Opinion

Will Disruptive Innovation in Health Care Improve the Health of Populations?

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HEALTH CARE IN THE UNITED STATES IS LONG OVERDUE FOR an upheaval. The mismatch between costs, by far the highest in the world, and health outcomes, among the worst in the high-income world, has long been glaring. Perhaps the good news is that the time for such an upheaval has come. At least 4 forces have been gathering steam, each promising to change the nature of health care and, in so doing, influence population health.

First, precision medicine promises a future in which genetic and molecular targeting can provide us all with specific treatments for our particular ailments and even preventive approaches to keep us from getting sick in the first place.

Second, the digital revolution has made yottabytes (10 to the 24th power) of “big data” available to describe individuals and populations, promising to illuminate how we behave so that we may both predict what interventions can make us healthier and anticipate our health needs before symptoms or more conventional diagnostic approaches could do so.

Third, the Affordable Care Act was only the first piece in a decade of regulatory change that included the 21st Century Cures Act, European Union changes in medical device regulation, and growing global concern about data privacy. These changes together are contributing to an evolving—and in some ways uncertain—regulatory framework that will shape health care innovation.

Fourth, corporate efforts to reshape health care delivery are evolving at an extraordinarily fast pace. Proposed and executed mergers, including the CVS purchase of Aetna and Cigna’s purchase of Express Scripts, are creating new providers that combine pharmacy benefit managers with health insurers, potentially creating comprehensive payer systems that can choose what services to insure and how to price them.

One of the most interesting corporate shifts in the past year has been the health venture established by Amazon, Berkshire Hathaway, and JP Morgan Chase. This venture—unnamed as of this writing—first aims to improve health care for the 1 million or so employees in these companies and then to extend lessons learned to the other 150 million or so employer-insured Americans. The nonprofit venture aims to have a long time horizon and to target improper health care usage, high drug prices, and high administrative costs. Perhaps in an early admission of these daunting challenges, Atul Gawande, the physician appointed as CEO of the new entity, said, “Even though I’m going to work for a bunch of employers, employer-based care is broken.”¹

While it seems positive that changes are afoot regarding how we deliver and consume health care, concerns about several of the forces that are shifting health care are surfacing. Challenges to the promise, and premise, of precision medicine are amply documented.² Similarly, while big data has intuitive appeal, there is little evidence that our predictive ability for diseases has improved much in the past decade or that our current use of big data will improve health.³

This leads us to ask 2 core questions: Will the changes that are emerging truly improve the health of individuals? And will they improve the health of the entire population or only that of those who directly benefit from a particular shift, by way of group membership or purchasing power that buys them elite access?

It seems to me that the answer to these questions depends on the approach taken to 3 issues.

First, health is about much more than health care alone. There is little question that health care matters, and there is growing evidence that health insurance coverage improves health.⁴ Yet there is also little question that health care is a minority contributor to health.⁵ Health ultimately is a product of the environment in which we live. Any effort to reform health care alone will fail to improve health unless we also tend to these other factors. This creates a tall order for any effort that aims to disrupt health care, and it will require creativity of purpose and action that embraces other forces typically outside the current realm of health care. There are promising examples, as several health provider systems have adopted efforts to improve housing, nutritional assistance, and case management, showing that such efforts both are feasibly organized by health care providers and can complement other health care reforms to promote health.⁵ The engagement of health care systems with sectors

that are not traditionally within the remit of health will be a stretch for health care providers, but it represents an enormous opportunity for new ventures that aim to transform how health is produced, to positive ends.

Second, health equity has to be an abiding principle underlying any action to improve health, and achieving health equity will require disproportionate attention paid to those who are less likely to benefit from easy-to-reach health care innovations. The persistently wide health gap in the United States suggests that any effort to transform health care that does not pay suitable attention to health have-nots risks widening this gap, creating a morally—and likely commercially—unsustainable population health picture in which health accrues only to the few. This will test any effort that aims to disrupt health care. Disruptive innovation is in some ways unabashedly trickle-down, assuming that technologies adopted by the privileged will eventually make it to the whole population. Unfortunately, health achievement is not a luxury good and will not be tolerated as such by whole populations. Therefore, this will require efforts to promote the health of those least likely to benefit from disruptive innovations, a departure from how innovation in most spaces has largely operated.

Third, our collective goal ultimately should be to compress morbidity to the end of life and to live life as richly and fully as possible until then. This suggests a wholesale shift in focus from curative approaches when we are sick to greater attention to prevention when we are well, and a focus on efforts that privilege quality of life over those that aim simply to extend life. This approach is at odds with what most of our health care systems currently focus on. There are many reasons for this, including payment systems currently in force and the greater conceptual familiarity of creating pharmaceutical-based solutions to more comprehensive efforts that generate health sustainably. And yet, if disruptive approaches are aiming for transformation, this seems both a unique opportunity and a *sine qua non* of real change at the intersection of health care and health, creating an opening for innovation that has both commercial advantage and health promotion value.

I am optimistic about the promise of health care disruption portended by several recently announced efforts. And yet that optimism rests on the hope that health care disruption will lead to better health. Absent that goal, health care innovation becomes strictly of commercial interest, eliminating the core purpose that should animate the whole industry. It

remains to be seen which of several promising new approaches and ventures will succeed in improving health. I suggest that 3 principles—the production of health across sectors, health equity, and the maximization of healthy living—may be useful guides for any health care innovative effort that aims to be truly transformative.

References

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