

10 trends transforming healthcare in 2015

Think you've heard the same old transformative song before—say last year at this time? Nah. **Sara Holoubek** reports on 10 game-changing healthcare themes that will not only foster change this year and in the near future but will also separate success from failure



Hindsight is always 20/20.

Five years ago this January, the economy entered into a postrecession planning exercise: How to innovate in the face of changing economic, technical and political norms? The iPhone was a toddler, the iPad had just been unveiled and no one could have predicted the arrival of the Apple Watch let alone its Taptic Engine, a linear actuator inside Apple Watch that produces haptic feedback.

Fast-forward to 2015, and trends that emerge suggest a refined understanding of how data, technology and design will contribute to healthcare transformation.

1. Organizational maturity.

If there is a hallmark of 2015, it is organizational maturity as healthcare and life sciences companies realign resources in the name of innovation.

The rise of the “innovation center of excellence” has now given way to embedding innovation DNA across the organization. “I think one of the big changes that I have seen here at Pfizer and elsewhere as I network with other innovation groups is that companies—pharma included—are seeing innovation as a needed longer-term capability of the organization,” says Wendy Mayer, VP worldwide innovation, Pfizer. “In the past it was about developing specific ideas, and the success

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and longevity of innovation as a function was tied to the success of those ideas.”

Investing in the ability to experiment at scale can also serve as a catalyst for organizational behavior change. “We have had big ideas succeed and others fail. If the approach to driving the organization forward rested on the success of those specific ideas or concepts, we would create an organization more afraid of failure because the future capabilities of the organization would be riding on the success of each project,” Mayer says.

2. The data science movement is here.

Following years of keynotes and panels on the subject of big data, the movement has firmly arrived, primarily propelled by early-stage companies. While incumbents, such as payers and pharma, seek to better use existing data, start-ups are designing their companies from the ground up to collect, store and make use of data.

“One of the most exciting developments in healthcare today is the emergence of a new breed of entrepreneurs focused on making sense of all this new data,” says Unity Stoakes, co-founder and managing partner of StartUp Health. “We’re seeing hundreds of entrepreneurs focus on big data and analytics solutions and millions of dollars invested in solutions designed to turn data into wisdom.”

Larger organizations have taken note, allocating significant resources to build new data science teams. Currently, companies such as Humana, Aetna, Biogen, Abbott Laboratories and the Memorial Sloan Kettering Cancer Center have open positions for data scientists. Even the White House has made a key hire in D. J. Patil as the first government chief data scientist, notes Aman Bhandari, former White House adviser. Patil, who coined the term *data science*, will focus on precision medicine and serves as a harbinger of future efforts for healthcare. “There will continue to be an increased emphasis on all things data, from interoperability to privacy to bringing new disciplines like data science to healthcare,” says Bhandari.

3. Data liquidity.

If data science is the movement of our time, interoperability is the rallying cry. Without interoperability of systems, there is no data liquidity. If data is not liquid, population health cannot be achieved.

At the heart of this challenge is the electronic medical record. “EMRs weren’t designed to be interoperable,” says Niko Skievaski, co-founder of Redox, a team of former Epic developers now focusing on EMR integration. Historically, every EMR installation was highly custom-

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ized, with the result that not only did different EMRs not connect with one another, but the same EMR software installed in different health systems did not connect.

“If health data were a lake,” said Skievaski, “every health application would need to build its own pipe to the source.” As a result, the water is either completely inaccessible and/or dirty. Redox tackles this challenge head-on by centralizing access to the lake. “Interoperability is a huge problem, but it’s not insolvable from a tech standpoint,” said Skievaski.

Others suggest that greater measures be taken to allow for data liquidity. “I’m generally concerned on the political side,” says Nat Turner, CEO of Flatiron Health. “There is a place for the government to step up on requiring interoperability between systems.”

4. Data security.

With an increased desire for interoperability comes an increased need for security. “Anytime you have motion, transfer or access to data, you run into problems of control, security and privacy,” says Chas Ballew, co-founder of Aptible, a firm that focuses on secure and private cloud deployment for digital health solutions.

“There’s never just one way in, there are many ways in,” Ballew says. “There are doors, windows, the basement. If you are going to lock your house, you want to board up the windows and put a guard at the door.” His

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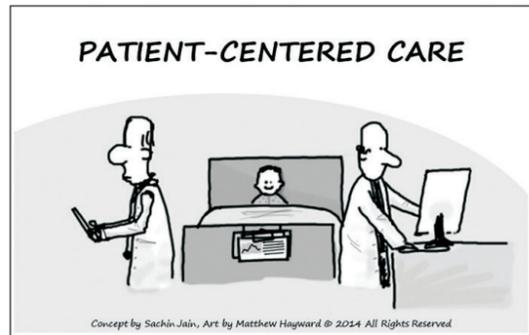
platform aims to “lock down the house” by limiting the number of ways in and maintaining security as part of larger compliance efforts.

“There are many tech companies that haven’t taken security seriously enough,” says Turner. Like other start-up founders, Turner suggests that HIPAA is not the barrier. It’s reasonable and important and provides ample room for research. “The part where it falls short is that there is no HIPAA stamp.” Guidance and self-regulation are not incentive enough to allocate sufficient funds to data security, something Turner doubts most companies do. “One of my first employees was a chief privacy officer, and we have a separate security team,” Turner says, adding, “there is a price of admission of 30% or more of your engineering team dedicated to security.”

5. Humans first, then technology.

While advances in data science and technology are welcome, numerous organizations are investing in empathy with end customers prior to developing solutions. “There has been a recent obsession with using technology to solve clinical problems,” said Sachin Jain, chief medical officer, CareMore Health System/Anthem.

“Technology is an enabler, not the sole solution,” adds Laura Kolodjeski, director, digital strategy & operations



at Sanofi US. She compares this to the two-way mirrors of the past, where the industry “set the stage for what we wanted to hear versus focusing on the organic conversation taking place without us in the room.”

Elizabeth Egan, executive director, global strategy & innovation, AstraZeneca, agrees, urging the industry to connect with payers, healthcare providers and patients. “Don’t think about digital solutions—think about problems and the issue causing them,” she says.

6. New models.

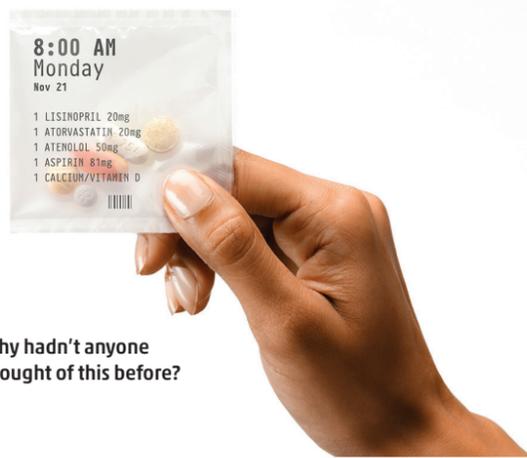
Empathy and experience are not limited to just marketing. They are also the underpinnings of new models, suggests

“If it’s easy and delightful to be healthy, you will.”

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Elliot Cohen, co-founder and CTO of PillPack, who suggests that health outcomes and experience are highly correlated. “If it’s easy and delightful to be healthy, you will.”

PillPack is reinventing the pharmacy experience, just as Oscar is reinventing the health insurance experience and Theranos is reinventing the lab testing experience. “For the first time ever, the consumer actually matters,” said Josh Kushner, co-founder of Oscar, on a panel at



Why hadn’t anyone thought of this before?

the Clinton Health Matters Summit. His company is flying in the face of traditional models by going direct-to-consumer with a superior, human-centered experience. “We have been able to take the data and not only create a better experience but provide access to better care.

“I think what’s exciting is that we were all founded on the idea of prioritizing the customer experience over everything else. We had the opportunity to start from scratch and totally reimagine what that experience should be,” says Cohen.

7. The new care team.

The care team is about to get a makeover as health systems reorganize in the face of a physician shortage. A 2015 study conducted for the Association of American Medical Colleges estimates that the United States will be short some 46,000 to 90,000 physicians by 2025. Meanwhile, the ranks of nurse practitioners are growing, with many states now granting them more independence, known as “full practice authority.”

As it turns out, this role reversal may lay the organizational groundwork for an improvement in outcome-based care. According to CareMore’s Jain, “Our current healthcare workforce is vastly underutilized.” His organization takes “common sense, protocolized approaches to the role of medical assistants, nurse practitioners and physicians to work in highly coordinated teams. It’s not

CARTOON: MATTHEW HAYWARD, COURTESY OF SACHIN JAIN. COURTESY OF PILLPACK

sexy but you can do more—and deliver vastly better outcomes—when you get more out of every individual person involved in the care of patients.”

8. Refined investment theses.

Five years ago pharma spread early-stage investment dollars wide to better understand how data, technology and design would alter the healthcare landscape. Now with experience under its belts, pharma is narrowing investment theses, clearly articulating areas of focus more in line with a seasoned venture capitalist’s approach. “You can’t be an expert in every discipline. So we picked three,” states the Johnson & Johnson innovation portal.

For some, the broad theme of investment “beyond the pill” has evolved to a focus on solutions that “wrap around the pill” and, preferably, to those supporting adherence. Josh Stein, CEO and co-founder of smart wireless pill bottle outfit Adheretech, experiences this daily. “Adoption of our technology is happening in the pilot phase much faster than we ever would have guessed.”



Frustrations with low patient adherence drove this change

This was not always the case, relays Stein. Historically, his firm had to make a hard case for adherence. Today pharmaceutical executives broadly accept the business need. With the era of the blockbuster drug coming to an end, “they have completely internalized that they must create new business models.”

9. Open innovation 2.0.

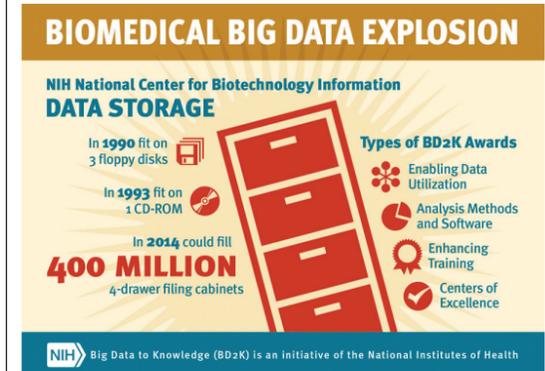
Five years after the first health hackathon, healthcare organizations have learned to open up. “We used to have a very big ‘not invented here’ complex but now realize that, with the pace of emerging technology and new business models, we would be left very far behind if we had to rely only on our internal capabilities to drive innovation,” says Mayer of Pfizer. “This also helps the organization balance the near-term business priorities, which if innovation is included tends to be very incremental, with the need to stay attuned to bigger transformation trends and changes that could have a big impact on our business but take longer to develop, test and implement.”

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Pfizer is not alone. In recent years organizations such as UnitedHealth Group, Sanofi US, Lilly and GSK have developed enterprisewide open-innovation capabilities to tap early-stage innovators on both the research and the commercial sides of the business. Most recently, Janssen Labs, an external R&D engine that works with early-stage companies, has also evolved, becoming a part of Johnson & Johnson Innovation and subsequently re-named Johnson & Johnson Innovation JLABS (JLABS).

10. It’s time for clinical innovation.

How do the themes of data science, empathy and open innovation come together? Through new and improved approaches to drug development. “The clinical trial and research world is probably the most ripe for disruption,” says Turner, who adds, “because EMRs and analytics companies are creating and storing real-world data, they create opportunities to learn that will drive both R&D and coverage decisions.” His firm aims to accelerate research and optimize treatment by enabling personalized medicine and helping physicians and patients make better data-driven decisions.



Source: National Institutes of Health

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Major corporations are following suit, supporting initiatives such as the nonprofit Trancelerate Biopharma or the NIH Accelerating Medicines Partnership. Both are investing heavily in access to open data, with the NIH projecting a total investment of \$656 million through 2020 to support the Big Data to Knowledge (BD2K) initiative. Others have developed entire platforms to support clinical innovation. Lilly’s Clinical Open Innovation Platform, for example, aims to make public data about clinical trials available with the end goal of advancing clinical research.

Sara Holoubek is CEO of Luminary Labs, a strategy and innovation consultancy whose clients include Sanofi, AstraZeneca and Pfizer.