Combined, Accelerated Baccalaureate-Medical School Programs in the USA—Wave of the Future?

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Background

Combined baccalaureate-medical programs have been popularized in the last few decades as alternatives to the traditional medical education track in the USA. Rather than applying to medical school in their final year of college, students apply to these programs as high school seniors. If granted admission, students are simultaneously accepted to both the undergraduate and medical schools, which enable them to forgo the separate medical school application process later. In a significant departure from the traditional application process, the Medical College Admission Test (MCAT) is only required by some institutions. Admission into such programs is considered highly competitive. For instance, Northwestern University's program requires students to have completed college level mathematics and chemistry courses (usually through Advanced Placement exams) prior to application [1]. They also cite the average Scholastic Aptitude Test (SAT) scores of admitted students at near perfect scores in all three sections and require other standardized subject exams in addition to the SAT [1].

While some programs maintain the traditional training consisting of 4 years of undergraduate education followed by 4 years of medical education, others condense the process into 7 or even 6 years. According to the Association of American Medical Colleges, only three 6-year programs and ten 7-year accelerated programs exist in the USA [2]. Twelve additional combined programs also exist but are non-accelerated in that they require eight years of training [2].

Potential Advantages

Student-Specific Advantages

Having been assured entry into medical school as a high school senior, one benefit of acceptance into a combined program is psychological. Given the guaranteed admission, students feel less pressured to limit the scope of their undergraduate education to pre-medical courses and are free to explore other disciplines. Such programs can eliminate the uncertainty of getting accepted into medical school with a non-traditional undergraduate degree in the humanities or liberal arts, as opposed to the more routine pre-medicine track that most students seeking admission into medical school pursue. As such, they can encourage diversity of thought in trainees and offer a more holistic college experience.

Accelerated programs also offer financial incentives for educational institutions and medical students in an era of increasing medical education costs [3]. By paying for fewer years of tuition, students benefit from up-front savings as well as interest during the loan payback periods. Due to the high academic standards of students accepted to combined programs, many enrollees have earned college credit through Advanced Placement courses upon entry. If these credits are accepted, students further save on tuition on a per-credit basis.

Global Advantages

Some accelerated programs educate their students in the same sequence as traditional programs: sole focus on undergraduate studies in the first half and medical training starting only in the second half. A few, however, integrate medical training with undergraduate studies in the very first year. This latter model is particularly remarkable—it allows students in their very first year of college to take medical school classes concurrently with their undergraduate classes

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and gives them early exposure to direct patient care. Instead of compressing practical training into the last 2 years, as is the case in traditional medical schools, such students can receive hands-on teaching for the entirety of their programs. This “undergraduate-*and*-medical school” model, instead of the “undergraduate-*then*-medical school” model, allows medical education to begin early, allowing combined programs to take advantage of having students available for medical training for longer than the traditional 4 years. This is particularly advantageous for the field of medicine as a whole because it allows for better training of the entry-level workforce in the “soft” skills developed from increased patient interaction, making the transition from student to resident smoother and perhaps improving patient safety early on in training.

Potential Disadvantages

Committing to a medical career as a high school senior is not to be taken lightly—it requires a great deal of self-awareness, insight and maturity. As such, combined programs are ideal for those individuals who have had significant exposure to health care and developed an unwavering commitment to medicine. It is imperative that students who enroll in accelerated programs have the discipline to withstand a rigorous academic curriculum. For example, at the University of Missouri-Kansas City School of Medicine, first year students are often required to enroll in 25 to 30 credits per semester and 12 to 15 credits in the summers [4]. When compared to the average undergraduate, this is approximately double the work load. As such, efficiency and stress management are integral to success.

Given the full credit loads during the summers, opportunities for internships or summer jobs can become scarce and studying abroad may be less feasible. Students may have difficulty participating in research or other non-academic activities due to time constraints. The increased curriculum rigor and decreased flexibility may leave some students feeling that their undergraduate experience is inferior to that of their peers in traditional colleges.

Do These Programs Work?

Many combined and accelerated programs began as experiments in non-traditional training. Whether they would be successful in preparing physicians without compromising the quality of training remained unanswered. Several data have been published since the inception of these programs to answer that very question.

Loftus et al. compared the performance of students in combined degree programs with those in traditional undergraduate and medical school programs [5]. They found that attrition rates for students in the undergraduate phase of the combined degree programs were lower than those in traditional pre-medical undergraduate programs. Furthermore, the attrition rates of the medical phase of combined degree programs were comparable to those of traditional medical schools. When comparing Grade Point Averages (GPAs), National Board of Medical Examiners (NBME) scores, and clinical grades between the two groups, they again found no significant differences in the pooled data. In fact, when some programs were assessed individually, students in the combined programs outperformed those in traditional programs.

Green et al. also compared student performance in the traditional and combined programs at their institution using another set of objective measures [6]. They found no significant differences in Alpha Omega Alpha (AOA) selection, quintile performance distribution, or United States Medical Licensing Examination (USMLE) scores. Drees et al. assessed the competence of their combined degree program graduates by polling residency directors and found that their graduates performed equal to or better than graduates of other schools [7]. They also reported that students in the combined program perceived lower stress in their relationships with classmates compared to the national average, suggesting increased camaraderie and a more robust peer-to-peer support network. While no specific studies assessing the satisfaction of these students exist, the data on stress levels can perhaps be used as a surrogate for assessing burnout.

Emanuel et al. take the shortening of medical training one step further. In addition to undergraduate and medical school, they suggest that residency and fellowship programs should also be shortened, citing studies which demonstrate that competence is not sacrificed by truncating post-graduate training [8]. In fact, they propose that medical education training overall be reduced by 30% by 2020 to reduce “waste” in physician training. Most medical training programs in Asia already integrate undergraduate and medical education and have done so for years, providing precedence to combined programs in the USA.

Combined programs are also of import to medical institutions globally, especially where recent attempts at streamlining medical education are being made. In the UK, for example, post-graduate medical training can vary anywhere from 7 to 10 years, with most graduates requiring general medical training despite their chosen subspecialty [9]. Attempts at addressing this redundancy was made with the establishment of the Modernizing Medical Careers (MMC) program, but was met with mixed support [9, 10]. Combined programs in the USA can serve as examples of successful, alternative medical education models that other nations can potentially emulate.

From a national healthcare perspective, combined and accelerated programs offer a potential solution to the physician shortage. The Association of American Medical Colleges projects deficits of up to 31,000 primary care providers and 64,000 specialists by 2025 [11]. Given the length of physician training, this issue requires a solution now to avoid shortages in 2025. By reducing the training years, accelerated programs can ameliorate a portion of the projected gaps while potentially buying time for additional solutions to be formed. Medical school administrators can learn from the experiences of existing accelerated programs to structure their own courses and develop non-traditional curricula that would educate the next generation of physicians at the same standards as a traditional program.

Conclusion

Combined baccalaureate-medical programs offer several advantages, chief among them the guarantee of admission into medical school and potentially beginning medical education earlier than traditional schools. However, combined programs require mature applicants who have honed their efficiency and are decidedly committed to careers in medicine. The literature has demonstrated that students in combined degree programs perform at least as well as their traditional peers in both medical school and residency. These programs serve as examples that medical training can be truncated without sacrificing quality or patient care. Importantly, these programs have the potential to serve as solutions to projected physician shortages in the near future.

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Compliance with Ethical Standards

Conflict of Interest The author declares that there is no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human participants or animals performed by any of the authors.

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