Physician entrepreneurship: Why it matters to all of us

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The world of healthcare, technology and business is becoming increasingly intertwined. In recent years, technological innovations have fundamentally changed the way physicians diagnose, treat and communicate with patients and each other. The proliferation of technology in health care has also opened up more opportunities for physicians to pursue interests outside the confines of a traditional academic institution. These changes have led to the rise of a new group of physician entrepreneurs who are redefining what it means to be a doctor.

While the concept of physician entrepreneurship is not new, it has evolved over time. Modern physician entrepreneurs have moved beyond the realm of private practice to become immersed in ventures outside the scope of their normal clinical duties. Today, physician entrepreneurs are involved in all aspects of medical innovation, changing how care is delivered to patients and reshaping the traditional business models of healthcare, in both the private and public sectors. Physicians have also become intimately involved with the development of new devices and software designed to improve clinical outcomes for patients. Many physician entrepreneurs are driven by frustration with current healthcare inefficiencies. Others seek an opportunity to make a bigger impact on patients than what might be possible in a traditional, clinical setting. In addition, many physicians also turn to entrepreneurship because of the intellectual stimulation associated with the process. According to one report, few are motivated purely by financial gains.

While physician involvement in medical innovation has been previously met with concerns regarding potential conflicts of interest, the legacy of early physician entrepreneurs remains highly visible today. One notable pioneer is a cardiac surgeon named Albert Starr. As a child, Dr Starr was affected by rheumatic fever, a disease that can cause the thickening and stenosis of heart valves with a marked predominance for mitral valve involvement. The lack of a suitable prosthetic mitral valve at the time meant that many surgeons resorted to intentionally converting mitral stenosis into mitral regurgitation, a more manageable condition, by destroying the diseased valves in patients affected by rheumatic fever.

Recognizing the need to provide a better alternative, Starr teamed up with a retired engineer, Lowell Edwards, to create an innovative mechanical valve that replaced defective ones in patients with mitral stenosis. In 1960, the combination of Starr's clinical knowledge along with Edwards' mechanical expertise led to the development of a simple device that was well tolerated by patients. Many patients lived for more than 30 years after the valve replacement.

D. Starr’s story exemplifies the value of physician involvement when developing new medical technology. Physicians can often provide important insight to ensure that products are intuitive and reliable for the end-users, which are often other physicians. Indeed, a study investigating patent application patterns for medical devices found that physician-founded medical startups were much more productive than those founded by non-physicians. Yet, surprisingly, few medical schools in North America actively encourage students to pursue innovation during their formative years of training. Most schools require trainees to undergo a conservative curriculum consisting of two years of basic science education followed by two years of clinical learning. Although this “2+2” model has persisted for close to a century, there is growing concern that it has become outdated and provides students with few opportunities to explore their creativity or ingenuity.

The lack of formal education on medical innovation means that aspiring physician entrepreneurs often have to learn important skills, establish networks and acquire resources on their own.

Nevertheless, many physician entrepreneurs do persist and have helped to challenge the status quo in areas such as medical education, telemedicine and mental health outreach. Online clinical reference tools created by physicians such as MDCalc and UpToDate, have changed the way that healthcare professionals practice worldwide. Others like Figure 1, a Canadian medical startup, allow medical professionals to upload unique cases that they encounter onto an online database. This allows physicians to consult with other colleagues to provide patients with the most accurate diagnosis and treatment options. Another example is the Canadian startup named 3D4M, which aims to produce cheap and functional 3D-printed prosthetics and splints that can even help astronauts in space.

The reality is that medical innovation is needed – now more than ever – to help improve Canada’s healthcare system. In recent surveys, Canada consistently ranked poorly against other developed nations in terms of physician accessibility and treatment delays. Encouraging the development of physician entrepreneurs, who understand the problems from clinical experiences, can help resolve these issues. In 2016, the Canadian Medical Association created Joule, a company that supports physician-led startups with grants and other resources. While this is a positive development, more needs to be done, particularly at the medical school level. Better incorporating physician entrepreneurship and emphasizing the importance of medical innovation in current medical pedagogy is key to ensuring that more Canadian physicians can remain leaders in medical innovation.

REFERENCES
www.forbes.com/sites/davidshaywitz/2014/08/05/why-physicians-are-turning-to-startups/#3039f6aa5850


