

MEDICAL PODCASTS IN ENGLISH FOR NON-NATIVE SPEAKERS

Digital doctor's bag and digital health transformation

Introduction

Hello and welcome back to this IFMiL series of medical podcasts in English for non-native speakers. My name is Alice Byram, and I am a Family and Emergency Medicine Physician. Today we will be looking at the digital health transformation of medicine. You can find all references and links in the show notes.

Digital doctor's bag.

When you think of the traditional image of a doctor outside of the hospital or the consulting room, he or she always carries a bag. Much like Mary Poppin's carpet bag, it is full of magical instruments. Apart from a stethoscope, this could also have included a sphygmometer to measure the blood pressure and maybe a couple of syringes to administer an all curing medication. Times have changed, and today we have different instruments, but their objective remains the same: to be a diagnostic aid at the bedside. This is especially true in rural and remote areas where a transfer to a local hospital may be complicated and time-consuming. However, it is also true for patients with decreased mobility in an urban setting. These are the patients who already receive the home visits instead of coming in to see their GP at the surgery.

The concept of the digital doctor's bag describes a combination of digital medicine devices linked to a smartphone or tablet. It also includes decision aid apps and even the EHR or electronic health record. The EHR means that the HCP has access to all the patient's notes and results on the go, even those of other specialists.

Emergency visits, whether by a GP or a prehospital service, also benefit from having a digital doctor's bag. This may mean the difference between transferring a patient to a hospital or keeping them at home. The obvious example is an ECG being recorded and being sent straight through to the cath lab and cardiologist on call. If the patient doesn't fulfil cath lab criteria, they may well be transferred to their local hospital instead of being sent further afield. But some of the devices are used by the HCP in situ. The portability and decrease in the cost of hand-held ultrasound machines have made them very much more accessible. Ultrasound does remain operator dependant and rule in not rule out. Traditional stethoscopes are replaced by digital stethoscopes which record and analyse heart sounds to provide a visual representation. Listening then becomes optional. Portable spirometers as an add on to a smartphone which then adds the information to the patient's own records can reduce clinic visits for chronic

patients. They can also empower patients to identify and manage their exacerbations in combination with their HCP at a distance.

Digital dermatoscopes are another welcome addition to the doctor's bag. Working with high quality augmented images, you can diagnose yourself, send to dermatologist colleague for a second opinion or even let the AI do it for you. In 2018 Haenssle et al. concluded that deep learning convolutional neural networks outperformed even dermatologists when it came to melanoma identification(1) and that all HCP no matter what their level could benefit from this technology.

Digital transformation.

Ever since the industrial revolution, there has been a fear of machines taking over our work and medicine is no different. There can be a feeling among digital health enthusiasts that doctors are anti-innovation and that they will have to reinvent them or be left behind. Nothing further from the truth in a profession where life-long learning is part of the course and having to think on your feet with every patient is the norm. What is true is that clinicians need to see a validated use for digital health solutions, and that may not be the use that the developers initially had in mind. Another aspect is that there is the mantra "first do no harm" is never far from any clinicians' mind and that reticence to adopt new technology is often coupled to a very real and not theoretical realisation that it is people's life and health which are at risk if they don't work. Every medication prescribed has been through a stringent, ongoing safety process and even then, as we sign digitally or with a pen, we do it knowing that is always a risk-benefit balance to our decision. It is not a dinosaur mentality which prevents clinicians unthinkingly adopting every new shiny digital health solution we are presented with. Instead, it is our primary function of being the patient's advocate and therefore making sure the risk-benefit is in their favour.

Digital health technology, including lifestyle apps, don't require clinical evidence to be released, and the need for them to be regulated, is discussed in episode 1 of this third series. Digital medicine software or hardware that intervenes and measures human health do need clinical evidence. Furthermore, when it comes to digital therapeutics, in which the technology delivers an intervention, that evidence needs to be not only clinical but also based on real-world outcomes.

Getting the clinicians onboard.

This leads to the question; how can we get valid digital medicine solutions into our daily practice? This is something at which Dr Cesar Morcillo at the Sanitas hospital in Barcelona has been looking. He argues that this is our opportunity to make the change to patient-centred care, and also to expand it to health workers who, as

we are seeing in the current pandemic, can quickly become patients in themselves. The power of these digital solutions, whether on the ward in the hospital or at home after they have been discharged, is the ability to relay the information 24h not just the snapshot of time the doctor and nurse are at the bedside. Digital solutions have to be agile and responsive to patient needs. Aim for a good enough attitude to the first version, which is perfected in response to feedback from real patients and clinicians. This feedback needs to be complemented with data and evidence-based. The ability to harvest patient data and work with it in this way directly benefits the patients to whom the data belongs. Medicine is not a solitary practise and working in a transversal manner with other teams leads to better integration of digital health solutions. It also leads to improvement as they too will feedback on what works and what can be done better based on their expertise.

If the mindset is that of "[improving a service rather than implementing a technology](#)", the introduction of new digital solutions is more likely to be successful.

Real-world examples.

Often successful innovation comes from HCP themselves. Being best placed to see the problem first-hand, they can then suggest solutions which work for their population within the framework of the services they already offer. One example of this is the [fracture clinic](#) at the Royal Sussex County Hospital in Brighton, England. A physiotherapist and an orthopaedic surgeon have saved the NHS over half a million pounds by enabling fracture and soft tissue injuries to be followed up virtually. As an EM doctor, I would see patients in the ED, x-ray if necessary, treat and discharge and then the patient would previously have had to come back to a fracture clinic at a hospital with terrible parking and access. Even more complicated for patients with injuries which decrease their mobility. Now, their details would be entered into the [virtual fracture clinic referral](#) with all contact details, physical examination and management plan from the ED. All of these patients get reviewed within 24h and receive a video message from the consultant or phone call. Further follow-up can also be virtual. Only patients really needing face to face contact have to come in. An example of innovation from within, this system has been extended to other hospitals. Although this is a model that existed in other parts of the world, the fact that it was introduced by colleagues and not externally, giving a real solution to a real problem meant that the uptake was smoother. All hospitals, whether in Spain or the NHS, have an innovation team. They are tasked with helping clinicians to transform their clinical solutions into reality. They have the experience and team to support clinicians who may otherwise be reticent to take on the non-clinical aspects of digital transformation. If you have an idea, it is worth contacting them even if you don't want to take on

the project yourself. As a practising clinician, you are best placed to see what problems and frustrations affect your day to day practise and offer suggestions for solutions from within.

Conclusion.

COVID-19 has accelerated the acceptance of digital health technologies, as has been mentioned in previous episodes. Telemonitoring and video consults are becoming the new norm, and there will be no turning back. As Eric Topol says, "Machines won't replace physicians, but physicians using AI will soon replace those not using it."

If you want to find out more about digital health tools for your doctor's bag, especially in primary care, why not sign up for the IFMiL's online course in Spanish by Dr Miguel Molina de Heras. And if you want to learn from the experience of an up and running digital health hospital follow @cmorcilloserra on twitter or take his digital transformation course in Spanish also on the IFMiL platform.

Questions

1. Look up what a digital stethoscope looks like.
2. See if there are any apps you could download to use in your own digital doctor's bag.
3. Look up Eric Topol and read his latest article.
4. Identify who is your digital transformation contact person in your organisation. Reach out to them with an idea for service improvement you have had and never got around to doing anything about. Just hand over the idea and forget about it or get involved.