Chapter 4
Teaching Millennials and Generation Z:
New Opportunities in Undergraduate Medical Education

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ABSTRACT

Each generation is defined not solely by the date of their birth, but also for their beliefs, their priorities, and their motivations. Many factors play heavily into the development of each generation's collective identify, including parenting styles, significant political and current events, changing gender roles, and other formative experiences. These factors significantly and uniquely influence how each generation lives, learns, and interacts with others (Gerhardt, 2016). While most medical educators today are baby boomers, the majority of medical students are millennial and generation Z individuals, who communicate, learn, and interact very differently than their instructors. As a result, effective medical educators are challenged to update their methods of instruction to best suit these newer generations of learners for better assimilation, clinical application, and long-term retention of material, to maintain delivery of high-quality healthcare in the country for future generations (Desy et al., 2017; Waljee, 2018).

INTRODUCTION

The field of medicine is presently at an exciting and daunting juncture: medical research, novel diagnostics, and new drug developments are offering health care providers an ever-increasing wealth of information in the fields of disease pathophysiology, laboratory and imaging diagnosis, and treatment modalities to best care for patients. However, this wealth of information has reached a tipping point in the volume of information necessary to be a competent practicing physician. As a result, health care educators are quickly realizing that strict reliance on didactic lecture-based medical education is no longer tenable. Additionally, with generational and gender differences in learning styles, and an increasing awareness of

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the importance of mental health and work-life balance, medical educators and their students are tasked with the job of adapting novel teaching, learning, and testing styles to maximize efficiency of information acquisition, retention, and clinical application, while being sensitive to the time and capacities of all those involved.

BACKGROUND

In recent years, the field of medical knowledge has exploded, with new, exciting and innovative advances in diagnostics and treatments becoming available on a daily basis. Recent reports in Nature Medicine report paradigm-changing advances in artificial intelligence technologies in medicine (He *et. al*, 2019), advances in stem-cell-based interventions (MacPherson & Kimmelman, 2019), greatly improved understanding of how the gut microbiome influences overall health (Poyet *et. al*, 2019), and use of big data approaches for precision health (Rose *et. al*, 2019), just to name a few. These advances have empowered health care providers with greatly improved understanding of the pathophysiology of diseases at the cellular and molecular levels, new therapeutic developments including genomic, immune, and dietary interventions, the application of precision medicine, and the microbiome. The application of this new knowledge in the healthcare setting translates into increased lifespan and better quality of life for patients. However, this abundant new knowledge also represents an ever-expanding repertoire of information that today's medical students must master to become competent and capable practicing physicians. As the vastness of medical knowledge continues to expand, undergraduate medical educators are faced with the task of deciding what information to present and to what depth to teach in undergraduate education versus what will be learned on clinical rotations, how to best present it in a manner that engages the students for long-term learning and optimal clinical application, and how to examine the students' medical knowledge to ensure public safety of their future patients.

As the preclinical medical curriculum is incrementally expanded to maximize preparation for competitive board exam (U.S. Medical Licensing Examination and Comprehensive Osteopathic Medical Licensing Examination of the U.S.) performance, medical educators must remain ever-mindful of the need to preserve the mental health and work-life balance of students, as burn-out and substance abuse in medical students are real and significant issues (Jackson, Shanafelt, Hasan, Satele, & Dyrbye, 2016). Specifically, Jackson *et al.* (2016) completed a national survey of U. S. medical students assessing alcohol abuse/dependence, burnout, depression, suicidality, quality of life and fatigue. Of the 12,500 students surveyed, 32.5% of respondents met diagnostic criteria for alcohol abuse/dependence. Students who were burned out, depressed, or reported low quality of life were more likely to abuse alcohol. In another study (dos Santos Boni *et. al,* 2018), 330 Brazilian undergraduate medical students were queried regarding their level of burnout and the factors that may have contributed to these issues. Nearly 71% reported high levels of emotional exhaustion, with nearly as many reporting high cynicism and low academic efficacy. Forty-five percent reported burnout, with the highest frequency of affected students in the first year of their studies, and the incidence of burnout in medical school seemed to be associated with increasing difficulty of the curriculum.

This issue of poor work-life balance in the healthcare field extends far beyond undergraduate medical education and has been addressed in residency and in private practice realms as well. Until the late 1990's and early 2000's, the expectation of physicians and residents was to work as many hours as needed to deliver effective patient care in addition to providing ancillary services such as charting. As