Chapter

Introductory Chapter: A Quest to Transform Graduate Medical Education into a Seamless Journey toward Practice Readiness

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1. Introduction

Graduate medical education (GME) represents the transition between the traditionally understood world of "undergraduate education," including the medical school, and the realm of fully professional engagement within a medical or surgical specialty [1, 2]. Due to the relative shielding of trainees from full spectrum exposure to "real-life practice" environments and responsibilities, important gaps in readiness exist [3, 4]. In response, residency and fellowship programs are undergoing significant transformation to more effectively prepare graduates to meet the expectations of a busy, modern day clinical practice [2, 5]. As part of this transition, contemporary GME's character has evolved beyond a well-established repertoire of didactic techniques, increasingly embracing state-of-the-art immersive simulation, modern multimedia platforms, and real-time feedback technologies [6, 7].

This once-in-a-generation transformation is taking place right now and can be characterized by the words of Wayne Gretzky, nicknamed "The Great One," one of the greatest stars in the history of the National Hockey League. Gretzky once said, "I skate to where the puck is going to be, not to where it has been" [8]. These famous—yet very simple—words from one of hockey's most successful players of all time sum up the theme of *Contemporary Topics in Graduate Medical Education* in a nutshell, as our editorial team and chapter authors share their latest thoughts and wisdom on preparing the next generation of physicians. We see that the nature of physicians' work has changed immensely over the past 2–3 decades. Yet, the currents underlying this change will present different—and truly unique—opportunities and challenges for tomorrow's physicians, requiring an in-depth rethinking of the concept of "readiness for (independent) practice" [9].

The abovementioned challenges are clearly evident when examining contemporary healthcare practices and outcomes. For example, mortality from cancer in high-income countries has declined over the last 10 years due to better prevention, early detection, and improvements in treatment [10, 11]. Still, there are approximately 40 million adult smokers in the United States, with an estimated annual cancer-attributed mortality of approximately 33% [12]. Furthermore, while the average annual growth of per capita health expenditures has declined during the past decade, the US healthcare system features the highest per capita

cost (approximately $10,822 in 2017) among developed nations [13]. Interestingly, unmet behavioral health needs are among the top five conditions that drive overall healthcare costs [14]. How are we preparing future physicians to provide care in a system that treats symptoms rather than underlying problems while providing that care in a way that improves quality and limits costs? Many of the answers are provided in a chapter by Remde, et al., on "Teaching Balanced Patient Care using Principle of Reductionism and Holism" [15] and a superb contribution by Li-Sauerwine and King, titled "Curriculum Development: Foundations and Modern Advances in Graduate Medical Education [16]." In addition, the chapter by Butryn et al. [17] discusses the value of Postdoctoral Research Program as a unique value proposition that is not generally well known and often underappreciated despite the potential for substantial positive impact on institutions, trainees, and a broad range of postgraduate educational programs.

As one explores the different chapters within *Contemporary Topics in Graduate Medical Education*, it becomes apparent how complex, interconnected, and interdependent various components are within the matrix of modern healthcare. The same can be said about the different domains of professional life. After all, a physician-in-training is an individual with a personal life, family, goals and ambitions, as well as unique gifts and abilities. During their training, residents and fellows experience tremendous amounts 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 [18, 19]. The latter paradigm, centered around satisfactorily reconciling and integrating work and non-work domains [18], is especially important in the context of training "practice-ready" physicians in the era where our daily routines are increasingly defined by the pervasiveness of technological advances and trends [20].

One particularly strong riptide that will place increasing amounts of stress on the entire healthcare system (e.g., institutions, providers, insurers, and patients) is the imminent healthcare workforce shortage [21]. It has been estimated by the Association of American Medical Colleges (AAMC) that by 2025 there will be a deficit of between 14,900–35,600 primary care physicians and 37,400–60,300 non-primary care specialists [22]. This is especially concerning since countries with the best-performing healthcare systems (as measured by longevity, infant mortality, and patient satisfaction) tend to have the highest percentage of family physicians [23]. Many national, state, and local initiatives are underway to address these upcoming shortages. Specifically, the Association of Departments of Family Medicine (ADFM) released strategies for increasing the primary care workforce, including development of more targeted high school/college pipeline programs, medical training innovations, office practice transformation, and payment reforms [24]. One of ADFM's strategies is to equip residents with better wellness skills to manage stress and increase physician work/life satisfaction and joy of medicine as the demand for their services increases. A number of chapters in this book address the interrelated topics of physician burnout (by Connors et al. [25]), wellness (by Lam et al. [26] and Quiros et al. [27]), and resident autonomy and graduated responsibility (by Cooper and Allen [28]), effectively acting as lighthouses for institutional leaders and residency program directors navigating the stormy seas of contemporary GME transformation. It is hoped that improved awareness and better knowledge will help facilitate the gradual transition in our collective mindset, moving away from "burnout" while pursuing "wellness" [29]. Another critically important area of graduate medical education—curriculum development—is discussed by Li-Sauerwine and King [16], in an outstanding chapter that touches upon both foundational aspects and recent advances in this domain. Taken together, these contributions provide

insight into some of the latest thinking about what independent medical and surgical practice may look like 10–20 years from now.

Finally, this compendium would not be complete if we did not discuss the importance of leadership in medical education at academic medical centers, including the rapidly evolving theoretical considerations and their practical applications. The editors are proud to introduce Dr. Jay Yanoff, Professor of Otolaryngology—Head and Neck Surgery—at Drexel University College of Medicine in Philadelphia, as the author of the Opening Chapter for the *Contemporary Topics in Graduate Medical Education* book series. A true expert and academician, Dr. Yanoff is the former associate dean of graduate medical education and former designated institutional official (DIO) of Hahnemann University Hospital in Philadelphia, Pennsylvania. He is nationally recognized for his work in how the mind functions during the learning process and is the co-author of numerous textbooks, book chapters, and articles in refereed journals. In the Introductory Chapter, Dr. Yanoff reflects on his leadership experiences and provides a road map for effective leadership in academic medical centers based on more than 40+ year-long academic career [30].

Addressing the topic of leadership in medicine is extremely important because, as recognized by Mathis, "There is nothing in a physician's education and training that qualifies him to become a leader" [31]. The physician's primary purpose and professional duty is the care of our patients, accompanied by the education of patients, students, residents, colleagues, and politicians, fostering the growth of knowledge. However, in doing so we bear the weight of social responsibility as it relates to not only individual healthcare but also the public's general health and well-being. The "space of appearance" of physicians puts them at the heart of patient safety, efficacious delivery of care, and financial stewardship of resources. To reconcile these critical duties and responsibilities is certainly not an easy task. Moreover, the modern physician may be required to cope with conflicting priorities and demands, such as the need of consistently demonstrating high levels of emotional intelligence and empathy while struggling with empathy-depleting burnout [32–36].

While this inaugural tome of *Contemporary Topics in Graduate Medical Education* represents a tremendous effort by many leaders in the field of graduate medical education, by no means is it intended to be the final word on the topic. In fact, this volume will hopefully serve as a foundation for further texts in this area as educators continue to explore the general question of "how do we train doctors of the future?" The challenges are great as the goals and educational landscape continue to evolve—as do many other areas of medicine. As mentioned in previous paragraphs, being a physician is not limited to providing healthcare services or medical/administrative leadership, but extends well beyond these "technical" functions. After all, and before all other purposes, a physician is an individual who is responsible for the health and well-being of others—our patients. How do we instill the traditionally understood sense of "ownership" regarding patient outcomes? How do we build and foster a sense of accountability without consequences being perceived as punishment? These concepts, especially in the ethical foundation of "what we do" as our core business, permeate throughout all of the topics in this text, and unless we find ways of identifying individuals who have such innate sense of caring and responsibility, a fundamental question remains—"how do we teach it?" Furthermore, as more and more areas of medicine evolve into team-based and multidisciplinary models of care, how do we train physicians to not only lead, but embrace, such models [37–40]? Effective multidisciplinary teams require strong yet flexible leaders who possess a solid foundation in the scientific literature and a broad understanding of complex disease states and pathophysiology, medical economics, ethics, and building and maintaining collaborative relationships across disciplines. Physicians are uniquely suited to provide such leadership, and it is critical for our

graduate medical education systems to adequately prepare such leaders of tomorrow. The task is not easy, but hopefully texts such as this can help make it easier.

The medical practitioner of the future must embrace the greatest degrees of flexibility, nimbleness, and adaptability. Our medical education system, and GME in particular, must effectively adapt and evolve with the times because change is a continuous state of this noble profession. Heraclitus, a sixth century BC Greek philosopher once said, "There is nothing permanent except change" [41]. And this was very much echoed by Charles Darwin who very eloquently noted that "It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change" [42]. The US healthcare system is no different, and by proxy neither is graduate medical education. As we look to the challenges and opportunities ahead of us in medical education, this book provides the wisdom, tools, and resources to effectively respond to change so that we can better prepare physicians for where the puck is going!

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