

MEDICAL SCHOOL AND THE CHURCHILL SCHOLARSHIP

Perennially students who are interested in applying for the Churchill Scholarship and who are also interested in attending medical school, for an MD or for an MD-PhD, ask whether spending a year doing research at the University of Cambridge will “interfere” or in some other way be disadvantageous in their applications to medical school and whether a so-called “year off” unnecessarily extends what is already a long commitment. Fellowship advisors and faculty mentors often pose the same questions. Consequently, the Churchill Foundation wrote to many Churchill Scholars over the past fifteen years, who have finished MD or MD-PhD programs or who are in their midst of their medical studies, to ask them their responses to such questions. I wish to express the Foundation’s gratitude to the Churchill Scholars who took the time to respond eloquently and thoughtfully.

Overwhelmingly and unequivocally, the Churchill Scholars replied that their year at Cambridge was vitally important to them intellectually, socially, and personally and that its benefits far outweighed any concerns of yet another year of study. Many of them noted that few medical school students finish their education in a lockstep manner and that a year off for research, for national or international community health work, another academic degree in public health, business, public policy, or law, or even personal travel is increasingly common.

Here is a sample of the comments from Churchill Scholars that can aid assist students and their advisors to place the Churchill Scholarship into the context of medical education. It is interesting to note that many of the comments make the same points over and over again. These reiterated remarks are not serendipitous but, instead, reflect common experiences and common opinions about the special opportunity that the Churchill Scholarship represents.

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Learning is not a race, it is a journey. With this perspective, it becomes easier to see how a year at Cambridge does not deviate from your overall education as a physician, scholar, and human being. Many times during college I felt that I was a horse with blinders — only looking forward to determine what set of tasks had to be completed before I could take the next step forward. While there is no fault with this perspective, living in Cambridge reset my perspective about learning and education. Cambridge, which attracts a variety of motivated scholars from various parts of the world, is a unique place for research. I was surrounded by people who had similar goals and career aspirations and who pursued their studies because they truly loved learning. From my fellow scientists in the laboratory, my graduate colleagues at Churchill College, my fellow boaties who rowed with me, and my friends from the year, I rediscovered why I loved learning and why I chose to pursue medicine.

While I did not learn medicine while at Cambridge, the year gave me insights into medicine that are not available within the walls of a medical school classroom. Through interactions with the Cambridge medical students and receiving medical care through the National Health Service, I realized that there is more than one way to learn medicine and deliver it. Having this perspective facilitates new understanding about the faults and benefits of our own health care system.

My research year also facilitated the transition to the research I pursued in medical school. I developed independence with scientific thinking and utilized my resources to learn new techniques and ideas, which cultivated my growth as a scientist. These skills were important when I joined my research lab in medical school, which was primarily comprised of post-doctoral fellows who were quite independent and self-sufficient.

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Medical education is a very long process, so long in fact that one year makes very little impact on the total length. I have been told by various mentors to think about where you want to be when you are fifty-five years old. If you are there at fifty-six instead, do you think that will matter very much to you? If the extra year helps you get to where you want to be or, perhaps more likely (and as was the case for me), helps you figure out where you want to be, it is more than worth it.

Medical schools, particularly the most prestigious, put a very strong emphasis on research. Typically 30% of each class takes a year off at some point, the majority doing research. Columbia University recently reorganized its curriculum so that every student will do a six month independent scholarly project during medical school. A year of research at Cambridge is therefore a distinct strength for an applicant. Perhaps more important, however, the year provides you with tools and approaches that will make any future research more rewarding and more productive.

More than anything else, though, you should accept a Churchill Fellowship because it will be one of the most enjoyable years of your life. You are surrounded by other interesting and intelligent people in one of the most picturesque college towns in the world, filled with history, tradition, and entertaining pomp and circumstance. You get to do research of your choosing with your emphasis on learning and growing as a scientist without the pressure to publish and impress some future evaluator that you find in later stages of graduate school and beyond. It is a pure academic experience, unlike almost any other.

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The Churchill Scholarship offers multiple benefits to applicants considering future enrollment in MD or MD-PhD programs. For students interested in careers as physicians, pursuing a course-based MPhil provides the opportunity to explore medically relevant fields such as public health or epidemiology, thereby establishing a specialized knowledge base that complements one's clinical training. Similarly, pursuing a research-based MPhil gives students the opportunity to gain additional laboratory experience at a leading institution while advancing the frontier of medical understanding. Previous Churchill Scholars unanimously report that spending a year in Cambridge furthered their intellectual independence in lab and gave them confidence to design and perform experiments at an advanced level. While earning their degrees, Scholars acquire new skills, techniques, and expertise that benefit them regardless of their future fields of research. For many Scholars, the year at Cambridge helps resolve their research interests by strengthening their commitment to a particular field or inspiring them to pursue research in a

novel area. The academic environment at Cambridge also provides a different perspective on research, and many scholars gain from the emphasis on thought and discussion — which often occurs at tea time or over drinks at a pub! Additionally, because of its location, Cambridge frequently offers the opportunity to manage and participate in collaborations that span international borders. For these reasons, the Churchill Scholarship is perfectly suited for applicants who wish to become physicians with either a clinical or research focus. Although the road to becoming a practicing physician or physician-scientist is long, previous Scholars overwhelmingly find their year at Cambridge to be an invaluable experience that advances their training and helps establish them as leaders in the fields of medicine and biomedical research.

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In response to the first question, it is easy to enter a linear career path, and once entered it is often difficult to sample alternatives. For example, once one is settled, it is often difficult to spend a year in another country or to switch fields. The Churchill Scholarship offers the opportunity to do that at the time in life when it is most feasible, and I think that it enriches your whole life.

You clearly do not need to do a Churchill year to do well at medical school. The Churchill year, however, can enrich your medical school experience. For those going into clinical medicine, the year of research can help provide a grounding to understanding the process of generating results in basic science — and, therefore, how those results should be interpreted. The results of basic science research will continue to transform clinical medicine throughout our careers. For those going into research, it can be an introduction into how rigorous medical research is done. This background informs you at every stage of your research career — from picking research projects and mentors in later stages of one's career, to appreciating divergent approaches to conducting and interpreting research, and to thinking about how to present your research. The point is that the research year provides an early perspective into how to do research that may differ from the perspectives one will get later in one's career.

Opportunities for research exist in the US. Research tends, however, to be conducted differently in Britain: the labs are smaller, and one often has more frequent interactions with the PI and other senior faculty, including the many faculty from around the world who take sabbaticals in Cambridge. Also, you will likely switch fields between Cambridge and subsequent research projects, and the thought processes and techniques can differ substantially between different fields. Having access to these different points of view inevitably improves your perspective on any problem.

Cambridge is a real center for medical research. Indeed, since leaving Cambridge I have switched research fields entirely. Yet in the field I have entered (the somatic genetics of cancer), the quality of research being done in Cambridge is the very best in the world. This is true across most fields I have encountered.

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I would agree that the Churchill represents a year off in the sense that it's a year off of the beaten path towards being a practicing MD, but certainly not a year off in the sense that nothing is ac-

complished. My year was marked by research at a manageable pace (i.e., 35-45 hours/week) resulting in multiple publications and life-long research contacts, extensive travel throughout Europe, new friends, good times, and ultimately meeting my wife.

To answer the first question, I'd say that many to most take a year off in one way or another on the path towards practicing medicine. Out of my class at Penn, something like one third of my classmates did not graduate with me because of taking a year to do research, getting an additional degree (MBA, MPH, etc), or taking time off for more personal reasons. A number of classmates like me had already taken time out before getting there. Less than half of my classmates went straight through, and some of those had regrets about not having another experience along the way as the rest of us did.

To answer the second question, I would say that medical schools look quite favorably on research, additional education, and non-medical experiences that make applicants more rounded. A prestigious scholarship on the CV can only help. I do not think that there is any downside at all to taking a year between medical school and college to go to Churchill. I suppose that one would be a year older before ultimately "getting there," but it is not a race, and you do not win anything by getting there sooner — I would argue that it would be more useful to be a year wiser before starting residency.

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I think the answer to such questions is very specific to the personal goals and career aspirations of the applicant, so my answer will have to draw from my experience. Building an academic career will be a long haul regardless of the specific path taken and the opportunity that the Churchill allows is unique and can complement this path both academically and personally. For me, my year of study in Cambridge, which revolved around a clinical problem, offered the opportunity to acquire a whole new set of skills that complemented ones I already had and made the transition into medical school, and later on to research, smoother. The freedom and independence allowed me to fine tune my specific interest more accurately as well as to figure out my strengths. Of course, by immersing myself in my own project, I learned how to identify problems and how to critically think to solve those problems, which are skills essential not just in the lab, but also the clinics. I think that refining these strategies requires a range of challenging experiences and ultimately results in a better-trained physician who will have the skill set to also make innovative improvements in their field.

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How can anyone take a year off when she or he knows the long haul ahead? Since I am still nominally in training at the Centers for Disease Control and Prevention at age thirty-seven, albeit of a highly specialized and applied kind, I can say that at age twenty-one I had NO IDEA of just how long a haul I had ahead. After the four years of medical school, there is still the year of internship, followed by three to six years of residency (depending on specialty), followed by two to four years of subspecialty training. Many people who are interested in the Churchill might want to do a combined MD/PhD, so then you would need to add another four years. Medical school is but the first step of a lengthy journey, and a year at Cambridge makes not a whit of difference

from this perspective. I would argue that the year in Cambridge is a year on, not a year off — allowing one to meet brilliant people from all over the world, deeply pursue new academic interests, travel, read, ponder, develop, and explore. In my case, in addition to my academic pursuits, I learned to rock climb and ice climb, attended the Edinburgh Fringe Festival, argued about *The Brothers Karamazov* over drinks in the MCR bar, and ended up falling in love with a young German theoretical physicist, now my husband.

At least a quarter to a third of my medical school classmates took a year “off” during medical school — often to pursue a master’s degree in public health, policy or business; to pursue a research topic in depth; or to work for a health policy organization or NGO (Harvard is perhaps more encouraging of this than some other medical schools, but it is quite common at most places). And the average age of entering medical students was about 24-25, so most people had several years of work life experience prior to entering med school. Among my classmates were several who had done such unconventional things as work as motorcycle mechanics, union organizers and Catholic priests. Moreover, in my experience, people who had other life experiences before going to medical school were among the most successful in clinical rotations and in relating to patients.

What is the effect of the Churchill on going to medical school? I think that medical schools are well aware of the distinction and academic achievement associated with recipients of the Churchill and that it can only help applicants gain admission to the medical school of their choice. More importantly, the independence and self-motivation important to succeeding in the Cambridge academic environment are attributes that medical schools seek to cultivate. It is not just medical schools who seek people with research skills and independent minds — residency programs and academic fellowships are also seeking such clinicians. Although the work I do now in medical epidemiology appears to have little to do with my MPhil work on the behavioral ecology of European robins, the habits of mind I developed in Cambridge have served me in very good stead in the rest of my career.

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How can anyone take a year off when she or he knows the long haul ahead? One year is but a “drop in the bucket,” even when considering the years spent training for a career in medicine. It is an incredibly rewarding year and may take you in directions you would otherwise not have explored. Such areas include not only professional development, but also personal growth. For example, the Cambridge environment permits participation in athletics that may not be possible at a US university. The year is also a welcome “break” (if a year of high-level studies and research can be called that!) from the pressures of undergraduate pre-medical studies and the rigors of medical training.

What is the effect of the Churchill on going to medical school? If you are asking if this will affect your chances of getting into medical school, the answer is yes: it will help. But then, if you are a Churchill Scholar, your academic (and non-academic) achievements will already vault you into the upper tier of applicants to medical school. If the question asks if a medical school will defer matriculation so that you can go to Cambridge for a year without reapplying, the answer is: it depends on the school. I found that most schools would happily defer your matriculation, al-

though a few will not and will require reapplication. I agree that medical school often, but not always, encourages and sometimes requires research, and the year in Cambridge will help prepare you for that — but this is a minor advantage. Learning at Cambridge is distinctly different from that in American universities, and remember, Cambridge is eight hundred years old! Cambridge is both steeped in tradition and cutting-edge. The learning, the research, the different environment of scholarship that pervades Cambridge — all these will simply make you a better-prepared medical student.

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For me the decision to pursue a Churchill Scholarship and attend Cambridge was an easy one. At the time I saw it as a more intensive extension of my undergraduate research education while simultaneously allowing me to experience a new culture, both social and scientific. It was an opportunity to acquire new scientific skills and perspective, as well as solidify my understanding of basic science before starting the regimented training of years 1 and 2 at medical school. I think it was a big advantage for me to have this experience under my belt when I started my PhD rotations and classes, and it definitely helped me when it came time to choosing my PhD lab. There were other Churchill scholars in the med school classes above and below me, both MD-PhD's and MD's, who universally felt their year at Churchill college was a highlight of their academic careers and helpful to their overall ambitions.

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When I considered the year, the benefits seemed clear. In spending a year in Cambridge, I would gain a year of research as well as life experience, formally advancing my scientific training while, perhaps more importantly, enriching my understanding of people and ideas. Far from costing me a year before I would earn a medical degree, the experiences, knowledge, and growth would better equip me to get more out of medical school.

In retrospect, it was an obvious decision for me. Yes, formal medical training is long, but being a physician is both a profession and a life-long developmental process. Taken into context, a year on a Churchill is not so much a year “off” from training, but an exceptional year offering an incredible opportunity for personal and professional growth, with lifelong dividends that can only augment the practice of medicine.

There are many paths to become a good doctor, and there are many ways to practice medicine and science. What was the right decision for me may not appeal to or be right for others. That said, the vast majority of my classmates in medical school had taken time to pursue other activities prior to starting medical school (I believe the average age of our class was about 25). I would bet heavily that every single one of us would agree that those years doing other things made us better students, classmates, and physicians.

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Reasons the student might want to go: (1) Cultural and life experience — this cannot be over-emphasized: the best researchers and best doctors are well rounded, and in my opinion a chance to experience a different culture and different system, even if still English-speaking, is invaluable.

able. Learning different paradigms, different treatment styles, different terminologies, etc. is all useful. (2) Academic connections — the more people you know, the better in academia (every time I have needed help on a technique I learned there, I knew exactly whom to call). (3) Research experience — the truth is that eleven months is way too short to accomplish anything great, but it is exactly how long it takes truly to form a hypothesis and design appropriate studies, and that is one of the most important skills to be learned in graduate school. (4) It is fun (yes, I think that is a HUGELY important reason to go).

Perception by the program: (1) Any graduate or professional program would be proud to state that one of their students received a prominent award, and the Churchill definitely falls into that category. (2) Deferring a student who is already accepted for one year allows them to take some-one off the wait list and guarantees them a good candidate the next year. (3) More research experience is always good for training. Likewise, more life experience is always good for training. Med schools accept lots of English and History majors for a reason.

Responses to the “extra year” criticism: (Yes, admittedly, it’s another year, but it’s JUST a year (MD-PhD is eight years, residency is four-ish, and fellowship is three to five, so one year is trivial), and the paybacks are huge. It is at worst a funded year to learn about European culture and education while learning the potential pitfalls of science (I learned them well), and at best a career-changing research and academic experience! (In retrospect, the subtle differences between those two still amaze me; likewise the possibility that both are true also still amazes me).

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In my opinion, there is no downside and plenty of upside to doing a Churchill year before medical school.

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Students on the MD or MD-PhD track are about to embark on a long, relatively inflexible journey (years in med school/grad school, residency, maybe post-doc, etc), so for MD or MD-PhD students especially, there is really NO BETTER TIME to live abroad, to be immersed in another culture, etc. than the year after college. It is a sort-of “if not now, when?” argument. If you ever want to do something like live in England for a year and are planning to go to med school, you should go before you start that long haul, because it would be much harder to get off the path once you are on it.

I am sure that the Churchill is very helpful in getting in to medical school! People I interviewed with were interested in it. And yes, it is true that the research experience is good for any career in medicine and the biosciences. What I think is more important is that it is a different kind of academic culture: for me the value was not just one more year in a lab, but it was one year in a very different kind of research environment.

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Academic medicine, as with any other field of academia, requires a great deal of training in preparation for a career as a lifelong learner. The experiences that one has in medical school or in a combined MD-PhD program are not always linear with a specific endpoint. Rather these educational experiences are simply meant to allow one to begin to gain some insight into the complex and extensive field of medicine and biomedical research. The goals of the Churchill Scholarship year parallel many of these goals to allow individuals to do intense academic research over the course of a year that will help these individuals to begin to become lifelong academic learners. Therefore, it seems to me at least, that the Churchill Scholarship provides a unique opportunity to begin to gain skills as a graduate academic learner. In my own experience, the year I spent as a Churchill Scholar was invaluable for the subsequent experiences I had in an MD-PhD program. While the research I have ended up doing since that time has changed, I owe a great debt to the invaluable experiences that I had as a Churchill Scholar, particularly for the influence it had on my approach as an independent learner and researcher.

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From personal experience, I know my time as a Churchill Scholar really set me apart and certainly helped me get the attention of arguably the most famous scientist at my medical school. He does not take many grad students, but I got my chance in his lab because of my experience. I was more confident to do well in his lab because of my prior experience... "The rich get richer" certainly seems to apply in academic medicine, and I'm now going to be very well set up for my postdoc and beyond due to the good fortune I've had just in the past few years. Taking time "off" to do a Churchill scholarship definitely played an indirect yet very important role in all this.

Applicants do need to be honest with themselves. If they see themselves as ultimately being more clinical types, then maybe the extra year isn't going to be as beneficial (though I still think having a research background would be invaluable, and why not spend a year abroad before starting the grind of med school?). But especially for the research types, I think to not at least give the Churchill Scholarship a thought because of time concerns would be short-sighted. One is technically in "training" for awhile, but when one is doing research, even as a grad student, one still has the potential to do some really incredible things. The whole process should be looked at as one exciting journey, rather than just looking at the early years as something to be suffered through before finally scientific independence and getting a "real job."

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One can argue that a Churchill year is helpful especially in light of the long haul ahead. Taking time off, regardless of how it is spent, allows time to gain perspective on a future in medicine. More and more, medical schools are looking to accept older applicants who have demonstrated their maturity through their activities between college and medical school; medical schools feel that additional life experience will make students more compassionate and considerate doctors. Taking time off prevents burn-out, too. Being a pre-medical student can be stressful and being a medical student often is; a year away from multiple choice exams and constant academic stressors can help students approach the challenge of medical school refreshed. Finally, once medical training is begun, it is much more difficult to have the unique experiences of living abroad and

being a student at an internationally renowned university. During difficult times in medical school it is important not to have regrets about opportunities missed. Thus, overall the memories and life skills learned during a Churchill year more than outweigh the year delay in becoming a doctor.

The effects of the Churchill on going to medical schools are overwhelmingly positive. First, the prestige of the Churchill Scholarship and the experience that arise from a year in England can positively influence medical school admissions committees. During interviews, Churchill Scholars have a unique perspective that stands out from students who do not take time off. Second, most pre-med Churchill students work in scientific labs at Cambridge, and a year of scientific research gives both you a better vocabulary with which to understand medical school courses and facilitates obtaining research positions during and after medical school. While their classmates in medical school struggle with biochemistry and immunology, former Churchill Scholars often have an advantage. Third, working in a lab for a year helps to foster interpersonal skills that traditional medical students coming straight from college may lack. These skills are important both for understanding patients as a physician, and more immediately as a clinical medical student when evaluations are dependent on good relationships with other members of the medical team. In a laboratory, students can work side by side with colleagues of all ages, an experience that college students sometimes lack. Finally, medicine, and academic medicine in particular, involves basic science more and more. A year of intense research at a university like Cambridge can be the jumping off point for a career that walks the border between laboratory science and clinical medicine.

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Although I consider my year as a Churchill Scholar as one of the best years of my life, I do not consider it a year off. My MPhil project was my most intense research experience, and I worked harder on my thesis than on any other piece of writing before that.

Every medical school applicant nowadays knows that schools love (and sometimes require) students who have significant research experiences. For example, the median age of my class upon entering medical school was twenty-five, and only twenty of the eighty-six students had not taken any time off. (I realize that many students are not doing science with this additional time, but I would estimate that most are). To the applicant concerned about an additional year before starting a long training, I would agree that it is long and that most of your mid- to late-twenties will be spent in training. I would also argue that nowadays it is the norm to have some time off, and that even after all of your formal training, you will be expected by your peers and patients to continue to learn. To me the idea of medical training is not to learn everything I will need to know for the next twenty-five years of practice, but to prepare to be part of the changes in medical science...

Medical schools are interested in students with training in research and who can understand and apply results to clinic. But there are also schools where education is based on training physician-leaders and physician-researchers. These scientists are not only responsible for designing the studies that test best medical practice but also an entire gamut of experiments. Medical researchers study everything from policy to basic science.

Physician-scientists often learn scientific methods through a residency program that requires protected research time, by taking time off during the residency, or by taking time off earlier than residency. At Stanford, all students are required to either complete a scholarly concentration project or complete an additional degree. Additionally, the Churchill Scholarship offers a perfect opportunity for a future physician-researcher to gain scientific perspective in an intense research atmosphere.

The training for a physician is long, and so early research experience may not correlate exactly to a future research career. This is true for an MPhil just as it is for a PhD completed during medical school. But that does not disqualify early experiences. Early research is critical for establishing the relationship between clinical medicine and science. It is how we learn scientific practices, learn methods, establish relationships, and foster a love of science. My MPhil is in computational chemistry, and I probably will not ever be competing with computational chemists, but as a future medical researcher, I could certainly be working in collaboration with them, learn from them, and generate hypotheses with them. I look forward to using my clinical expertise to design and carry out research projects.