The future of primary health care in New Zealand

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A young woman climbs off a bus in central Wellington, checking her smartphone as she ascends the escalator that will bring her to her local general practice.

Approaching the reception desk, she is greeted by practice staff and directed to one of the tablets fixed to the corner of the bench. Speaking into the voice-activated search engine, she confirms her name and date of birth. The young woman enters a few short notes about why she has come to see the GP today, and the information is transferred to her patient notes.

The receptionist smiles at her, and thanks her for checking in. 'You'll be able to do all that on your way to the practice soon,' the receptionist tells the young woman. 'We're about to launch a safe and secure app for your mobile phone.'

Walking past an older gentleman who is checking in with another receptionist, the young woman takes a seat in the waiting area and scrolls idly through her newsfeed.

Soon, a familiar face appears around the corner and calls her name. The young woman greets her general practitioner (GP) fondly, and they continue down the hall to a consult room.

'What can we do for you today?' asks the GP, the medical transcriptor blinking awake. It begins recording and summarising the consultation into standard Simple Object Access Protocol (SOAP) format, entering it into the patient notes for reviewing after the consult.

'Just let me know if you'd like to say something "off the record",' smiles the GP. 'I can turn this guy off any time.'

The consultation progresses, with the GP explaining some of the new point-of-care technologies being employed at the practice.

'Let's have a look at your lungs – I'm sorry, this will be a bit sticky on your skin – it's these new ultrasound stethoscopes.'

'You mentioned that your visa requires a test for tuberculosis? Let's take a blood sample now, this machine here can give us results within 15 minutes.'

'So you're worried about bowel cancer… Based on your age and symptoms, your risk is very low. There are tests we can do to rule it out completely though, so let's arrange a blood test to send to the lab. We'll check for circulating deoxyribonucleic acid (DNA) markers and can let you know at the end of the week.'

As the discussion draws to a close, the GP mentions that a specialist referral they had discussed during their last visit was approved and filed automatically when the GP made the referral.

'Do you have a spare moment to speak with the specialist now?' asks the GP. 'We have a teleconference room set up down the hall, and I can see in my eSchedule that my colleague has an opening in twenty minutes.'

The young woman declines politely, opting to make another booking when it suits her schedule.

'If you'd like to connect with the specialist from your home, there's information about setting up a connection in the Patient Portal section of our website,' the GP reminds the young woman as she picks up her coat and bag to leave.

When someone asks me what general practice might look like in five years, it can be difficult to bat aside their expectations. It's enticing to conjure up visions of an aluminium and glass AI machine, or a chatbot doctor that can diagnose you during a text message exchange. More often than not, the value of technological advances lies in being able to make more significant differences in the lives of our patients – not how well we can mimic human behaviour or diagnostic pathways.

In Australia, aged-care facilities have installed laser beams and floor sensors to create a safer environment for their patients with dementia or limited mobility. A whole industry of therapeutic robots offer companionship and comfort for older patients or those experiencing post-traumatic stress. Smart robots act as learning aids for children with anxiety or phobias, while anthropomorphic helpers assist therapists to communicate with patients who have developmental disorders or who experience difficulty interacting with strangers. The best and most successful uses of technology give us more time to spend with patients, or equip us to better meet their needs.

I am privileged to work with many innovative medical professionals in my role as the Medical Director for the Royal New Zealand College of General Practitioners, and as a working GP in Wellington. My colleagues

and I think long and hard about the way we do things, and how technology can improve how we interact with each other and those in our care. To us, it seems like a natural conclusion. Technology has changed so much in our world already. Social media has changed the way we stay in touch with friends. Online reviews have changed the way we eat and travel. Gaming devices and smartphones have changed the way we spend our leisure time – if you're anything like me, this usually means trying to move away from someone at a concert as they try to record the whole thing on their phone.

From a practitioner's point of view, it is both exciting and daunting to be part of a world that is constantly reaching for improvement. We are presented with a number of tools, systems, gadgets, and developments that promise to make life easier for us and for our patients. Yet there remains a very important obligation to do our due diligence and ensure that we are not sacrificing the quality of health care we offer to patients, or their privacy and safety in the process of 'upgrading'.

GPs are well aware of this dichotomy. As medical professionals with broad responsibilities, we have an urgent need to find efficiencies in our work. This has driven much of the innovation that has already occurred in general practice, and is likely to be the focus of resources in future years. With an increasing number of general practice owners investigating how they can use technology in their day-to-day business, several District Health Boards are experimenting with telehealth services, while regulatory bodies develop guidelines and best-practice advice on navigating the technological world.

But back to a typical GP visit, there are any number of physical, financial, psychological, or geographical reasons why a patient might not be able to visit the practice. Technology can help us improve New Zealanders' access to health care services. Some rural practices use video calls to meet the needs of their community in the midst of GP shortages. Other practices have a collaborative relationship with their specialist colleagues, offering a virtual consultation in combination with a local nurse who can carry out physical examinations where necessary.[1]

Similarly, the advent of patient portals has signalled an opportunity to add value to our interactions with patients. In some practices, these web-based portals give patients access to their health records, test results, medications, and health care plans. They may be able to request repeat prescriptions, seek a nurse's advice, or send a query without having to come into the practice. Telehealth medicine gives us the opportunity to provide options to our patients, and can increase their sense of agency and involvement in their own health.

Most medical-school students will be well aware of the benefits that technological advancements have offered to our profession – while expensive textbooks are a fantastic source of information, the temptation to consult 'Auntie Google' for a quick answer can be great at times. While caution around accuracy and evidence needs to be exercised, there is real value in ensuring that information is shared in a forum that is accessible to the majority of our patients. Websites such as New Zealand's own HealthNavigator or DermNet curate evidence-based and peer-reviewed information in an easy-to-read format, often with dedicated areas for patients to consult when they are at home and unable to seek clarification.[2,3]

Leaders in the primary-care sector are paying attention to these innovations, and are starting to dedicate resources to their upkeep and development. New roles are being established within District Health Boards to investigate telehealth medicine, while virtual health services are already up and running in some parts of the country. Organisations, like the College, are responding to member requests for advice to help them navigate this technology-driven future. In our case, the College has worked with the New Zealand Telehealth Forum to produce resources for GPs and other health professionals.

So what can the health care professionals of tomorrow hope to see in their working lives? My guess is that technology is going to have a massive impact on the speed and accuracy of our diagnostic procedures. Point-of-care testing may eliminate the need for off-site laboratory analysis for a number of common tests, while ultrasound stethoscopes and virtual reality imaging for internal organs could change the way we conceptualise the human body. Pretty soon we may have high quality DNA tests for cancer, and wearable monitors that could predict the onset of epileptic seizures or detect irregular heartbeats. Medical professionals are already exploring ways to create inexpensive, portable laboratory tools such as Jane Chen's low-cost incubator for premature babies, or Dr Hong Sheng Chiong's open-source, smartphone-mounted ophthalmology device.[4,5]

At the core of these technological developments is a desire to make more room for the human elements of medicine – not less. As doctors, we know that technology can never replace the act of caring for another human. Even very intelligent machines can not entirely make up for the comfort of a well-timed word, an understanding nod, or commiserating smile. No matter how far technology advances, it will never grasp the subtleties of a human patient, their families, commitments, wants, and desires.

I feel that this is an incredibly exciting time to be a medical professional in New Zealand, where there are opportunities to literally develop the future of health-care technology. I know GPs in Auckland who are building their own waiting room apps, a practice in Invercargill that is pioneering virtual consults, and patients living in aged-care facilities on Waiheke Island who FaceTime their GP. I am excited for the doctors who undertake our General Practice Education Programme (GPEP) to be entering this world of opportunity and discovery.[6]

It's amazing to witness the mentoring and learning that happens between future GPs and existing ones. With a steady increase in doctors joining the GPEP, I see more and more hospital doctors coming into general practice and finally realising what their contribution to the profession will be. There are still fundamental issues to be grappled with and our primary concern is over whether this burgeoning technology will help close the care gap through reducing cost of access, or whether it will create a technological underclass, thereby widening the serious disparities we have in Aotearoa. As general practitioners, we must accept that we are on the cusp of change and commit ourselves to shaping that future.

References

1. McKenzie J. Invercargill practice calls in doctors from other regions to see patients [Internet]. Invercargil: 1 News; 2018 [accessed 30 Aug 2018]. Available from: https://www.tvnz.co.nz/one-news/new-zealand/invercargill-practice-calls-in-doctors-other-regions-see-patients-via-skype

2. HealthNavigator New Zealand. New Zealand Health Information [Internet]. Publisher unknown; 2018 [accessed 30 Aug 2018]. Available from: https://www.healthnavigator.org.nz

3. DermNet New Zealand. DermNet NZ: all about the skin [Internet] . Publisher unknown; 2018 [accessed 30 Aug 2018]. Available from: https://www.dermnetnz.org

4. Chen, J. A warm embrace that saves lives [Internet]. TEDIndia; 2009 [accessed 30 Aug 2018]. Available from: https://www.ted.com/talks/jane_chen_a_warm_embrace_that_saves_lives

5. Chiong, HS. Fighting blindness with $20 and a smart phone [Internet]. TEDxAuckland; 2015 [accessed 30 Aug 2018]. Available from: https://www.youtube.com/watch?v=j4p5PJi71FU

6. The Royal New Zealand College of General Practitioners. Become a specialist [Internet]. The Royal New Zealand College of General Practioners; 2018 [accessed 30 Aug 2018]. Available from: https://www.rnzcgp.org.nz/RNZCGP/Become_a_specialist/RNZCGP/Become_a_specialist/Become_a_specialist.aspx?hkey=103c8969-283d-4154-8ade-0e7626973bfb