Executive summary

Dr. Hugh Montgomery, Digital Health Futurist, and Maneesh Juneja, Head of Global Healthcare at Aruba, explore future healthcare

Introduction

Monitored and adjusted by an intelligent device, or a surgery carried out by a machine? Dr. Hugh Montgomery, Digital Health Futurist, says you’re going to see both. “I certainly think you’re going to see the machines doing surgery, and if you put your hand on a sensor, within 10 seconds you’ll have a blood pressure and ECG test within 10 seconds, and lead to an automated analysis of the result,” he says. The future’s going to be significantly more technologically-driven in a number of different ways.

As the imprint of mobile, cloud and IoT advances, what will its impact be on how hospitals function? And how can more data-driven, digitally-operated health systems achieve a balance between technology and human interaction?

While patients may play a more active role in the healthcare systems of a decade’s time, that does not mean the importance of clinicians will decrease. Few disagree that changes are needed in the way healthcare is provided to ensure it remains affordable and accessible. “Healthcare costs are rising so exponentially that unless we can significantly improve the efficiency of how we deliver healthcare, it’s going to be beyond the reach of many,” says Maneesh Juneja.

However the barriers to achieving a digitised health service are significant, and many. Regulations must be adhered to, patients consulted with, and the security to the efficacy of self-diagnosis. And the healthcare sector must earn the trust of the public, or they will be left behind.

There is an increasing move towards patient-curated and patient-owned data. “Humans own their data,” says Dr. Montgomery, “they own their health.” The greatest power that technology will put into the hands of patients is the ability to define their own flow of data and control who can see it. “It’s equally clear that many of the answers lie in the adoption of technology.”

The combination of cultural and technological change needed to drive those answers forward. It is going to be a massive transformation and disruption in the next 5-10 years for two reasons, says Dr. Montgomery. The first is that we’re going to see a massive increase in the amount of data that is generated, collected, processed and distributed, so much so that it’s going to make the technology of today look primitive. And the second is that we’re going to see a massive increase in the amount of data that’s generated by people for their own purposes. In the short-term, the focus may be on how technology can create efficiencies that liberate clinicians from the administrative burden, but in the medium-term it will be about what the patient can do with the data.

One in which people will have digital tools at their disposal to do many of the things that are currently done by those who work within the healthcare system, and the healthcare system becomes able to work more seamlessly and rapidly.

Building and securing the patient experience

The first step is giving patients and healthcare providers tools that allow them to control their own data. The next phase will be can the machines interrogate those data, and apply rules to those data, and do something that is appropriate to the given data and the given situation.

With the rise of mobile and cloud computing, and access to IoT (Internet of Things) devices, we will be able to do a lot more with data. We’ll be able to collect a lot more data, because we’ll have a lot more data sensors, and we’ll have a lot more sensors. We’ll be able to process a lot more data, because we’ll have more powerful servers, and more powerful processors. We’ll be able to distribute those data, because we’ll have faster connections. And we’ll be able to disseminate those data, because we’ll have more powerful devices.

The hospital of 2030

By 2019, healthcare organisations expect 52% of the devices on networks will be IoT devices such as patient monitors and remote sensors on machinery. Such advances hold many of the answers to the challenges of cost, scale and delivery that are threatening to make today’s healthcare services unaffordable.

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As the number of devices and apps that collect medical data, and are increasingly being used by patients to curate their own healthcare, grows, we’ll have to manage not only the data, but also the medical devices. And the question is, what will that change look like, how can it be brought about and at what pace?