Urban Health Center
VHNSC	Village Health Nutrition and Sanitation Committee
VHND	Village Health and Nutrition Day
WHO	World Health Organization

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Graduate medical education (GME) continues its decades-long evolution. Evidence-based approaches are increasingly transforming the way we educate, evaluate, and promote GME trainees. Key to this transformation is our ability to recognize that “medical education” constitutes a true lifelong continuum, beginning with pre-medical education, then proceeding to medical school, residency (and potentially subsequent fellowship) training, and then finally the so-called maintenance of certification that continues throughout one’s entire professional career. This book explores a broad range of important topics, including the novel concept of “coping intelligence,” the important role of “work-life integration,” professional coaching and mentorship, professional development and career-long learning, patient-provider relationship, the impact of the COVID-19 pandemic on medical education, as well as the introduction of modern technologies to ameliorate the effects of social distancing. The book further discusses two important aspects of GME program management: the process of establishing new GME programs as well as the highly intricate process of merging residency programs.

Different aspects and perspectives are incorporated, including those of residents, faculty, and program leadership. The book ends with chapters on diversity, equity and inclusion, and the importance of community-based medical education.

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