

The Most Disruptive Companies Shaking Up Healthcare

(Source: An article by Heather Landi for FierceHealthcare)

Healthcare executives are more and more acutely aware of industry changes thanks to disruptive companies that are getting a lot of attention lately, not the least of which is Amazon. Given the tech giant's expanding reach into healthcare, this is hardly surprising. However, when KLAS Research asked more than 300 healthcare leaders to identify the most potentially disruptive companies in healthcare, there were also plenty of smaller, emerging companies that made it onto the radar of these executives. The companies mentioned are also a good indicator of the healthcare challenges and opportunities that are top of mind for these executives.

One of the top companies mentioned is Cedar, a patient payment and engagement platform, according to KLAS' survey. Cedar, which launched in 2016, offers personalized patient billing and raised US\$49 million in venture capital funding.

Other "emerging" vendors mentioned multiple times by executives include Google, the diabetes management company Livongo, Microsoft, Salesforce and Apprentice Health, a provider of clinical workflow software. Executives also see Arctic Wolf, a healthcare cybersecurity company, as a potential disrupter in healthcare, and Nuance, a company working on conversational and natural language processing for the healthcare industry. Names that were also mentioned were TytoCare, Caretaker Medical, DoseMe, eMerge Health, Evidence Partners, HeartFlow and Lean TaaS.

Overall, AI and machine learning continue to be a hot market for healthcare executives based on the number of times survey respondents mentioned emerging vendors in these segments. Executives are also keenly interested in telehealth companies, followed by analytics and business intelligence, population health and robotic process automation.

Conversely, technology segments that executives seem to be less enthusiastic about include, blockchain, price transparency, and patient experience. Also noteworthy, despite heated debate about

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In Brief...

- ♦ The **World Health Organization** said that new cases of the novel coronavirus (Covid-19) have been reported in areas in the Mediterranean and African regions, including Andorra, Jordan, Morocco, Portugal, Saudi Arabia, Senegal and Tunisia. The WHO is calling for enhanced surveillance and response activities. Also, the **Pan American Health Organization (PAHO)** is implementing a comprehensive plan to support country preparedness and containment efforts. As of March 5th, 87 countries have been affected, with 96,748 cases and 3,308 deaths. 53,963 individuals have fully recovered. The largest number of cases have occurred in China, South Korea, Italy and Iran. According to one of the top experts on viruses, *Marc Lipsitch* from Harvard University, the virus may infect up to 40-70% of the world's population. Another concerning fallout involves shortages of active pharmaceutical ingredients due to manufacturing disruptions in China. Approximately 80% of the pharmaceutical ingredients supply comes from China and India.

- ♦ **Bayer** has named *Norbert Winkeljohann* to the position of board chairman following the departure of 50-year company veteran *Werner Wenning* who will step down in April. Winkeljohann is the former chairman of PriceWaterhouseCoopers Europe and joined Bayer's board in 2018. The move is a major departure of Bayer's history of appointing experienced company veterans as chairman.

- ♦ **IQVIA** is reporting that according to **JHO's** analysis of 2019 market data, non-Japanese companies now capture roughly 60% in combined pharma sales of the top 20 drug makers in country. Despite the top 20 firms now representing a

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AI Discovers Antibiotics To Treat Drug-Resistant Diseases

(Source: An article by Madhumita Murgia for the Financial Times)

Thanks to artificial intelligence, new antibiotic discoveries that are effective against previously untreatable diseases have become the latest tool in the fight against drug-resistance.

In a paper published in the journal *Cell*, research at the Massachusetts Institute of Technology reported the discovery of a potent new antibiotic, halicin, which was able to kill 35 powerful bacteria. Among the pathogen targets were *Clostridium difficile*, tuberculosis and *Acinetobacter baumannii*, an effectively untreatable infection often seen among US veterans, which enters wounds and frequently results in death.

"We are facing a global crisis, due to increased emergence of resistant bacterial pathogens that are rendering our current antibiotic arsenal ineffective," said James J. Collins, the biological engineer at MIT who led the work. "If we don't address the crisis by 2050, the annual deaths due to antibiotic-resistant infections will grow to 10 million, which is higher than the death rate due to cancer," he said.

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Most Disruptive (cont.)...

upcoming federal data-sharing rules, interoperability does not seem to a standout.

One executive at a large health system who was interviewed sees Amazon's technology expertise as a potential game changer for the healthcare industry.

"Right now, we struggle with having the infrastructure in place to turn over large amounts of data, analyze the data, and do something with it. IT companies like Amazon can handle infrastructure pieces. That is a big benefit to us. Amazon has the size and scale to jump in, and they have the ability to really influence the healthcare industry as a whole. That is interesting at the macro level," said an executive in financial administration at a large integrated delivery network (IDN).

Amazon is making big healthcare moves, including its acquisition of PillPack. The tech company also sparked speculation when it teamed up with JPMorgan Chase and Berkshire Hathaway on a healthcare venture they have named Haven. The company is also piloting a new virtual health service benefit for employees and their families in the Seattle region called Amazon Care, which went live earlier this month.

One of the executives interviewed was especially impressed by Cedar's "slick" patient payment technology. "It can text links that allow patients to sign up for paperless statements, which the patients handle. If a claim were denied because of a patient, the Cedar product would tell the patient why the claim was denied. The product also tells patients whether there is something they can do to result in correct payments," said the vice president of revenue cycle at a large IDN, further reinforcing that companies like Amazon and Cedar will continue to be industry disruptors well into the future.

AI (cont.)...

The new antibiotic was discovered using a deep-learning algorithm developed by computer scientist Regina Barzilay, which was trained to analyze the structure of 2,500 molecules, including current antibiotics and other natural compounds such as glucose, to determine their anti-bacterial potency.

The algorithm then scanned through a library of 100 million molecules to predict how effective each would be against specific pathogens. It was also primed to seek out molecules that looked physically different from existing antibiotics, to avoid perpetuating the problem of resistance among the newly discovered compounds.

"There is still a question of whether machine-learning tools are really doing something intelligent in healthcare, and how we can develop them to be workhorses in the pharmaceuticals industry," Ms. Barzilay said. "This shows how far you can adapt this tool."

Despite the scientific promise of molecules such as halicin, and eight others discovered by the MIT lab, market forces remain a big hurdle to their broader clinical rollout.

One factor is that patients typically only take antibiotics over a few days or a week, whereas other drugs that are used over the course of many months or even a lifetime, but cost a similar amount to develop, can prove more cost-effective.

Even if an antibiotic subsequently does make it to the clinical level, healthcare professionals are often disinclined to prescribe it because of fears over spreading bacterial resistance, while in the U.S., they can be financial incentivized to prescribe more

expensive drugs.

However, the use of machine-learning to accelerate drug discovery could bring down the cost of generating future antibiotics, which targeting currently untreatable diseases could open up lucrative new markets.

In Brief (cont.)...

smaller share of the entire market, foreign drug makers in that list delivered an annual 3.1% growth to post sales of US\$34.6 billion in 2019. Conversely, combined sales of Japanese firms in the top 20 fell to approximately US\$23.4 billion.

- ◆ The United States' largest insurer, **United Health Group**, has invested in **Waltham Healthcare's** AI startup with the goal of avoiding unnecessary drug costs. Waltham's startup launched in 2017 with US\$250 million seed money and to fuel early-stage companies focused on combining healthcare services and digital tools.

- ◆ **Takeda** (Japan) has acquired its biotech partner **PvP Biologics** and its drug for the treatment of celiac disease. Takeda invested US\$35 million to fund the Phase I study of *Kuma062* (*Tak-062*). Exercising the buyout option triggers an upfront payment followed by milestones that can add up to US\$330 million. The drug is an oral therapeutic that can withstand the harsh, acidic conditions in the stomach to break down gluten.

- ◆ **Mylan** and **Pfizer** announced the remaining appointees to the inaugural 13 member **Viatrix** board of directors, including IFPW President *Mark Parrish* who has been a member of the Mylan board. Pfizer board members include *Ian Read*, *Jim Kitts* and *W. Don Cornwell*. Other Mylan directors include *JoEllen Lyons Dillon*, *Neil Dimick*, *Melina Higgins*, *Harry Korman*, *Rajiv Malik*, *Richard Mark* and *Pauline van der Meer Mohr*. *Robert Coury* will serve as Viatrix' Executive Chairman while *Michael Goettler* will serve as Viatrix CEO.

- ◆ **Endo International** announced the appointment of its new president and chief executive officer in-house. The Dublin, Ireland-based pharmaceutical company said *Blaise Coleman* will take over as CEO effective March 6. Coleman has served as executive vice president and chief financial officer at Endo since 2016.

(Sources: CBS News, Endpoint News, Financial Times, FiercePharma, CBS Marketwatch, Pharma Japan, World Health Organization, and Yahoo Finance)



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