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IBM Watson's bet on China, a lucrative market for health business, starts to look shaky

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Alex Hogan/STAT

Plagued by setbacks in the United States and Europe, IBM's Watson Health business has clung to a comfortable — and potentially quite lucrative — fallback strategy: China.

Several hospitals there have begun using Watson[1] to help treat cancer patients, and IBM formed strategic alliances with two Chinese firms to promote the use of the artificial intelligence software and get it into hospitals.

But STAT has found that IBM and its biggest partner in China are now scrambling to respond to many of the same doubts that emerged about Watson in the United States and Europe, threatening the company's business in the one market that looked the most promising. Last month, after STAT reported that Watson for Oncology[2], the company's flagship cancer product, had previously provided "unsafe and incorrect" treatment recommendations[3], five Chinese hospitals delayed adoption of the technology, according to a representative of IBM's partner in China, Baheal Pharmaceutical Group.

IBM flew two of its top health executives to Beijing for a news conference to answer questions about Watson and allay concerns about the product, according to a transcript of the event obtained by STAT.

Chinese journalists told STAT that Baheal employees offered reporters for domestic news organizations money in exchange for positive news coverage of Watson. In one case, Baheal sent a letter to a news outlet asking that a recent

article critical of Watson be taken down. Soon after, the report disappeared from the publication's social media site. (These practices are common in China, where the government censors media reports.)

Related: [1]
Watson goes to Asia: Hospitals use supercomputer for cancer treatment [1]

For more than a year, STAT has reported on the turmoil at the heavily promoted IBM Watson Health division, including harsh criticism of the product by its clients in Europe, the United States, and parts of Asia. But the fresh problems in China pose an especially perilous threat to the company's ambitions, as IBM is relying on a strong business performance there to bolster its flagging efforts worldwide.

The setbacks in China come as the health division is struggling on multiple fronts: Its artificial intelligence capabilities are not living up to its promises to improve hospital operations, discover cures for chronic diseases, and support economic growth.

"It's totally tarnished. Now you associate IBM Watson with BS," said Robert Burns, a professor of health care management at the University of Pennsylvania's Wharton School. "The hype and the marketing was just way ahead of the product."

IBM received a burst of new business, and positive media attention, after it introduced Watson in health care four years ago. In a spending spree of more than $4 billion, it acquired health care data companies and signed an array of new partnerships with the biggest names in science and technology, including Johnson & Johnson, Apple Inc., Columbia University, the Broad Institute of MIT and Harvard, Teva Pharmaceutical, and prestigious hospitals such as Memorial Sloan Kettering Cancer Center[4], Mayo Clinic, and MD Anderson Cancer Center.

Some of those partners have since reduced the scope of their work with IBM, while others have failed to report any results or terminated projects with the company. Earlier this year, IBM laid off employees[5] in the data companies it acquired and scaled back a part of its business[6] helping hospitals manage their pay-for-performance contracts, citing weak demand.

Far from demonstrating the promise of artificial intelligence in medicine, Watson has instead become a cautionary tale about the dangers of overhyping a product before its value has been demonstrated through rigorous research. Health care experts said the failure to live up the lofty marketing has not only hurt IBM's own credibility, but also undermined adoption of artificial intelligence tools in other areas of medicine.

"It breeds a certain mistrust of new technologies," said Niall Brennan, chief executive of the Health Care Cost Institute, a nonprofit research organization. "It makes it harder on the next technology solution to clear the C-suite after they got burned with Watson."

Meanwhile, IBM is facing increasingly intense competition from larger rivals such as Amazon, Apple, Microsoft, and Google.

The company declined requests from STAT to make its executives available for interviews for this story. An IBM spokesman, Edward Barbini, issued a statement asserting that "no other company has made as much progress applying AI to oncology and to health care."

"IBM's business in this area has doubled annually, testament to rapidly growing effectiveness and our focus on helping doctors and hospitals with their essential work," the statement said. "Rather than studying the progress made by IBM and hospitals worldwide in this very challenging field, STAT continues to take a disappointingly one-sided view of this important work."

Barbini did not answer STAT's questions about the alleged payments offered to reporters by its business partner. In a statement, a Baheal spokesperson

sidestepped those questions.

"We strictly abide by China's laws and regulations, adopt leading technology of the United States with a sincere attitude and an open mind, and help to improve China's medical and health level," said the statement, which was translated for STAT. "We firmly believe that what we are doing is beneficial to both the people and to the country. We are also willing to hear more objective voices."

Watson Health's business performance has been uneven, but it is difficult to track because IBM does not break out the division's results in its earnings reports. In October, the company removed Watson Health's general manager, Deborah DiSanzo[7], following a lackluster performance in the third quarter, when revenue in its cognitive services unit, which includes the health business, declined by 6 percent. Company officials reported that Watson Health recorded revenue growth in the quarter, but not enough to compensate for lagging parts of the cognitive business.

Last summer, STAT published an investigation based on internal IBM documents revealing that Watson for Oncology, its cancer treatment advisor, often gave erroneous treatment advice and that company medical specialists and customers identified "multiple examples of unsafe and incorrect treatment recommendations" as IBM was promoting the product to hospitals and physicians around the world.

Since then, IBM has said it would improve the product by adding localized treatment guidelines[4] to reflect differences in the way cancer patients are treated around the world. It also committed to adding data from real patients into the system, whose training is based on hypothetical patient cases fed into it by doctors at Memorial Sloan Kettering Cancer Center.

Scramble to hang on to China customers

The scramble by IBM executives to rescue its business in China marked quite a turn given that for years IBM had courted China as a lucrative market in cancer care.

But the concerns broke to the surface this fall when the five hospitals delayed use of Watson for Oncology amid Chinese media reports citing STAT's story about the faulty treatment recommendations. At the news conference in Beijing on Nov. 13, IBM executives emphasized their commitment to the country, according to a transcript.

During the meeting with reporters, Biquan Wang, chief marketing officer at Baheal, said media coverage had discouraged hospital adoption. Wang did not cite specific articles, but said that negative and false news stories had caused the five hospitals to delay signing up to use Watson.

Wang added that 81 hospitals had signed up for Watson for Oncology, and that the company hoped to have 300 on board in a year.

One reason Chinese customers may have been so receptive to IBM Watson's initial approaches was because the Chinese government has declared that artificial intelligence is crucial to the country's future. China is investing heavily[8] in the technology and the government has said it wants to build a $150 billion industry and become the world leader in AI by 2030. Medicine is ripe for the use of such technology, where algorithms can automate some tasks and bring more knowledge to under-resourced medical centers.

Related: [9]
How an IBM Watson Health rescue mission collapsed — and a top executive was ousted [9]

In its outreach to the Chinese market, IBM Watson signed deals with two companies to introduce artificial intelligence software into hospitals there. In July, one of those companies, Baheal, announced that its contract to distribute Watson for Oncology was extended from three to eight years.

"For IBM, the importance of the Chinese market is evident but we need an extraordinarily good partner for this complex market," said Lisa Rometty, IBM Watson Health general manager for oncology, life sciences, and personal health, in a Baheal press release[10]. She added, "In the future, we will cooperate closer with [Baheal] for a common effort to…improve the quality of life among Chinese patients."

IBM's work in other countries ran into difficulties when doctors realized that the advice the software was giving them was biased to favor American methods of care. That presented a challenge where the standards for treating certain cancers might be different, or where some drugs might not be available.

At the press conference in China, Dr. Nathan Levitan, deputy chief health officer for oncology at IBM Watson Health, said that Watson for Oncology would soon include standard Chinese cancer treatment guidelines in addition to the American advice. "We are constantly customizing IBM solutions … in the hopes of achieving better clinical application value for different markets," he said.

Over the summer, Rometty expressed satisfaction with IBM's work in China. At a July staff meeting, a recording of which was reviewed by STAT, she spoke of a recent trip to the country that she took with Levitan and an MSK executive, among others.

"We believe that together, the three of us, MSK, IBM, and the physicians and hospital locally in China, we believe beyond a shadow of a doubt that by combining forces we can actually improve and make an impact in patients' lives in China," Rometty said.

She related a story of visiting a Chinese hospital, where a patient's wife asked if the doctor would be able to help her husband live longer.

"And the doctor looked that person in the eye and said with confidence, 'Absolutely. By partnering with IBM and utilizing this technology, coupled with our deep expertise of our own physicians, yes, we believe that we can help you and your husband continue your lives together,'" Rometty said.

Wang said at the November press conference that Watson for Oncology has been used with over 10,000 Chinese patients. She noted that, in September, 2017, IBM made its first appearance at the annual meeting of the Chinese Society of Clinical Oncology and that six research articles on Watson written by Chinese doctors were accepted in June by the American Society of Clinical Oncology.

But two recent studies[13] cast doubt on the effectiveness of the current capabilities of the products in China. Both studies[14], published in September, found that, for some cancers, there was a significant number of instances in which Watson's recommendation diverged from what the physician thought was best.

Sometimes, Watson recommended a drug that wasn't available in China. Other times, the recommendation was simply out of sync with Chinese standards.

"It is necessary to accelerate the localization of [Watson for Oncology] before it can be comprehensively and rapidly applied in China," stated one of the studies.

Related: [7]
Head of IBM Watson Health leaving post after company stumbles, growing criticism [7]

Problems worsen in Europe

The doubts arising in China have already undermined IBM's efforts to retain key clients, and attract new ones, in other parts of the world.

It is hardly an easy business environment: The company is trying to improve patients' health not with a new pill but with a new process. That process — using artificial intelligence to help doctors, researchers, and other medical professionals analyze information — needs to fit into whatever system those specialists are already using. For example, Watson needs to be able to talk to hospitals medical records systems and genomic sequences and accurately analyze data from medical devices.

In some cases, IBM sells pre-built software, like Watson for Oncology and Watson for Genomics, and retrofits them for a particular hospital or company.

Other times, IBM signs agreements with hospitals or governments to jointly develop new technology that would use artificial intelligence to advance medical care.

On both fronts, the company is struggling.

Only two American hospital groups are using Watson for Oncology with patients, despite the fact that it was trained by American doctors.

Related: [2]
IBM pitched its Watson supercomputer as a revolution in cancer care. It's nowhere close [2]

In Europe, a February 2017 report[15] prepared by IBM Denmark and one of the country's regional governments concluded that Watson for Oncology was not ready for use anywhere on the continent.

According to the report, Watson for Oncology could not handle complex cases and didn't have all of the most relevant medical literature.

"[Watson for Oncology] is not yet fully developed and errors can occur," the report reads, according to a translation.

Just a month after that report was produced, in March 2017, IBM announced[16] that hospitals in Slovakia and Poland would be using Watson for Oncology.

IBM has also launched efforts to develop other artificial intelligence tools in health care, using Watson, and those haven't turned out as well as the company would have liked.

In Denmark and Finland, IBM signed agreements with government agencies to form public-private partnerships that would advance the use of artificial intelligence in health care. But those collaborations have progressed more slowly than the company hoped, and one was recently cancelled.

On Nov. 20, Danish authorities voted to cancel a five-year agreement they had made with the company in June 2017, when they and IBM had both pledged to put up about $3.4 million to develop new artificial intelligence tools. The company was supposed to work together with health authorities in the Capital Region, which includes the city of Copenhagen, on multiple projects each year.

Related: [6]
Citing weak demand, IBM Watson Health to scale back hospital business [6]

But a Danish journalist revealed[17] that one of those joint projects, an attempt to use Watson to read breast cancer images, had stalled. After a year of work, a hospital had not actually sent any images to IBM for analysis.

Svend Hartling, who oversees health programs around Copenhagen, acknowledged that none of the projects had actually come to fruition.

"There's no outcome for the moment," Hartling said.

But, he said, the agreement was canceled mainly because of changes to Danish government financing procedures, which halved the amount of money available for the project. Given the decrease in funding, he said, it wasn't worthwhile for the government to have such a focus on one company.

A former Danish health official who was involved in the IBM collaboration told STAT that, while it's true that the financing rules changed, this doesn't fully explain[18] why the collaboration ended. "I realized that this Watson technology was very oversold, at least concerning the health sector that we [were] focusing on," said Jesper Allerup, who left the government in October 2017. Besides the lackluster performance of Watson for Oncology, he did not name any specific examples of IBM's technology failing to live up to expectations.

"The cooperation looked disappointingly more and more like that we were subsidizing very early development processes in IBM instead of building on an already well-developed platform," Allerup said.

A similar situation transpired in Finland, according to an investigation[19] recently published in the country's main daily newspaper. In 2016, IBM signed an agreement with the Finnish government — the company would set up multiple offices and research centers, which would create at least 150 jobs, and in exchange, the government would provide about $183 million to Finnish companies so that they could work with IBM to use Watson in areas like health care.

But few Finnish companies have actually been working with IBM under this agreement. And when a journalist visited what was supposed to be a "Client Innovation Center," he found only three or four employees and a product showroom, not a research center.

For all of its troubles, IBM seems undeterred as it expands into new markets.

In February, a hospital in Vietnam, Phu Tho Provincial General Hospital, started using Watson for Oncology with patients, announcing the news with the same lofty rhetoric that hospitals around the world have used to describe a technology that, in many cases, has disappointed doctors and failed to live up to expectations.

"By bringing the system into use, doctors will be able to select the most up-to-date, best-of-breed treatment regimens for the individual with evidence from top US studies [and] the world," hospital director Huy Ngoc Nguyen said in a press release[20].

According to a Vietnamese media report[21], patients might pay a few hundred dollars for a Watson opinion. But an advertisement on the hospital's website[22] offers a better deal: for the first 30 patients, 50 percent off.

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