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How technology can improve the patient experience: A view from Tencent's Alex Ng

Alexander Ng, vice president of Tencent Healthcare, shares his vision for hospital care in 2030.

More than a billion people are active users of the WeChat app. The mobile platform, launched by tech giant Tencent in 2011, allows users to send messages, make payments, play games, and do many other things—including, increasingly, take care of their health. WeChat offers a growing range of healthcare-related services: users can now book medical appointments, pay hospital bills, purchase over-the-counter medicines, and consult with doctors via chat. Tencent's digital platform gives patients access to the network of more than 38,000 healthcare providers who have opened WeChat Official Accounts.

And the company is continuing to explore new ventures within the healthcare space. For example, Tencent is investing in dozens of medical start-ups; it is also collaborating with hospitals to develop diagnostic imaging solutions powered by artificial intelligence (AI).

Alexander Ng, vice president of Tencent Healthcare and a physician himself, is one of the leaders charged with expanding Tencent's presence in the healthcare arena. Ng recently spoke with McKinsey's Bo Chen and Monica Toriello about what lies ahead in hospital care—both in China and around the world—and the role that technology companies can play in improving the patient experience.

Alexander Ng biography

Vital statistics
Born in 1979 in Hong Kong
Married, with 2 children

Education
Holds an MPH degree from the Harvard University School of Public Health, 2 medical degrees from the University of Auckland, and a postgraduate diploma in health informatics from the University of Otago

Career highlights
Tencent Healthcare
(July 2019—present)
Vice president

Bill & Melinda Gates Foundation
(2015—19)
Deputy director of China program, head of health and innovation

McKinsey & Company
(2006—15)
Associate partner

Counties Manukau District Health Board
(2004—05)
Chief resident of Middlemore Hospital

Fast facts
Has been an honorary associate professor at the University of Hong Kong since 2011

Is a member of the Hong Kong Council on Smoking and Health

McKinsey: As both a doctor and a tech executive, you have a highly informed perspective about the future of healthcare technology. How do you think the patient experience in hospitals in 2030 will differ from the patient experience today?

Alex Ng: I think technology will have an impact on every part of the patient journey. In 2030, I believe there will be interconnected, transparent medical records that will be available to the people who need to see those records in the setting where they need to see them. So if you call an ambulance, both the ambulance driver and the receiving hospital will already have a very clear idea of who you are as a patient—your medical history and your medical needs—even while you're still en route to the hospital. It's not just that your electronic medical record (EMR) will be available online; it's that, with AI, the EMR will be tailored and curated to the setting, which will result in faster and more accurate care. For example, in an ambulance, what the ambulance worker really cares about is whether the patient has a medicine allergy, is on certain medications, or has a medical condition that will require immediate critical care.

The receiving hospital will also get that information. And the hospital will have the technology to track the exact location of the ambulance and its estimated time of arrival, as well as the flow of resources within the hospital: which doctors are where, which nurses are where, and are they busy or not? This will allow the hospital to mobilize the right people to the right location.

Another part of the experience that will change in 2030 is doctor–patient engagement. Today's technological advances are different from the computerization of the healthcare system in the 1990s, which drew doctors away from patients and toward computer screens. The next level

> “The next level of digitalization will not be tied to a fixed infrastructure, so it will relieve doctors of the need to be stuck to the screen.”

of digitalization will not be tied to a fixed infrastructure, so it will relieve doctors of the need to be stuck to the screen. It will free up their time so that they can engage with the patient. For example, a doctor will wear a small microphone during conversations with the patient, and the history taking will be recorded. Natural-language-processing models tailored to the doctor’s style will pick up the important keywords, and the history will be structured into a data schema that can be used in the back end and in the EMR. In the future, AI models will capture and immediately structure the data—it won’t be the free text that we see in EMRs today.

Then, if the doctor prescribes a simple drug treatment, EMRs and technology will be able to prevent overuse or misuse of drugs, or side effects due to drug–drug interaction. If a patient needs to be admitted, technological tracking will allow for better flow management so that patients can be moved in and out of the right beds in the right wards. The hospital staff will have much better oversight on which patients are ready for discharge and when, reducing the likelihood of a patient having to line up in the corridor, lying on a gurney, while waiting for a bed to be freed up.

Another way that technology will help in the future is that if you need to go into the operating theater for a type of surgery that is not performed often by the local doctors, an expert surgeon in another location can conduct the procedure using robotic surgery and 5G connectivity. These technologies will be game changing—they’ll break down the four walls of the hospital by enabling greater access to clinical resources.

McKinsey: That’s a compelling vision for hospital care in 2030. But will that scenario play out everywhere? Or just in the most developed countries?

Alex Ng: The differences won’t be on a country-by-country basis, but city-by-city. Some of the technologies we’re talking about—5G connectivity, robots—aren’t cheap, so they’ll only be in places with more financial resources, such as big cities and tech centers.

But I think some things will be universal or popularized. Everybody can have a connected electronic health record, or an AI engine to catch side effects for drug–drug interaction, or AI that helps the physician, the healthcare worker, or even the African village worker determine the best course of action—because the required investment for these things is not that high. All you need is internet connectivity and a mandate, usually at a country level or at a jurisdiction level, to have a centralized health record.

As for releasing medical data to the right people at the right time, I think this is where leapfrogging will happen in countries and in cities where entrenched interests are less of an issue, or where specific hospitals’ capital investment in legacy data infrastructure has been relatively lower.

McKinsey: What role does Tencent want to play in making health data more widely shareable?

Alex Ng: Connectivity is part of Tencent's DNA. We started with consumer-to-consumer connectivity—through messaging platforms like QQ and WeChat—then moved into consumer-to-business connectivity. So the next step is business-to-business connectivity. We are already working with different cities to create a middle layer, so that the hospitals can still have their own information living in their own server while also contributing to a regional health-information system. This is where China is heading, district by district and city by city. Australia and some of the Scandinavian countries have been doing it for many years; what's unique to China is the scale at which it's being deployed.

McKinsey: Tencent Healthcare is currently focused on the Chinese market, but what are the company's aspirations outside China?

Alex Ng: There's so much to be upgraded within China, so we feel a certain social responsibility to focus on China first. And because healthcare is such a local business, we might not be able to use the same tools and products elsewhere. In the next market that we go to, we'll probably need to relearn and redevelop not just the product itself but also the language that the products use. All our products are in Chinese.

Language definitely won't be a barrier in 2030, though. Language translation will be the least of our worries from a product-development standpoint. The bigger challenge will be to understand the societal context, which will require a combination of technological bandwidth and local knowledge. Tencent is privileged to have the resources and the branding to attract the best scientists and the best technical staff to come and work for us. On the other hand, hospital systems are closest to patients and understand how to deliver care. So, we need to form partnerships. Tencent has the technical expertise but we also need the local context. Our model will most likely be partnerships with local healthcare organizations around the world.

McKinsey: When all these new technologies become available, do you think physicians will need to be trained differently?

Alex Ng: To be honest, I think the skills that doctors and medical students will need in the future will be "back to the basics": how to engage, communicate, and empathize with a patient. We are focused on specific pathology and diseases but not so much on the social aspects of the patient or the impact of the family situation on the patient's recovery. These are areas in which humans can help us much more than technology can. This is where the training needs to change in the medical curriculum—back to focusing not just on health but on the "care" part of healthcare.

Bo Chen, a partner in McKinsey's Beijing office, and **Monica Toriello**, a member of McKinsey Publishing based in New York, conducted this interview.

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