

Advanced Degrees in Academic Colorectal Surgery

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Abstract

Keywords

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Because of the increasing complexity of medical care, growing numbers of physicians are supplementing their medical education with additional training in basic research, public health, and leadership/business. The doctor of philosophy, master of public health, and master of business administration are popular degrees that give matriculants added levels of knowledge and expertise in their respective fields. This article reviews the relative advantages and disadvantages of each degree as they relate to a career in surgery. Data regarding the academic and financial outcomes of students obtaining these degrees are reviewed.

Objectives: Upon completion of this article, the reader will be able to discuss advanced degrees in colon and rectal surgery.

Modern medical care is breathtaking in the scope and complexity of clinical scenarios that the average clinician is asked to confront. Physicians committed to careers in academic surgery are often asked to bear significant responsibilities outside their primary clinical duties. These additional charges may include basic or clinical research, education of residents/medical students, as well as management and leadership roles. Often, all three areas are included in the scope of their daily activities. Although medical education in the United States does address basic science, introductory health economics, as well as introductory epidemiology and statistics, no single topic can be covered in great detail. Because of the time constraints of the current 4-year medical curriculum, many physicians choose to pursue additional degrees to gain the skills to perform and evaluate research at the highest level or improve leadership/business skills. In addition, additional degrees are marketed as tools which enhance a physician's chances of promotion and increased reimbursement. The real or perceived benefits of obtaining an additional degree beyond the traditional medical education

must be weighed against the time, intellectual, and emotional investment required to obtain such training. Even after such as sacrifice, the perceived benefits of an additional degree may not be realized because of increased financial requirements and reductions in government funding of research.

Remarkably, there are little data concerning the impact of advanced degrees on the careers of academic surgeons. This article seeks to review the available evidence regarding the doctor of philosophy (PhD), master of business administration (MBA), and master of public health (MPH) when combined with a career in academic surgery. It draws from a body of literature that is general in nature but that can be applied to the careers of surgeons.

Doctor of Philosophy

There is a long history of physicians who combined their careers as clinicians and investigators. Since the 1960s, there was a recognized effort through MD–PhD programs to train individuals to be as proficient in laboratory work as they were in clinical care. The overall expectation was that MD–PhD programs would train physicians centered in academic medical centers. It was expected that their primary research

interest be related to their clinical interest and that their “dual training” would give them deeper insights into clinical problems than other physicians who had been trained strictly as an MD or PhD.¹

MD–PhD programs are typically structured so that the first 2 years of traditional medical education are followed by an undetermined period of graduate research. Following graduate research time, matriculants return to complete the last 2 years of medical school. These programs are now offered at most US medical schools and their popularity is enhanced because of full-tuition grant support offered by the National Institutes of Health (NIH) in the form of the Medical Scientist Training Program.²

Devotion of a significant amount of time to obtaining a dual degree is a significant societal and individual investment. Critical consumers will therefore consider several factors when deciding whether an MD–PhD program is in their interest. A recent review by Brass et al¹ suggested that the average time to completion of an MD–PhD was 8 ± 0.4 years. Ten percent of students who entered these programs did not graduate with a dual degree. After completion of the degree, 80% of matriculants were located in academic medical centers or industry.

Only 7% of MD–PhD matriculants entered a career in surgery however respondents who were still in-training at the time of this article reported an increased interest in surgery (11.4%). It is also notable that 40% of graduates spend at least third-fourths of their time with research as the primary component of their career while only 20% reported spending less than one-fourth of their time performing research. Given the limitations on NIH research funding, it is interesting to note that as many as 73% of respondents reported having grant funding.¹

This study supports several conclusions. MD–PhD programs appear to be meeting their goal of producing academicians. In addition, the majority of those who enter careers in academic medicine do have a significant portion of their time devoted to research. Only a small percentage of students who matriculate in MD–PhD programs eventually enter careers in surgery. This fact is not surprising as careers in general surgery and other surgical subspecialties are time consuming and typically last more than 5 years. In addition due to the intense clinical nature of a surgical career, obtaining adequate dedicated research time in which to establish a reputable research effort may be limited. However, significant proportions of MD–PhD students report interest in surgical careers (24%). This suggests that active recruitment early in training may be important in developing increased numbers of surgically oriented physician scientists.^{3,4}

In today's competitive health care market, there has also been concern about decreases in financial remuneration by third-party payers and difficulties in obtaining government research funding.⁵ Nevertheless, Chung et al demonstrated that strategic recruitment of PhD candidates who engage in collaborative activities with clinicians can result in significant increases in program grant funding support.⁶

Advances in surgical care will need basic science advances in the future. There is a paucity of surgeon scientists who are trained to deal with the challenges of the future. This is

especially true in colorectal surgery where funded physician scientists are underrepresented in academic circles. MD–PhD programs have a track record of producing grant-funded academicians. Therefore, it seems that efforts should be made to recruit students with interests in surgery and basic investigational research to combined careers.

Master of Public Health

The practice of public health and clinical medicine were once intertwined; however, the practice of population-based medicine has blossomed into a complex discipline with discrete areas of specialization. Public health professionals seek to understand the appropriate evaluation and implementation of data and study design to population health problems with emphasis on access to care, as well as quality and cost of health care. In addition, many public health professionals have experience in community program development and implementation. There has been a large growth in enrollment in MPH programs from 9,494 students in 1985 to 20,907 in 2006.⁷ For these reasons, combined MPH degrees are attractive to many medical students and professional at all stages of their careers.⁸

An MPH degree can be obtained in several different ways. An MPH program can typically be entered following completion of an undergraduate degree and can last varying amounts of time. There has been growth in the number of institutions offering combined MD–MPH degrees.⁹ One example is the combined MD–MPH program at the University of North Carolina Chapel Hill where students combine the MPH curriculum along with their medical degree requirements.⁷ Other programs can be completed during summer enrollments, night study, or any number full-time or part-time combinations designed to complement the schedule of a busy medical professional. Students in these programs are typically exposed to the core public health disciplines including prevention science, biostatistics, epidemiology, and environmental health. Typically, the numbers of courses taken in each area will vary according to each student's interests or declared concentration. Before completion of the degree many programs expect that students will have gained an understanding of the determinants of health in populations and ways that behaviors can be altered to change health outcomes across populations. In addition, students should be able to critically review literature as well as develop leadership skills that will allow them to apply interventions to populations.

There are little data regarding the outcomes of students who complete MD–MPH programs. Krousel-Wood et al reviewed the experience of 1,108 physicians. Seventeen percent of the cohort completed an MPH degree. These authors found that physicians who completed an MPH were more likely to be generalists and to be employed in an academic institution. In addition, physicians who completed an MPH were more likely to receive NIH funding, have four or more peer-reviewed presentations and five or more scientific presentations.¹⁰

While the aforementioned data may suggest that students entering a career in general or primary care medicine may be

more inclined to pursue a public health degree. There has been increasing recognition that the discipline of surgery interacts with several public health problems and that the delivery of surgical care can be improved using public health methods.^{11,12} It seems that MPH degree provides substantial benefits in increasing physicians comfort with obtaining funding as well as presenting and publishing their data. Although the proportions of students entering surgical careers are not mentioned in this study, it is unclear why the benefits of the degree would extend only to persons in primary care. It would therefore seem advantageous that surgical professionals seeking to have productive clinical research careers consider the MPH degree as a way of improving their research and analytical skills, therefore, improving their likelihood of publishing and assuming leadership positions.

Master of Business Administration

There have been monumental shifts in the management of health care in the United States. In 1935, physicians ran 35% of hospitals in the United States, while in 2009, this number had declined to 4%.^{13–15} These changes have illustrated that health care management is a complex discipline requiring some knowledge of strategic planning, basic finance and accounting, recruitment, communication, organizational design, patient safety, health care quality, and conflict resolution. Although these skills were learned passively in the past through mentorship, apprenticeship, and observation, many physicians are now recognizing the need for a more formal education in these sectors.¹⁵ A survey of general surgery program directors found that 87% of program directors recognized a need for surgical residents to be trained in business and practice management.¹⁶ Satiani et al performed a survey of 133 surgeons in the Midwest. They found that the average surgeon felt that they were deficient in their understanding of health care economics, fraud and abuse regulations, accounting principles, and marketing and investment.¹⁷

One issue confronting individuals who wish to obtain a dual degree is whether to obtain an MBA while in medical school or after practicing medicine for a few years. There has been exponential growth in the numbers of schools offering combined MD–MBA degrees such that the combined degree is offered by half of the medical schools in the United States. Many institutions do not have business programs that are well integrated with the medical curriculum, instead preferring to add 1 to 1.5 years of business school to the medical school curriculum. Many students pursuing dual degrees advocate this approach because of perceived benefits in career development and promotion. Advocates of obtaining the degree after practicing medicine for some years point to the ability to gain management expertise based on their previous experience in health care.^{18,19}

Data regarding the ultimate fate of physicians pursuing an MBA degree are lacking. We do not know what percentage pursue careers in management or other leadership positions. One publication suggests that the average starting salary for

MD/MBA physicians is higher than a comparably trained medical specialist without an MBA (\$292,500 vs. \$192,196). Increased reimbursement was thought to be secondary to assumption of additional leadership activities (such as running a group practice) or because of “outside” income from another business.²⁰

Despite increased reimbursement, there are risks associated with pursuing physician-executive careers. It is clear that among those who do pursue leadership positions, many are forced to practice part-time or give up clinical duties all together because of management requirements.¹⁹ Greater than 50% of physician executives will be terminated against their wishes.²¹ Reasons often cited include mergers and acquisitions, downsizing, reorganizations, interpersonal conflicts with superiors, and poor management skills.

Summary

Surgeons in the 21st century will confront a number challenges that they will not have been trained to deal with in the traditional medical education. Several advanced degrees are available to give them additional expertise. PhD candidates will be positioned to assume physician investigator roles in academic medical centers. MPH candidates will be positioned to assume a varied number of positions ranging from clinical research in academic medical centers to program development in underserved environments. MBA graduates will be optimally positioned to assume leadership positions in health care institutions and industry. All of these additional degrees require significant time and economic investment. The available evidence suggests that physicians who do pursue these degrees do experience a greater level of professional success whether that is measured by leadership positions, publications, grant funding, or reimbursement.

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