

A Medical Education as an Investment: Financial Food for Thought

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ABSTRACT

Every year that the training period can be shortened increases the value of a medical education. Tuition covers only a fraction of the cost of medical education, making the societal investment in older students less financially robust. Shortening training periods would immediately solve the shortage of residency training positions. With a few exceptions, a medical education is a good investment for women. We are skeptical of the proposals to address the skyrocketing student debt because they do not confront the primary problem. The best way to minimize debt is thrift, and the best way to make a career in medicine more desirable is to shorten the training time.

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Anyone who trains to be a physician in hopes of getting rich will be sorely disappointed. The vast majority who pursue a career in medicine know they will have a satisfying and rewarding job, the well-deserved respect of their fellow man, and a solid upper-middle-class living. Nevertheless, altruism has its limits. It cannot be ignored that the average medical student graduates \$167,000 in debt,¹ and can spend so long in training that they become professional students.

By looking at a career in medicine as an investment, we can provide recommendations on how to improve and streamline the training process and make a medical career even more desirable, in hopes that medicine can continue to attract our most gifted and dedicated young men and women.

Net present value (NPV) is the best way to estimate the value of an investment decision. The NPV for a medical education is positive at an annual cost of attendance ranging from \$10,000 to \$100,000.² Another method to analyze investment decisions is the payback period; how long it

takes to recover the upfront costs. This is simple but ignores the time value of money.

We have chosen instead to construct a scenario displaying the financials of an average physician's career in Column A of the **Table**, with the contemporary value of the money invested for tuition and fees for attending an in-state public school (Column B) or a private school (Column C). This has its weaknesses and appears simplistic, but that is our intention, because it portrays in a practical, real-life way, how long it takes a physician to recoup the money invested upfront to fund their education. Perusing these tables will allow a prospective student and their family, and ultimately, society, to determine whether a career in medicine is a good investment, as well as strategies to make it better. Displaying the data this way also provides flexibility for modeling various situations, such as starting medical school at a later age. This format also avoids the question of whether the money was entirely from personal resources, represents a mix of personal resources and debt, or is all borrowed funds.

We will show, as have others,^{2,3} that the time-cost of money trumps everything else, because all costs of a medical education are paid in cash up front. There is no return on this investment during medical school and minimal return during clinical training. It is only after a physician finishes training that the investment can be recouped. Remember also that the physician is working nights, weekends, and holidays while an investment

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effortlessly churns out its compound return year in and year out.

The **Table** demonstrates that tuition makes little difference on the timing of when the investment is recouped. Private school tuition is 55% higher than in-state public school tuition, yet within just a few more years of post-training work, the private school graduate can recoup their investment. Using the NPV method, Dorsey et al³ provided the same conclusion, showing that cutting tuition 25% or even 50% had a financial impact smaller than if the duration of training were decreased.

The best way to consider the importance of duration of training can be seen by examining the average practicing physician's salary. In essence, there is merely a frame-shift: every year of delay results in a loss of the final salary of \$240,000. For example, if one starts medical school at 27 instead of 23, the loss in lifetime earnings is \$1,000,000. Using data from 2003-2004, Dorsey³ showed that shortening medical school by 1 year increased the NPV of a medical education by \$160,000-\$230,000, with the majority of this due to earlier realization of the

income of a practicing physician. They also found that shortening residency training by 1 year generates a financial benefit of \$170,000. These effects are not mutually exclusive but in fact additive.

A year that can be saved up-front is one more year of maximal potential earnings and one less year of tuition.

These sums are magnified by compound interest: a dollar earned or not spent is more valuable by an order of magnitude than the same amount 30 years later. A 6-year combined undergraduate and medical school degree is one option. Graduates of combined programs do as well on standardized tests and as practicing physicians as the traditional student who attended college and medical school for 8 years.⁴ Most medical schools in the United Kingdom and Europe espouse a program of 6 years of training after high school. Accepting students into medical school after 3 years of undergraduate education rather than 4 years has the same beneficial effect.

Approximately 5% of matriculating medical students are age 29 years or older.⁵ These students should realize they have already forgone more than a million

CLINICAL SIGNIFICANCE

- Taking into account the return on investment of a medical education makes a career in medicine even more desirable.
- Medical schools may look more closely at the age of applicants in the future.
- Shorter training periods should be considered.
- The ideas expressed in this article might help solve the shortage of residency training positions.
- For the vast majority of women, a career in medicine is a good investment, but for a small percentage, other alternatives would be more profitable.
- Thrift helps to minimize student debt; one should remain skeptical of current proposals to address the explosion of student debt.

Table Average Physician's Financial Career as Compared with Med School Tuition and Fees Invested and Compounded at 5% per Year

Column A			Column B		Column C	
Average Physician's Career			In-State Public School		Private School	
Age, years	Position	Salary	Tuition & Fees	Compounded	Tuition & Fees	Compounded
23	Start med school	0	Start school	0	Start school	0
24	Student	0	\$32,414	\$32,414	\$50,309	\$50,309
25	Student	0	\$32,414	\$66,448	\$50,309	\$103,133
26	Student	0	\$32,414	\$102,185	\$50,309	\$158,599
27	Graduate	0	\$32,414	\$139,708	\$50,309	\$216,838
28	PGY-1	\$50,000	0	\$146,693	0	\$227,679
29	PGY-2	\$52,000	0	\$154,028	0	\$239,063
30	PGY-3	\$54,000	0	\$161,729	0	\$251,017
31	PGY-4	\$56,000	0	\$169,816	0	\$263,568
32	PGY-5	\$58,000	0	\$178,307	0	\$276,746
33	Associate	\$160,000	0	\$187,222	0	\$290,583
34	Associate	\$160,000	0	\$196,583	0	\$305,112
35	Partner	\$240,000	0	\$206,412	0	\$320,368
36	Partner	\$240,000	0	\$216,733	0	\$336,386
37	Partner	\$240,000	0	\$227,570	0	\$353,206
38	Partner	\$240,000	0	\$238,948	0	\$370,866

PGY = postgraduate year.

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