



FUTUREMED – EXPERIENCING TOMORROW'S MEDICINE TODAY

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Singapore Medical Week

We launched the Singapore Medical Week by SMA and FutureMed 2017 at a reception on 3 November 2016 at The Star Loft, The Star Performing Arts Centre.

Singapore Medical Week by SMA seeks to become the focal point for stakeholders in Singapore's healthcare industry, to facilitate critical discussions in vital topics of current importance, and to forecast future health trends, unique ideas and new innovations.

In line with this, the 47th SMA Annual Medical Convention, which serves to provide timely insights into important health issues for both the medical fraternity and the public, will now be a key event during the inaugural

Singapore Medical Week by SMA, which is scheduled to occur in August 2017.

The future of medicine

Imagine a scenario ten years from today. It is the year 2027 and you wake up to the soothing voice of your digital alarm. "She" tells you that it is 7.30 am and that "she" has already activated the toast machine and coffee maker in the kitchen. You are reminded that you have a medical appointment later in the day, but you would not need to leave your office. Instead, you will be speaking to the doctor over a video call.

You suffer from hypertension and hyperlipidaemia and you are on regular medication. The medication comes in a single pill that you take once a day, with

the right amount of medication custom designed and compounded specifically based on your condition.

The digital watch, or any wrist device for that matter, has long been out of fashion. Instead, a variety of embedded sensors – some in your clothing and jewellery, some in your furniture, and others scattered around your home – track your movement and statistics such as blood pressure, heart rate, body temperature, exercise, calorie consumption and hydration status, and these sensors are all seamlessly linked. If your body temperature goes up, the air conditioner is adjusted to be cooler. If your hydration level drops, the fridge automatically serves water.

Medical data are collected, stored and presented in charts, giving you feedback on the daily averages. These medical data are transmitted to your healthcare provider. Your blood sugar is read through sensors in your contact lens that monitor the sugar level in your tears. The health of your blood vessels is monitored through 3D cardiac imaging.

All these data are collected and, through the power of data analytics, you would know your personal risk of developing chronic disease in the future based on your age, gender and race. With these data, it is not necessary to visit the doctor for regular check-ups unless some unusual symptoms are present. Your insurance company wants to keep you as healthy as possible, and sends you regular reminders to keep fit and lead a healthy lifestyle, and you are incentivised to stay healthy



Illustration: Dr Kevin Loy

because it translates to paying lower healthcare premiums.

Some of these scenarios may sound familiar to you and some may sound quite futuristic. The reality is that all of these technologies are already available to us today. In a sense, the future of medicine is already here upon us.

The question really is a matter of how we can assimilate new scientific discoveries with advancements in technology and the development of new medical products, and to integrate these various components of healthcare.

Singapore is one of the fastest ageing societies in Asia. One in five residents in Singapore will be aged 65 years and older by the year 2030,¹ increasing the overall costs of healthcare and putting pressure on our healthcare resources. Technology can be deployed to reduce costs and improve productivity and patient outcomes. In particular, it can help to deliver a higher quality of patient care, shorten the time to deliver and receive care, and provide more choices for patients in the delivery of healthcare.

Future trends

What are some future trends that are in store? The first is a paradigm shift in mindset. We will move from a traditional medical model of medicine that focuses on disease treatment to a model of disease prevention, and ultimately, to disease prediction. Medicine today is reactive. Many of us think of healthcare only when we fall ill and we visit the doctor when we need a problem to be solved. This means that most of the time, we are reacting to an illness that has occurred. Some of us may go for regular health screenings, but again, we are only attempting to detect a disease after it has occurred.

In the future, we will be able to provide patients with better and more sensitive diagnostic tools so that they can monitor their own health and detect disease even earlier. Technology will enable these tools to be used

by the patients themselves, but in order to do this, patients will need to take ownership of and assume more responsibility over their personal healthcare. Healthcare literacy is about enabling patients to take control of their own health through education and mindset change.

Shifting medicine from prevention to prediction will be possible with the help of big data, another important trend in medicine. We can use data that we collect to understand disease and how they affect large populations. We now have access to information on the impact of diseases in different social groups, cultures and regions, such that interventions can be designed and customised. Population health data has made it possible to come up with new ways to predict and tackle disease early.

The Third Wave

Steve Case, former chief executive officer of America Online, wrote about the Third Wave of the tech evolution in his recent book of the same title. The First Wave of the Internet was about building the infrastructure required for the network to connect and to convince the masses to go online. The Second Wave was about building on top of this momentum, with services such as online search engines (eg, Google), e-commerce (eg, Amazon) and social networking (eg, Facebook). It was also the era heralding the mobile smartphone, uprooting information from the desktop and planting them into the hands of millions of users.

Steve Case believes that we are now poised for the Third Wave, when the "Internet of things" becomes the "Internet of everything". This will be the era where ubiquitous connectivity allows companies to transform and disrupt established industries such as healthcare. Indeed, the healthcare industry is ripe for disruption – it is huge, it affects everyone and it is slow in adapting to technology, thereby providing fertile ground for new ideas and experimentation.

FutureMed

The use of mobile technology and cloud storage means that data are integrated and can be shared between patients and healthcare providers.

Wearables bring diagnostic tools into the realm of consumer electronics and the information that is collected communicates with mobile devices through apps. These data can contribute to medical records in a national electronic health database, translating to better efficiency, less wastage and, more importantly, to improved patient safety.

It is thus apt that SMA's upcoming medical event is entitled FutureMed. It will be a platform to allow current developments in healthcare technology to be showcased, and the impact of future trends such as big data to be explored and discussed.

FutureMed is envisioned to create a forum that will bring together developers of new technology and healthcare providers, who will either be the end users or the ones recommending them to patients. FutureMed is not about speculating what the future could be; it is about enabling us to experience the future of medicine today. ♦

References

1. Ministry of Health. Speech by Mr Gan Kim Yong, Minister for Health, at the SG50 Scientific Conference on Ageing, on 19 March 2015 [online]. Available at https://www.moh.gov.sg/content/moh_web/home/pressRoom/speeches_d/2015/speech-by-mr-gan-kim-yong--minister-for-health--at-the-sg50-scie.html.

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