Disruptive innovation and the changing face of healthcare

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The face of primary care is rapidly changing. Let me share my most recent patient-care experience as an example. I visited a retail medical clinic in a local pharmacy and was immediately greeted by the NP. When I arrived, she was sitting behind the desk, working at the computer. But, I was quickly acknowledged and she asked me about the reason for my visit. Twenty minutes later, diagnosis in hand and electronic prescription en-route, I was on the road to recovery.

Advances in technology and clinical research are making it possible for us to experience an entirely new healthcare system that provides more individualized and accessible care.[1] The type of innovation that enabled my positive primary healthcare experience can be called a "disruptive innovation." Clay Christensen pioneered the principle of disruptive innovation, which is defined as "an innovation that creates a new market by applying a different set of values, which ultimately (and unexpectedly) overtakes an existing market."[2]

The role of disruptive innovation

Disruptive innovations in healthcare can influence a new system that provides a continuum of care focused on each individual patient's needs, rather than focusing primarily on complex disorders and urgent health crises.[1] Because of advances in diagnostic and therapeutic technologies, NPs and physician assistants can competently diagnose and treat disorders that would have previously required a physician.

Accurate new tests and detailed protocols allow these clinicians to diagnose conditions as simple as strep infections and as serious as diabetes. In addition, studies have shown that NPs typically devote more time to patients during consultations than physicians, with greater emphasis on prevention and health maintenance.[3] These studies also confirm that given comparable training, NPs can provide care of comparable quality.[4]

As nurses, we experience the progress of innovation each day, and we feel its impact on our work as we use "smart" patient-care devices and electronically document our care. But the premise of disruptive innovation isn't about the technology itself, rather it's about applying that technology in a simpler, more radical way to either create a new product or a new environment for using the product that didn't previously exist. Several examples of disruptive innovations are apparent in our daily lives. The iPad has challenged the idea of the portable computer, so that not only is it leading the tablet market, but it has also replaced the use of laptops by 19%.[5] Skype allows customers to call and message using the same service, more conveniently and for a fraction of the price of traditional telecommunication services. As applied to healthcare, disruption can be a fundamental mechanism through which we can build a higher quality, more convenient, and lower cost healthcare system.[6]

Examples of disruptive innovations in healthcare include the use of miniaturized blood glucose meters that patients can take along wherever they go. As a result, patients can self-manage most aspects of diabetes more effectively and conveniently, whereas in the past, they would have access to treatment solely through healthcare professionals. Another example of a disruptive innovation in healthcare is angioplasty. When I was in nursing school, bypass surgery was the most common treatment for patients with coronary artery disease. Today, the treatment of choice is angioplasty, which is less invasive, less disabling, and less costly. Initially, experts viewed the procedure with

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skepticism, but over time, increasing skill, experience, and technologic innovations (such as stents) have allowed angioplasty to be reliably performed in stand-alone cardiac centers.[6]

Informatics on the front line

Nursing informatics is now a well-established specialty, and informatics practice has evolved

they were finished, I remember the nurse receiving a call from radiology. They were calling to report that her patient's exam showed he had a pneumothorax and needed a chest tube. She said, 'Not anymore!'"

This vignette is an excellent example of how nursing and informatics can work together to advance innovation in support of high-quality patient care. And it's

clinicians, but the infrastructure must also accommodate innovation that enhances workflow and provides seamless access to allow us to harness knowledge at the point of care. If we can leverage this type of disruptive innovation to integrate evidence into care delivery and decision making, involve patients and families in healthcare decisions, and improve care coordination across organizations, we'll more rapidly accelerate progress toward improving our nation's health. **NM**

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to become an integral part of the healthcare delivery process. It's a differentiating factor in the selection, implementation, and evaluation of technology that supports safe, high-quality, cost-efficient care.[7] Nurses are at the front line of patient care, working hand in hand with their informatics colleagues to advance the effective use of health information technology.

Recently, the Healthcare Information and Management Systems Society collected vignettes on how information technology can enable nurses to make timely clinical decisions. This vignette is from Angie Mendoza, RN, a clinical informatics specialist from SHARP Healthcare in California.[8]

"I remember when we first implemented the imaging system in our organization. It was the coolest thing to watch our clinicians make clinical decisions to support patient care based on images obtained just 2 minutes previous. In one case, the nurse reviewing an image in the first week of the application's use at our hospital was able to see a pneumothorax on her patient. She called the physician and he came up to put a chest tube in the patient. When

also a reminder that we should be open to the concept of disruptive innovation to help us deliver care in ways that are less complex, and more convenient, without compromising quality.

The learning healthcare system

Despite rapid innovation and technologic improvement, the healthcare environment is increasingly complex, inefficient, and stressful for clinicians. The recently published Institute of Medicine report, "Best Care at Lower Cost," calls for action to promote a learning healthcare system that captures and disseminates lessons learned from every care experience and research discovery.[9] In a learning healthcare system, knowledge flows seamlessly between and among patients, providers, diagnostic facilities, and related community services.

Nurses are central to this transformation in which new knowledge is captured as a byproduct of the care delivery experience. Not only will every organization's culture need to encourage strong communication and coordination among

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