Title: In Austin, Physicians Witness the Next Healthcare Disruptors
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Meta: New digital technologies are disrupting medicine from research to primary care. Earlier this year, Texas physicians gathered in Austin to learn how to confront the trend.
Body:

What comes to mind when we think of disruptive technologies? The penultimate example may be the sudden demise of Blockbuster, the global video rental chain, at the hands of Netflix, a pioneering startup whose rental-by-mail and later streaming video service made popping out to get a movie a thing of the past.

Disruptive innovation is currently happening in medicine. Although it is unlikely that medical IT departments will eliminate the need to hire surgeons any time soon, access to today's latest medical technologies is allowing physicians to better compete with specialty centers, research labs and large medical networks.

Disruption involves the creation of a new market that replaces an old one, a process often accelerated by the introduction of a new technology or innovation. In health care, physicians face the challenge of keeping ahead of disruptive changes while staying competitive, compliant and building their practices.

"They have to stop thinking in traditional terms and acting with yesterday's logic," said Dr. Nick van Terheyden, M.D. "They should focus on what is and what could be. If they 'wait and see' they will be relegated to observers of the new age of medicine."

Chief medical officer at Dell, a computer company, Dr. van Terheyden presented a speech entitled "Healthcare Disruption: The Future of Technology in Medicine" at the 2016 TMA Winter Conference in Austin.

From telemedicine to medical intelligence, research to individualized care, new data analysis and care delivery technologies are enabling some medical sectors to thrive while sounding the demise of others. Physicians can expect technology to change the way they practice. Those that ignore the oncoming disruption risk becoming a physical rental store in the age of digital delivery.

Here are a few disruptive trends rising fast on the horizon:

1. Telemedicine Is Happening Despite Legitimate Concerns

Technology-assisted remote health care services offer quick and cheap alternatives to in-house visits. Many states are tiptoeing toward loosening restrictions on telemedicine; meanwhile, Texas is sprinting the other way, severely restricting at-home telemedicine over concerns of low-quality care and provider accountability.[1]

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[1] Lori Uscher-Pines & Andrew Mulcahy, et. al., "Access and Quality of Care in Direct-to Consumer Telemedicine," *Telemedicine and e-Health*, Vol. 22(4), 2016, p. 5. LINK

These are good reasons to look closely at regulation. Texas' hastily constructed legal bulwark, however, pits the state's physicians against larger efforts to decrease healthcare costs. It can't stop the growing preferences of businesses and consumers for faster, cheaper medical services.[2]

"This is not about removing doctors from the delivery of care," said Dr. van Terheyden. "Home health and self-service medicine will come. Physicians need to embrace that change and help mold this future to one that is safe, cost-effective and participatory."

2. The Technological Imperative Is Becoming Technically Unfeasable

The pace of innovation in medicine is quickening. In America, where cultural beliefs equate the use of advanced medical technology with high-quality care drive providers to acquire and utilize expensive new equipment, competition among providers has resulted in higher costs, duplication of services and increased specialization.[3]

These costs are passed on to consumers. Health care expenditures topped $3 trillion for the first time in 2014, a figure approaching one of every five dollars Americans spend, according to the Centers for Medicare & Medicaid Services. The rate of growth is increasing, too: up 2.4 percent year-on-year from 2013.

This escalation will become unsustainable as the struggle to stay one step ahead of competitors intensifies and consumers unwilling to pay for a CT scan to diagnose a headache opt for cheaper solutions.

3. Correlative Data Analysis Is Complementing Causative Studies

Hypothesis, testing, observation, repeat. The scientific method has ruled research since anyone's living memory and well before.

But more data has been created and stored in the last two years than in all of human history, heralding the era when "rather than testing a theory by analyzing relevant data, new data analytics" allows physicians to "gain insights born from the data" itself.[4]

The theory goes like this: With enough number-crunching power and a large enough dataset, the need to rely on statistical models falls by the wayside. We can start to see the world the way it actually is, obviating the need to make crude facsimiles of it.[5] In such a paradigm cause becomes irrelevant; correlation is king.

But pundits who predict that big data will replace the scientific method may be putting too much faith in technology. Large dataset analysis has made correlation a better predictor than ever before. It is yet another tool to help arrive at causation -- not to replace it -- suggested Dr. van Terheyden.[6]

4. Democratization of Big Data Is Helping Keep Physicians Independent

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[2] Caroline M. Poma, "Telemedicine: A Therapeutic Prescription for Our Health Care System Contaminated by Old Economy Rules and Regulations," *North Carolina Journal of Law & Technology*, Vol. 17, 2016, pp. 77-80. LINK

[3] Leiyu Shi & Douglas A. Singh, *Essentials of the U.S. Health Care System, 4th Ed.*, 2016, p. 117.

[4] Rob Kitchin, "Big Data, New Epistemologies and Paradigm Shifts," *Big Data and Society* Vol. 1(1), 2014, p. 2.

[5] *See* David Chandler, "A World without Causation: Big Data and the Coming of Age of Posthumanism," *Millennium: Journal of International Studies*, Vol. 43(3), 2015, p. 836. LINK

[6] *See* William H. Crown, "Potential Application of Machine Learning in Health Outcomes Research and Some Statistical Cautions," *Value in Health*, Vol. 18, 2015, p. 139. LINK

Profit motive has thus far limited the spread of useful medical information. Much accumulated data, including many patient EMRs, is still kept behind strong paywalls, hidden from researchers and service providers. Stakeholder recalcitrance has led to duplication and inefficiency, which also contributes to rising healthcare costs.[7]

Provider reluctance to share patient data with competitors may be responsible in part for the rise of these paywalls, according to Dr. van Terheyden, but a growing consumer and provider push for data access will cause a shift away from commercial silos toward common platforms.

As cloud-based services with increased capabilities and processing power become more available at lower costs, flexible intelligence platform pricing models that offer greater access will allow physicians to benefit from big data without facing high barriers to entry.[8]

Using new data technologies, physicians can get quick feedback to questions that would otherwise take much longer to answer, such as the progression and outcomes of a particular rare condition across specific geographic areas.[9]

As these technologies come within their reach, physician practices that make use of disruptive technologies will be buoyed by the changes rather than run up against perceived barriers.

“It will remain a challenge for many,” said Dr. van Terheyden. “Lots of things now taken at face value will be questioned. The changes are exponential. In five years we’ll look back and wonder how we ever thought the way we do about health care.”

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[7] Christopher Austin & Fred Kusumoto, “The application of Big Data in medicine: current implications and future directions,” *Journal of Interventional Cardiac Electrophysiology*, Online, 2016, sec. 5. LINK

[8] *Id.*, at sec. 4.4.

[9] *Id.*, at sec. 8.