

A Letter to ACMHA Members and Friends: What is a Disruptive Innovation and Why Should I Care?

My Dreams and Woes...and Dreams

My first job in healthcare was at the Ann Arbor Free People's Clinic where I was hired in 1975 as the first financial manager with accounting experience. As I began to learn about healthcare financing, I was struck by how much money was flowing to hospitals and specialists and how little money was available for our clinic or other primary care clinics and prevention projects. I marvel at the notion that 35 years later we still have what can be described as a *sick care* system (in contrast to a true *health care* system).

My accounting professors and Deep Throat (in Bob Woodward's account of Watergate) weren't alone in their advice to "follow the money." Large quantities of money flow *after* we become sick - to hospitals, emergency rooms, surgeons, and other specialists that treat the consequences of poor lifestyles, social disparities and unmanaged chronic health conditions. Only three percent of health care dollars are spent on prevention, most primary care practices are "loss leaders" in multi-specialty groups, and mental health and substance use services in most states and private health plans are dramatically underfunded.

Picture this *sick care* system as an upside down triangle with two sections. The wide, upper portion of the triangle represents the 75% of American healthcare spending related to the treatment of chronic health conditions. The bottom, small, pointy part of the triangle represents all care provided further upstream – primary, secondary and tertiary prevention services; primary care; dental care, recovery-oriented behavioral healthcare, etc. In order to move to a true *health care* system we need to *flip the resource triangle* and direct substantially more resources to prevention and early intervention services and supports in order to address the underlying determinants of health, prevent health conditions from becoming chronic health conditions, and dramatically improve the management of chronic health conditions and serious behavioral health disorders when they occur.

What a nice sound byte! But my 30+-year effort to flip the resource triangle was starting to feel like the 800+ year search for the Holy Grail – until I stumbled across a book in early 2009 by a Harvard business professor, Clayton Christensen, and two physicians, Jerome Grossman and Jason Hwang.

The Innovator's Prescription: A Disruptive Solution for Health Care

In the mid-1990s, Christensen coined the term *disruptive technology*, which later morphed into *disruptive innovation*. His initial work was based on a change process that has dramatically disrupted the status quo in industries that produce goods and services such as computers, software, automobiles, airplane travel, and books. About five years ago Christensen, with the help of colleagues Grossman and Hwang, began focusing on health care. They suggest in the *Innovator's Prescription: A Disruptive Solution for Health Care* (McGraw Hill, 2009) that problems facing the American health care system mirror nearly every other industry in their early phases. Products and services in new industries "are so complicated and expensive that only people with a lot of money can

afford them and only people with a lot of expertise can provide or use them.” (Innovator’s Prescription, 2009) Historically, this phase has been followed by the advent of new methods of production and distribution that disrupt the status quo and result in goods or services that are more affordable and widely available to the general public. Often the *disruptive innovator* companies become the new market leaders, replacing the old guard.

A classic example is the evolution of the computer industry. Mainframe computers costing millions of dollars to purchase and requiring legions of employees to operate were replaced by minicomputers from companies such as Digital Equipment Corporation (DEC). This allowed midsized companies to gain access to computing power at a much lower cost. Minicomputers were then replaced by personal computers such as the IBM PC and Apple. Other examples include the Kodak camera, Bell telephone, Sony transistor radios, the Ford Model T, Xerox photocopiers, Southwest Airlines discount fares, Fidelity mutual funds, Amazon retailing, Google advertising, TurboTax tax preparation software, and hundreds of other household names.

Christensen, et al. create a compelling case in *The Innovator’s Prescription, A Disruptive Solution for Health Care* that describes how disruptive innovation is in the early stages of transforming health care and postulate that ***health care insurers and providers will either become successful disruptive innovators or casualties of an inevitable change process.*** Understanding the key concepts of disruptive innovation can help us critique Christensen, Grossman and Hwang’s predictions and recommendations for the general health care system and contemplate the implications for behavioral health.

What is a Disruptive Innovation?

Bear with me for two minutes as I attempt to translate a somewhat technical explanation, unrelated to healthcare, into semi-plain English...

A given business sector that has not yet been disrupted produces a particular set of complicated and expensive products or services for a very limited market; think of the mainframe computer. Over time improvements are made in those products or services as the leading companies compete for business (think of IBM competing with Burroughs and UNIVAC). These improvements include refinements in how the product or service is created to increase quality and reduce costs. The most significant improvements - almost always made by industry leaders - are called sustaining innovations.

In this phase, products and services are generally complicated and expensive and their production and operation require a great deal of expertise. Mainframe computers cost millions of dollars to purchase and required computer scientists, punch card operators and a maintenance crew working in a corporate mainframe center to operate. Although the benefits of computers were widely acknowledged, they were out of reach for most organizations.

This environment becomes the fertile ground for disruptive innovation. New products or services often emerge that are simpler and more affordable, but not as good as the market leading products. For example, in 1965, DEC released the PDP-8 minicomputer that cost as little as \$16,000, but had much less computing power and was much slower than the mainframes. Rather than competing directly with the “Big Iron,” minicomputers were

offered to a new market – small to mid-sized businesses that could not afford an IBM System/360 mainframe.

Generally, what is needed to produce and market the disruptive innovation is incompatible with the existing infrastructure of the market leaders. The customer base is unfamiliar to the sales force, the profit margins are less, and fewer highly paid experts are needed to operate the product or provide the service. Thus most of the people involved in the business of supplying and operating mainframe computers saw minicomputers as toys to be ignored or a threat to their profit margins and livelihoods – both of which resulted in an inhospitable environment for nurturing the new minicomputers.

Thus, in almost all cases, a disruptive innovation has to come from new companies outside the industry - ones that aren't committed to technologies and business models that are incompatible with the disruptive innovation. Craigslist, Amazon, Costco, and Tesla Motors are a few examples of this phenomenon. The exception has been when a market leader sets up a completely autonomous business unit that is focused solely on the disruptive innovation and is given the freedom to create a different profit formula than the parent company. IBM did it at least twice: when they created a separate unit to develop minicomputers and when they created yet another business unit to develop the IBM PC.

Disrupting the Status Quo in Health Care Status

In health care, although there have been great advances in technology, most have not yet been translated into lower-cost, higher-quality, more accessible services. Put another way, most innovations in health care to-date have been *sustaining*, not *disruptive* innovations. Christensen, Grossman and Hwang contend that this is about to change – in a BIG WAY – due to three areas of innovation: improvements in diagnostics, business model innovation, and expansion of fully integrated health care systems.

Diagnostics and the Disruption of Health Care Professions: The pace of innovation in diagnosis is increasing every year and best understood through the continuum of *intuitive to precision medicine*. “Intuitive medicine is defined as care for conditions that can be diagnosed only by their symptoms and only treated with therapies whose efficacy is uncertain. By its very nature, intuitive medicine depends upon the skill and judgment of capable but costly physicians.” As diagnostic capabilities for particular conditions improve, “care evolves into the realm of *evidence-based medicine*, or *empirical medicine* - where data are amassed to show that certain ways of treating patients are, on average, better than others. Only when diseases are diagnosed precisely, however, can therapy that is predictably effective for each patient be developed and standardized. We term this domain *precision medicine*.” (Innovator’s Prescription, 2009)

The evolution from intuitive to empirical to precision medicine combined with new business models will facilitate the provision of more affordable and accessible care to the broader population. Precision medicine allows providers with less specialization to provide high quality care for a greater number of conditions. It also allows greater patient involvement in self-care activities. As these wheels of innovation turn, fewer specialists are required, with care shifting to primary care physicians. For similar reasons, a number of services currently provided by primary care physicians are shifting to mid-level

practitioners. New diagnostic tools, social networks and internet based tools are also beginning to facilitate a greater degree of self-care.

Disruption of Health Care Institutions through Business Model Innovation: The general hospital, the major healthcare institution of the twentieth century, has evolved into an amazingly complex institution analogous to the mainframe computer industry. Although many hospitals are able to treat a vast array of complex conditions that were not possible 30 years ago, they are extremely expensive, complex organizations designed to support the work of highly trained physicians that practice intuitive medicine. The complexity of a general hospital's workflows is not only costly, but leads to high error rates and significant waste. As medicine shifts from intuitive to empirical to precision-based, many healthcare executives are leveraging new technologies and business models to transition an increasing number of services from general teaching hospitals to specialty hospitals, ambulatory care centers, outpatient clinics, primary care clinics, retail clinics, and in-home care. This disruption of existing health care institutions includes the following activities:

- Hospitals are deconstructing their activities to simplify workflows and reduce error rates. This includes the creation of centers of excellence (hospitals within hospitals) and reducing the number of specialty areas where they are not able to deliver high quality with low error rates at competitive costs.
- Less-complicated hospital procedures are moving *downstream* (and will continue to), provided by specialists in ambulatory care settings that will be better equipped as technology becomes more portable and less expensive.
- Less-complicated specialty diagnosis and treatment will move *downstream*, provided by primary care physicians in outpatient clinics that will be better equipped as technology becomes more portable and less expensive.
- Precision medicine services will move *downstream* from primary care physician offices to retail clinics staffed by mid-level providers.
- Web-based, patient-centric entities and care management organizations will see a great expansion of business to support patients in managing their chronic conditions. These services will be facilitated by portable, home-based monitoring and treatment technologies.

Because healthcare is much more complex than most industries, healthcare leaders are finding that they need to simultaneously manage the equivalent of the entire range of mainframes, minicomputers, PCs, and handheld devices, finding the right mix for each community, knowing that technological progress is continuously changing the equation. It is also clear that only some healthcare executives are familiar with Christensen's writing and taking aggressive action to disrupt their own institutions before they are disrupted by external forces.

As one reads Christensen's writings over the last ten years, he has greatly refined his analysis of the health care system and become more realistic about the complexity of the beast. He describes health care as, "Maybe by a factor of 100, it is more complicated than any other intellectual problem I've tried to wrap my brain around." (Managed Care, January 2009)

The Business Case for Fully Integrated Health Systems: Although Christensen, Grossman and Hwang wrote the Innovators Prescription before the national healthcare reform legislative debates of 2009-2010, many of their ideas are mirrored in the Patient Protection and Affordable Care Act (PPACA). In particular is their belief that the United States will not be able to afford universal coverage and offer a sufficient supply of health care services without significant disruptive innovation that is supported by changes in regulation and proper targeting of funding and payment reform.

Because there are so many wheels that need to turn, they have predicted that *fully integrated health care systems* (think Intermountain Healthcare, Kaiser Permanente, Group Health Cooperative and Geisinger Health System) are the only places where incentives are currently in place to facilitate wide scale disruptive innovation. They have also predicted that standalone insurance companies will have a hard time staying viable unless they aggressively change their strategies and begin to merge with provider organizations.

Other health policy experts have made similar predictions, with one twist. Only ten percent of Americans are currently served by an integrated health system and have been working to answer the question: “What do we do about the other 90%?” Their solution: the *Accountable Care Organization (ACO)*, a new entity that might be described as an Integrated Healthcare System *Lite*. Several components of the PPACA, including bundled payments related to inpatient admissions and ACO pilots for Medicare enrollees and pediatrics, are leading to locally generated ACO initiatives throughout the country. Hospitals are working with physician practices, physician practices are working together without hospitals, and health plans are purchasing practices, all for the purpose of organizing an ACO-type delivery system that can improve quality and better manage cost.

Implications for Behavioral Health

I view disruptive innovation like the melting of the polar ice caps. We know major changes are afoot, they likely began long before we knew it, and ignoring whatever is happening is probably not a great idea. Behavioral health leaders have a responsibility to contemplate these ideas and assess their relevance to behavioral health. Questions include:

- How will increased awareness of the high prevalence of behavioral health disorders among persons with disabilities and chronic health conditions change the focus of healthcare leaders as we move away from paying for volume and toward paying for value?
- Do we work in an organization that is a prime candidate for disruption or a potential disruptor of the status quo? What parallels exist in behavioral health for the disruption of professions and institutions?
- What opportunities and threats are unfolding for behavioral health providers when primary care providers in medical homes realize that ignoring the bipolar disorder of a person with diabetes will threaten their bonus tied to diabetes management?

- Does the work that takes place in the clinics and offices of mental health and substance use providers reflect the evolution of intuitive to empirical to precision treatments for behavioral health disorders?
- Will behavioral health clinicians working in private practice and in the public sector be able to demonstrate to the healthcare community that they are high performing providers that can help them achieve quality outcomes and manage the total health expenditures of shared patients?

What other questions need to be posed? What do you think about disruptive innovation and its relevance to the behavioral health community?

Dale Jarvis, Seattle, Washington, November 15, 2010