

Image: Accredited social health activists learn to use an mHealth application called mSakhi at the Community Health Centre in Badagaon, Uttar Pradesh, India. © 2014 Girdhari Bora for IntraHealth International, Courtesy of Photoshare.

## Report

# The promise of digital health to address non-communicable diseases in low and middle income countries

Monday 25 – Wednesday 27 November 2019 | WP1683

In association with:



The Novartis  
Foundation



**20**  
years  
1999 – 2019





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In partnership with The Novartis Foundation and The George Institute, University of Oxford, and in association with NCD Alliance

### Executive summary

Worldwide, non-communicable diseases are an increasing burden, particularly in low- and middle-income countries where health systems are often ill-equipped to identify and treat chronic conditions. Digital health is not a panacea in itself; however, digital innovation and the data revolution can enable NCD prevention and treatment to be delivered more efficiently and in a more personalised way, particularly given the rapid expansion of internet and mobile coverage.

In November 2019, Wilton Park convened a high-level dialogue to discuss ways in which to unlock this enormous potential of digital solutions in facilitating the prevention, treatment and management of non-communicable diseases, to accelerate universal health coverage in low- and middle-income countries.

#### Main themes included:

- The need to take a partnership approach, across government ministries (health, IT, finance), involvement of the private sector (mobile companies, tech developers etc.) and fostering the advocacy efforts of civil society.
- Key considerations when developing digital health solutions, including moving to a demand driven model requiring the involvement of end users in co-creation, simple and quick systems to gather accurate data and addressing interoperability concerns
- The need for digital solutions to address multiple conditions
- How to address the ongoing lack of resourcing for NCDs in general and for digital health solutions for NCDs in particular.
- Use of digital in specific settings, notably in primary care and in humanitarian settings and among displaced populations.
- Reframing the digital challenge for NCDs through approaching digital technologies as an enabler, therefore considering how to 'address NCDs in a digital age'.

#### Suggested actions include:

- Identifying or establishing a mechanism through which organisations with an interest in NCDs and digital health could aggregate requests for functional specifications of digital solutions and collectively negotiate with industry.
- Building a values framework to demonstrate the perceived benefits of digital health to tackling NCDs, from the perspective of a range of stakeholders.
- Undertaking academic studies, such as an assessment of selected digital health interventions in NCDs.

## Introduction

In November 2019, Wilton Park convened a high-level dialogue to discuss ways in which to unlock the enormous potential of digital solutions to facilitate the prevention, treatment and management of non-communicable diseases (NCDs), accelerating universal health coverage in low- and middle-income countries (LMICs).

Participants were drawn from 20 countries (including Barbados, India, Indonesia, Jordan, Malaysia, Mongolia, the Philippines, South Africa, Uganda and Vietnam), from the health sector, technology experts, NGOs, government policymakers, multilateral agencies, the private sector foundations and academics. The broad range of expertise is reflective of the partnership approach that was a major theme of the three days. Partners in the dialogue were the Novartis Foundation, The George Institute for Global Health and the NCD Alliance.

The meeting aimed to identify barriers to the optimisation of digital for NCDs and some options to address these challenges, through policy, advocacy and partnerships. Only once it is known how digital is being used can new technologies be targeted, prioritised and harnessed to best advantage. There is currently a significant discrepancy between the hopes and expectations for digital and its practical, on-the-ground uptake and effectiveness.

The report summarises the main themes and action points covered at the meeting: the current NCD and digital context; enablers/barriers to progress; partnership; data; resourcing/sustainability; interoperability; development of digital-health solutions; primary care; digital in humanitarian settings; and advocacy.

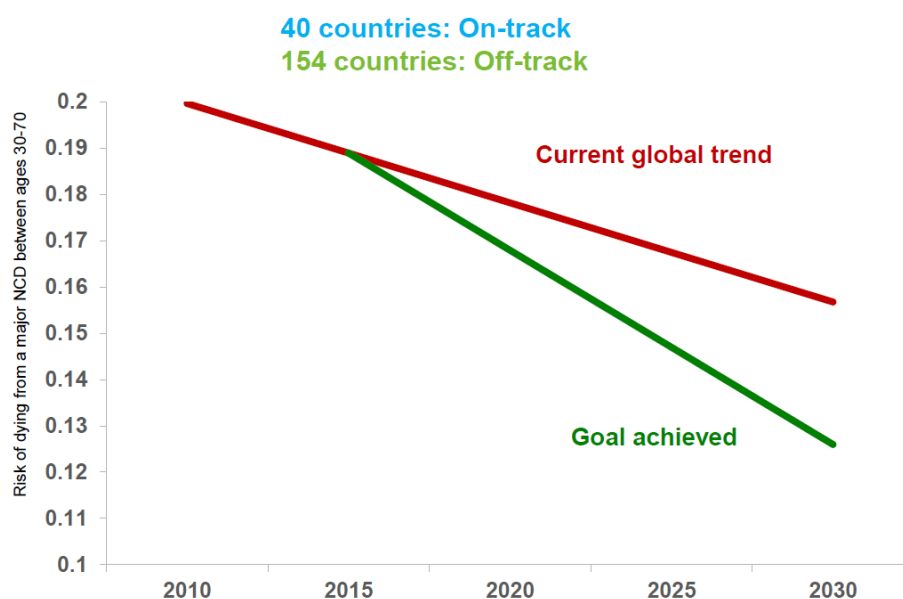
***All quotes noted in the report in italics were made by participants at the meeting, illustrating a diversity of views at the meeting. They do not represent a consensus view or the views of Wilton Park.*** Short case studies presented at the dialogue are included throughout. However, although as much can be learnt from what does not work as what does work, there were few examples of '*failing forward*'.

## Context

### The challenge of NCDs

1. The 21<sup>st</sup> century is a time of unprecedented global health challenges, including climate change, urbanisation, the threat of emerging diseases, and a '*rising tide of NCDs*', particularly in low- and middle-income countries that are often ill-prepared to identify and treat chronic conditions.
2. The World Health Organization (WHO) has a '5x5' framework for NCDs: five major diseases (cardiovascular disease, diabetes, cancer, chronic lung disease, and mental health and neurological conditions\*) and five major risk factors (poor diet, physical inactivity, alcohol misuse, tobacco use and air pollution). Tackling all of these is essential to the achievement of universal health coverage, which is one of the three major pillars of WHO's General Programme of Work 2019–2023 – and success will require action far beyond the health sector, including in education, welfare, transport, urban planning and food systems.
3. There are many global commitments on NCDs, including the Global Action Plan on the Prevention and Control of NCDs 2013–2020, and Political Declarations on NCDs agreed by heads of state and government at the United Nations. However, these are yet to translate sufficiently into national action: the majority of countries are not on track to meet Sustainable Development Goal 3.4 ('by 2030 reduce by one-third pre-mature mortality from NCDs through prevention and treatment, and promote mental health and wellbeing') (see figure). Even where there are strong national policies in place, there remain substantial implementation gaps and financing challenges.

\* Of the five diseases, mental health received the least attention during the dialogue – although specific mentions were given, including mental health concerns among carers of people living with chronic conditions.



Source: Institute for Health Metrics Evaluation

## What digital can offer

4. Digital health solutions are not a panacea or silver bullet in themselves; rather, digital innovation and the data revolution are tools to enable prevention and treatment to be delivered more efficiently and in a more personalised way. In addition, digital solutions hold the potential to mitigate the environmental impacts of the health sector. The need to do more with limited resources is widely recognised as crucial to the future of health systems: the recent Global Action Plan to deliver SDG3 on health includes a focus on digital's role, and, following a Resolution on digital health agreed by the World Health Assembly in 2018, the WHO opened a Department of Digital Health in March 2019.
5. It is also a time of huge opportunity, with the rapid expansion of internet and mobile coverage in LMICs. The Pew Research Centre found in 2014 that South Africa had 89% mobile phone ownership (the same as the US) and 65% in Uganda. India is the fastest-growing telecoms market in the world, with 26.2 smartphone users per 100 people in December 2018 (up from 5.5 in 2013). In LMICs, *'to catch up is no longer enough'*, as the burden of NCDs threatens to overwhelm health systems even in high-income countries. And the digital space is an example of how this can be done: many LMICs have moved directly from no telephone access to mobile technology, leapfrogging the need for landline infrastructure. The same radical change is needed in NCDs.
6. The range of ways in which digital can be used to improve delivery of health and wellbeing includes:
  - empowering patients and healthcare providers to better manage health conditions, including facilitating task sharing;
  - provision of real-time data;
  - improved storage of and access to information about patients' own health;
  - access to affordable, quality medicines;
  - triaging information to steer patients to alternatives to face-to-face appointments with health professionals, where appropriate;
  - better support for carers;
  - the potential for significantly improved diagnosis and prescription; and

*“Digital health is not exceptionalism any more. It’s already happening – and what matters is doing it better.”*

- information-sharing and health education – including acting as a platform for people living with NCDs to share experiences on social media.
7. Digital health has a role to play across the whole NCD spectrum – from primary prevention (which is often neglected – for example, accounting for less than 1% of health spending in India) through diagnosis and referral, clinical support, self-care, treatment, training, patient follow-up (including compliance monitoring), reporting and surveillance. It can also assist with emergency preparedness in regions where humanitarian emergencies are anticipated. Digital health solutions are sustainable if they fully integrate IT and health, they are scalable and they are financially viable.
  8. Universal health coverage aims to ‘leave no one behind’ – which includes groups with the least access to digital tools: equality is a key consideration. Older people, for example, are both the most susceptible to NCDs but also among the least likely to be willing to adopt new technologies into their care pathway. Also, it is wise to guard against systems in which the poor receive only online advice while those on higher incomes can be triaged to face-to-face appointments.
  9. Finally, rather than positioning digital health as a single silo within health care, it is more helpful and accurate to see this as being about delivering good health and wellbeing in a digital age: digital is an intrinsic part of the changing global environment in which individuals live and organisations operate.

## **Enablers and barriers**

### **Enablers of success**

Success in digital is when there is wide uptake of a solution, where it is minimally disruptive, effective (and demonstrably so) and affordable (whether defined in terms of money, time, training). Enablers of success discussed at the dialogue include:

- strong, visionary leadership – for example, an inter-ministerial committee to oversee and guide processes;
- effective intersectoral collaboration and partnership – both between government ministries and across public/private sectors and civil society – with clear rules of engagement, transparency and accountability;
- civil-society advocacy, including making use of champions who can act as agents of change;
- promoting demonstrably evidence-based solutions beyond pilots;
- provision of a digital ecosystem that allows innovation, but that is balanced with standards of interoperability and privacy;
- investment in capacity-building, spanning technology, change management, communications, and understanding of how users engage with digital solutions;
- co-creation of solutions with the intended target group, to ensure solutions are demand-driven, genuine need is addressed and shared ownership promoted;
- buy-in from health professionals and people living with NCDs;
- being able to demonstrate better care for patients, including improved access to more timely diagnosis, and effective treatment and prevention options;
- feasibility testing, careful monitoring and evaluation, built in from the planning stage and adequately resourced;
- horizontal integration of surveillance, diagnosis and management of other disease areas (such as infectious disease or maternal and child health)
- synergistic working with other, overlapping agendas – such as climate change; and
- localisation of behavioural solutions, mode of delivery and information.

*“Most stakeholders from the developed world tend to think that digital health should be disease-specific – but it needn’t be. We have a real opportunity to do things differently.”*



*“We need a strategy for compassion in the digital age.”*

*“Public funding should be held back until we have a clear direction that protects the poor.”*

*“Fragmentation is a reality – but if you let the nationals lead the process, it will work better.”*

*“Wonderful programmes are being hamstrung by connectivity costs.”*

*“We need to focus on the return on investment for the person using the software: investment not of money but of time.”*

### **Case study: e-health in Uganda**

The e-health policy in Uganda was initially developed to tackle HIV/AIDS, and now provides strong outbreak preparedness and response (driven primarily by fears of an Ebola outbreak) and delivery of maternal and child health services through use of SMS and call centres. ICT is also used to link health care providers in Uganda to centres of excellence abroad for diagnostics. However, the system is not specifically designed to include NCDs, and donor funding for ICT focuses on infectious diseases. There is limited financial and human resource capacity to expand into NCDs – and consequently a need to ‘build a movement calling for NCDs and digital health to be prioritised as a public health emergency’.

### **Barriers to progress**

Barriers to progress in digital health discussed at the dialogue include:

- privacy concerns: where do data reside, who has access to it, can individuals see their own data, and can patients restrict the monetisation of their health data?
- lack of trust of both health professionals and people living with NCDs (such as a fear of the dehumanising of patients);
- lack of regulatory capacity, which can lead to digital stasis: governance, regulation and accountability all need to keep up (as far as possible) with the rapid pace of change in the digital/AI space;
- (in)equality and exclusivity;
- there is a plethora of tech – ‘poly-appery’ – with little guidance on how to assess and choose between appropriate digital solutions;
- a lack of national evaluation frameworks for tech designers to help them to understand where solutions are needed and on what evidence they should be based – and nor are there systems of endorsement for successful interventions – which can lead to fragmentation of approaches;
- unreliable power supply and limited connectivity to mobile/internet networks;
- cost: coverage in remote areas can be both patchy and prohibitive, and smartphones themselves are not cheap;
- limited resource capacity to adopt projects to scale;
- already overloaded health professionals;
- limited understanding about NCDs among the public, media and government; and
- ‘use of tech for bad’ – for example, health care insurance providers providing a health app and then risk clustering insurance holders.

## Partnership

### Case study: Be He@lthy Be Mobile

Be He@lthy Be Mobile (BHBM – <https://www.who.int/ncds/prevention/be-healthy-be-mobile/en/>) was established by WHO with the ITU in 2011 to address NCDs and digital health at a time when there was little in this space. It is not an app or a single solution; rather, it is an ecosystem that works with stakeholders (governments) to establish in-country programmes.

For example, a BHBM-supported programme in Senegal was developed to address diabetes management during Ramadan (a month in which diabetes hospitalisations are high); however, it was so successful that there were calls to continue it beyond Ramadan, and it was extended to all-year support.

### Main points of discussion

10. Within global health and international development, there is significant emphasis on the need for partnership, including public-private partnerships – for example, in the SDGs (e.g. SDG 17). However, even where intentions on both sides are good, there can be issues around the lack of a common language and articulating return on investment (ROI) in a way that gets traction from all partners, particularly as the time horizons of a private company (a few months) and public health (years or even decades) within which returns need to be demonstrated are very different. Full discussion and mutual understanding are important, the incentives for involvement need to align, and ‘the competitive streak left at the door for a good public-good outcome’.
11. There are few forums in which different sectors of society can come together, but one example has been the Broadband Commission for Sustainable Development, which brings together government ministries (IT, comms, education, health, labour etc.) and industry executives to accelerate the reach of broadband and use it to fulfil the SDGs. Besides its 2017 report on the call for leadership in digital health, the Commission’s Working Group on Digital Health published a report in 2018 on *The Promise of Digital Health: Addressing Non-communicable Diseases to Accelerate Universal Health Coverage in LMICs*. This report described the main building blocks for countries to realise the potential of digital health to address the needs of NCD patients.
12. Potential partners in digital health include:
  - national and local governments – for whom data and cost-saving are essential;
  - health-care professionals and people living with NCDs – the end users of the digital solutions;
  - the private sector – pharma, mobile companies and tech companies (including IT developers with the expertise to design solutions);
  - multilateral agencies such as the WHO (e.g. the Be He@lthy Be Mobile initiative) and World Bank (which supports in-country development goals);
  - regulators;
  - academia – to help co-produce and evaluate digital innovations (although guarding against ‘pilot-itis’ and the siloing of specific initiatives) and to instil a passion among each generation of students (including those studying IT, tech and design) for combining digital and health in their future careers;
  - employers – who are often also interested in NCDs among their workforce; in LMIC settings, some workplace health programmes were implemented to tackle HIV/AIDS and have since been extended to include NCDs; and
  - civil society.

13. Personal relationships between stakeholders in a partnership are key: trust is built through transparency and open communication, and mutual respect can help to create a common space for discussion. And a good place to start to plan digital health into NCDs nationally is to look at any national NCD strategy, identify how digital health can be embedded, and how a range of partners can support this.

## Data

### Case study: Personalised health

The Ada Health app (<https://ada.com/>) was originally designed as a clinical decision support tool, with a patient-facing version coming onto the market in 2017. It works as 'pre-diagnosis' (with 80–90% disease-detection accuracy), steering people away from unnecessary visits to health professionals and identifying complex groupings of symptoms; it is supported by a team of 60 in-house medical professionals. There are currently 8 million users (a third of whom are from LMICs), and there have been 15 million health assessments so far across 140 countries. The depersonalised, real-time data that it produces can help governments to better allocate resources.

### Case study: Tackling hypertension in India

The Simple app (<https://www.simple.org/>) has been developed by Resolve to Save Lives in partnership with the India Hypertension Control Initiative, national and state government and WHO. It gathers longitudinal data on blood pressure, on the premise that collecting even a small amount of information can create beneficial feedback loops (for example, showing what works for a single patient, how an individual hospital is performing, and what improvements can be made at regional level). It is currently used by 160,000 patients and will be deployed in further pilots across India and Bangladesh early in 2020.

## Main points of discussion

14. The need for adequate data underpins decision-making at every level of the health system – but often there is a paucity of data (particularly longitudinal data) about NCDs and their risk factors, which makes it challenging to make an NCD investment case, including in digital health and NCDs specifically. A forthcoming review of impact evaluations by the World Bank in digital health is giving an emerging picture of substantial evidence gaps. Evaluations tend to focus on measuring behaviour change (a soft outcome), outputs (such as the number of texts sent in an initiative) and therapeutic improvements; there is little focus on quality of care and even less on quality of life.
15. The need for more data must be carefully balanced with the time and effort taken to collect the information, whether recorded on paper or electronically: if a health professional is seeing 50 patients a day, there is not the time to fill in a long online form without sacrificing the opportunity to see more patients (which is likely, in turn, to result in lost income). 'Content is king!' – indicators must be only those that are optimal for the setting.
16. Self-care solutions, which can be facilitated by digital technology, can provide a plethora of data and remove the burden of capturing it from health professionals.
17. There is also a practical and ethical challenge around the use of personal health data in developing AI-based solutions: in order to access this data, a solution should be proven to work – but the AI solution itself cannot be tested without access to the data.

*“Select the core indicators and forget the rest – and do small samples to check that you are getting what you need.”*

*“We need to be ruthless. This is not about what data might be interesting – it's about what's needed. Don't overburden the clinician – they aren't interested in collecting data just so a bureaucrat can use it!”*



*“There is no a priori case that digital tech is good!”*

### **The value(-added) of digital**

‘Value’ can be defined in many ways – financial, social, clinical, ethical and legal – and will vary between different groups of stakeholders (people living with NCDs, health professionals, government, academia etc.).

- Measuring value is challenging – but is already being taken into account in Health Technology Assessments (HTAs) processes in the Philippines, an example that could be learnt from and extended into the digital space.
- Actively listening to people living with NCDs (including on social media) – such as through the NCD Alliance’s Our Views Our Voices initiative – will give valuable insights into what patients themselves most value, and how digital can help (for example, improving personalised approaches to health care).

Identify synergies and create shared value:

- There may be opportunities to pool resource and funding by identifying collective goods of relevance to NCDs (such as electronic health records, lab capacity and surveillance) and other areas where there are co-benefits (such as climate change).
- National social-security systems are spending vast amounts of resource on NCDs and their consequences – but better prevention would save money in the future. Digital solutions could help to collect the data that is needed to make this investment case to social security ministers.
- If mobile operators could be persuaded that less spending on tobacco and alcohol will leave more disposable income for spending on tech and mobile phone credits, they might be interested in providing free support for risk-factor programmes.
- Mobile operators may also be willing to consider including free SMS messaging or access to specific social media platforms as part of their CSR portfolio – or through providing free messaging as a way of building brand loyalty.
- Local partnerships – such as with a local pharmacy – can also drive shared value.

## **Resourcing and sustainability**

### **Case study: Making the ROI case on hypertension in Mongolia**

Mongolia’s haemorrhagic stroke mortality is the highest in the world (around four times higher than the global average), largely because of poor hypertension control. A study suggested that investing in hypertension would lead to an ROI of 22:1 – and when this was presented to the government, a 15% increase in funding was agreed. Work on hypertension is also ongoing through the Better Hearts Better Cities, a Novartis Foundation initiative to improve cardiovascular health in low-income urban populations.

### **Main points of discussion**

18. The lack of financial resource for NCDs is well documented and striking: only around 1–2% of development assistance for health is currently allocated to NCDs, even though governments in most LMICs recognise that NCDs are an urgent priority. Donor assistance is itself not a sustainable source of funding for long-term, chronic conditions, but it can provide catalytic funding for digital health. Part of the reason for the lack of financing is that some still, erroneously, see NCDs as being about personal choice, that people with NCDs are ‘less deserving’ of funding than those with infectious diseases, despite the evidence that major drivers of NCDs are genetics and the environment, over which

individuals have no control. There is, however, significant money in digital health - \$6.5 billion was invested in it in the United States in 2014.

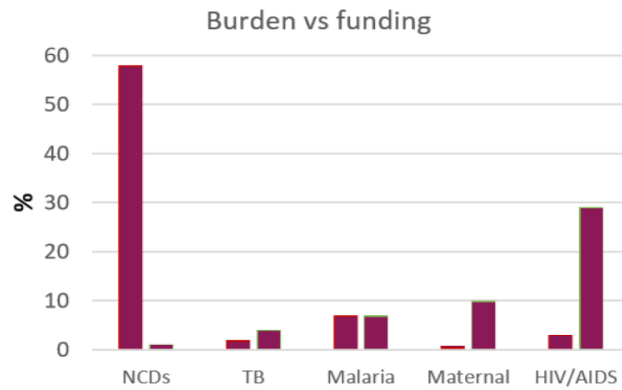
*“Just by virtue of investing in NCDs you will grow the [broader economic] pie, because this will stop the drag on GDP.”*

## NCD Dynamics



### An Underfunded Response to NCD Disease

**Despite its high portion of the overall global burden of disease, only 1% of global health funding is dedicated to preventing and controlling NCDs**



NCD funding has grown by 8.2% annually since 2000, but the overall proportion has remained steady at 1-2% of global health financing

*“If we can show that we can save money through prevention and detection then we can crowd-in finance.”*

19. Making the business case for action is crucial. For example, a recent study from India suggests that failing to act on NCD prevention and treatment is causing a 5% lag in GDP growth each year – the equivalent of a recession. So, rather than calling for a greater share of limited health funding for NCDs, a positive approach is to demonstrate that tackling NCDs will bolster the economy as a whole.
20. There is a need for more and better economic and impact evaluations to give confidence to governments that this is a good investment. And results-based financing is becoming more prevalent in the digital health space – the providers want to be able to show value and base their costs on the resulting savings. There may be added hesitation in investing in digital health because of the opportunity cost of setting up an intervention that may fail.
21. New funding models are being developed, such as innovative insurance instruments that can formalise out-of-pocket expenditure to address access to care, demand and cost containment, driven by mobile technology. Bundling insurance with a benefit (such as healthy food discounts) can stimulate demand for the package.

## Interoperability

### Main points of discussion

22. The need for interoperability is one of the primary messages from the Broadband Commission report on digital health in LMICs. There are different levels of interoperability: between organisations and their vendors/partners, and also between different initiatives. There are many different standards currently – and consideration should be given to what is necessary for each environment or solution. Even where populations currently have little access to smartphones, it is wise to consider the building blocks of future interoperability now.
23. Many governments will not have the technical expertise to develop standards at national level, so international assistance will be required. Estonia and Finland are two of the most advanced nations in digital health.
24. It is also essential to be pragmatic – to develop standards that will work with existing systems, which can then develop over time. Caution was also noted about some aspects of standardisation – for example, in South Africa a near-monopoly has been created for

*“We need standards – but there is a problem with being really slavish to interoperability concerns rather than being interoperable with the existing system!”*

the organisations that have demonstrated compliance with new standards: interoperability and certification of solutions should not come at the expense of innovation. Interoperability may also have the consequence that a small number of large companies hold all our health data – which may be more efficient but raises privacy concerns and could be used (for example) to exclude entirely those who are at higher risk.

## Development of digital health solutions

### Feature-phone health service delivery in Rwanda

Babylon Health’s service Babyl (<http://www.babyl.rw/>) is offered in Rwanda, following an invitation from the Rwandan government (known for its interest and work in digital solutions). The company worked closely with ministers of health, ICT and the President’s Office in introducing Babyl, which has now been on offer for three years and currently has 2 million users (out of a population of 12 million) and is available through non-smartphones (feature phones). Services include booking appointments, paying fees, SMS confirmation of appointments, issuing prescriptions and ordering lab tests, and seven-minute phone consultations between doctor and patient. It is fully integrated into 450 health facilities, which report that they are now able to prioritise the more urgent cases. Initially funded by the Gates Foundation, the government will soon sign a contract to provide Babyl as part of its commitment to universal health coverage.

*“I see presentations all the time on new approaches, and it’s challenging to triage which are fit for purpose. It would be great to develop standard metrics to assess which work.”*

### Main points of discussion

25. The effective use of digital depends on the design and implementation of the initiative: creating simple software that is simple and fast is really challenging – it must be easy to use and require minimal training. The best chance of success comes through co-creation with users (health professionals and patients) and designing the tech locally. This ensures that, for example, regional disease prevalence and accurate translation are taken into account. It can also identify potential problems and simple solutions – for example, masking the phone number from which a clinician calls a patient on a mobile phone ensures that the health professional will not receive unsolicited call-backs from patients at inconvenient times.
26. The impact of digital solutions can be enhanced if opportunities are sought to link together existing apps, rather than continually creating new tools. There is such a plethora of solutions that it is hard to identify which are effective – if an app makes claims, these should be evidence-based, and some form of authentication label could be helpful (e.g. from the WHO or the Ministry of Health)
27. Finally, where digital enterprises fail, how can the security of personal data that has been collected by the digital platform be best ensured?

*“In community settings, empower the patients: they are the experts”*

### Case study: Patient retention app

In western Uganda, Primary Care International and LifeNet piloted an app to improve retention in care of NCD patients through automated reminders of health appointments. Half of patients in the 2,000-strong cohort were sent reminders and half were not. Retention in care among the messaging group was 84%, compared to just 33% in the group not sent reminders – enabling better management of NCDs and preventing costly escalation.

*“It’s very clear that technology can and will play a key role, but we shouldn’t see*

### Main points of discussion

28. Health care and support needs to be brought to the places where people need it – in communities, schools, homes and workplaces. Primary health care (PHC) is the entry point into formal health systems, and is well placed to provide preventive services and early diagnosis, delivered in communities and homes to support self-care. It is more equitable, accessible and cost-effective than providing care in hospitals, and is a priority

*digital solutions as the silver bullet for struggling health systems. We have to remember that digitising poor processes won't "cure" them. First we need to get the process right.'*

for WHO. NCDs, however, are not always fully integrated into PHC in LMICs. Digital can play an enabling role and support a move to multi-disciplinary teams – albeit with caution, as poorly designed processes can be confusing to implement and add to work burden.

29. Most healthcare is self-care, particularly in LMICs, so it is there that there is the most to gain from effective, accessible self-care that interfaces with the primary care system, including through proven and appropriate digitally mediated interventions.
30. There are also important learnings from existing platforms in other disease areas, which may be open to adaptation and extension into NCDs. For example, work to tackle HIV through primary care can include addressing vulnerability / risk factors and prioritise those who are left behind – and there may be specific initiatives in which NCDs can be incorporated, such as advising sex workers on hypertension and diabetes.

## Humanitarian settings

### Case study: An NCD app for humanitarian settings

The UN Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) has developed apps for maternal and child health, with a solid database embedded in the e-health system. An NCD app will launch in January 2020, which will help patients with hypertension to improve control through monitoring and follow-up, including messaging of health providers and provision of management plans. The app also has a hard-copy back-up that is distributed to patients, so they can record readings and transfer to the app when connectivity is restored.

### Main points of discussion

31. Populations that are affected by humanitarian crises pose specific challenges. There are more displaced people than ever before – 1% of the global population, primarily in LMICs. Provision of consistent, tailored care among people on the move can be facilitated by e-health records that can be accessed across borders in the host country. These must take privacy and data security into account – one programme in Thailand uses patients' iris-scanning to gain access to the data.
32. In unstable settings such as conflict zones or refugee camps, lack of connectivity is a major concern – and companies providing mobile and internet connections should be encouraged to continue to do so even during times of instability. Offline alternatives for data capture (that can then easily be uploaded when connectivity is restored) are advisable.
33. There are also opportunities to blend digital into existing programmes – an example of which is a distance-learning programme run by Primary Care International for doctors in Jordan supporting Syrian health professionals over the border, where access to peer support reduces isolation and promotes good practice, and the use of WhatsApp facilitates mentoring in between the formal learning sessions.

## Advocacy

### Case study: Civil society advocacy in the Caribbean

Prior to a High-level Meeting on NCDs at the United Nations in 2011, the Healthy Caribbean Coalition (a regional NCD alliance) coordinated a regional texting campaign with mobile-phone companies across 16 countries. Texts to government about the importance of NCDs and calls for heads of government to attend were free. 500,000 such messages of support were sent – and the Caribbean had the best level of attendance at the High-level Meeting of any region.

34. Among the areas for civil-society advocacy on digital health and NCDs are:
- advocating across ministries – IT, comms, education, health, labour, social security etc. – and with individual MPs with an interest in this issue;
  - holding policymakers to account and ensuring equity of access to digital solutions;
  - using digital to take a bridging role between citizens and a more health-promoting environment – for example, in facilitating ‘monitoring of the toxic food environment’;
  - advocacy through the media to improve health literacy and build better understanding of NCDs, including the risk factors;
  - making the case for better financing for the NCDs; and
  - the use of personal stories to make the case, including user-driven content on social media.
35. Civil society plays a key role in partnerships, in strategy development (including digital health strategies) and in broader health advocacy – but civil society organisations are often underfunded. This lack of capacity is crucial, as need and solutions are best assessed through the close involvement of civil society, particularly people living with NCDs. There are lessons to be learnt from HIV in how to ‘build a movement’ to take this forward.

### **National case study: Vietnam**

#### **The in-country situation:**

- NCD data is fragmented and data systems are not interoperable – for example, data is kept at individual health centres and is not connected to the national health data centre. Health facilities have not focused on the use of smart technologies.
- An electronic health record system and an electronic health statistics software have been piloted and are due to be rolled out from 2020, and legal frameworks for e-health have been improved.
- Other priorities include developing a disease prevention system (covering NCDs as well as infectious disease) to collect and analyse data, and to introduce regulations on health identification ID for individuals.

Key takeaways from the meeting, which will be fed back to the Prime Minister / Health Minister:

- High-level government commitment to policy on digital health is essential.
- A robust national action plan is essential for successful implementation – the current action plan for Vietnam could benefit from being reviewed.
- Digital is not just a tool: it is a platform for every aspect of health-system reform.
- The private sector should be involved.
- Sustainable financial/human resourcing is required.

The support and involvement of those at the Wilton park dialogue would be warmly welcomed.



## Areas for action

36. Every participant at the dialogue has a role to play, whether as academic, civil-society representative, technology expert or policymaker. Each of us must address the problem statement in our own countries and organisations – and contribute what we can. A call was made to reconvene in 2020 to report back on individual and collective contributions and to continue to foster the valuable relationships that were seeded at the meeting.

37. Among the specific calls for action were:

- to identify a mechanism through which organisations with an interest in NCDs and digital health – including participants at the dialogue – can work together to aggregate requests for functional specifications and collectively negotiate with industry. This would give significantly more negotiating power than can be achieved by individual organisations;
- sharing new business and financing models such as innovative health insurance models to support digital health innovations. Along with this, data showing the economic and societal impact of prevention and detection of NCDs is required, with a first step of understanding who needs to work together to capture and apply such data to support business cases for digital health strategies.
- a request for a clear statement on what it is that the private sector should do. Companies want to create impact, but would like to see countries clearly defining their priority needs where the private sector can support.
- suggestions for academic reviews:
  - I. build on work currently being undertaken at the World Bank on the evaluation of digital health interventions to produce an in-depth study comparing a number of selected digital interventions that specifically tackle NCDs; and
  - II. a systematic review to look at the impact of digital solutions – including estimating the percentage of apps or other tools that are found to be effective;
- to consider developing:
  - a values framework to show the perceived benefits of digital health and NCDs from the perspective of a range of stakeholders;
  - a list of the different existing evaluation frameworks for digital tools, to enable governments to assess the value of the solutions (in whatever way ‘value’ is defined); and
  - a knowledge repository of existing learning in this space, including of meetings and conferences of relevance to the topic and key documents (including, for example, those listed in Selected Sources below);
- to work with Digital Square to make a strong case for the inclusion of NCDs as a higher priority in the global digital goods and frameworks that it produces ;
- to trial some of the frameworks: take a specific NCD challenge and apply existing evaluation frameworks to apps chosen from Digital Square to assess whether the frameworks are helpful in decision-making. Digital Square is a partnership of the world’s leading digital health experts from 40+ organizations and countries working together to strengthen digital health systems in emerging economies.

**Katy Cooper, independent consultant in NCD prevention, London, UK**

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## **Digital health toolkit**

At the dialogue, we interviewed a number of participants asking for their experiences in using digital health to address non-communicable diseases in Low and Middle Income Countries, exploring the potential, the challenges and the opportunities which they had faced.

Please see below the individual interviews: all the interviews can be accessed via this [playlist](#).

[Dr Monika Arora, Public Health Foundation of India](#)

[Helen McGuire, PATH](#)

[Dr Ngo Quang Nguyen, Ministry of Health, Vietnam](#)

[Dr David Okello, African Centre for Global Health and Social Transformation](#)

[Professor David Peiris, The George Institute for Global Health](#)

[Sameer Pujari, World Health Organization](#)

## **Selected sources for additional information**

Broadband Commission for Sustainable Development, Working Group on Digital Health, *The Promise of Digital Health: Addressing Non-communicable Diseases to Accelerate Universal Health Coverage in LMICs* (2018)

<https://www.broadbandcommission.org/Documents/publications/DigitalHealthReport2018.pdf>

NCD Alliance, 'Working document: Realising the promise of digital health for NCDs and UHC: what is the opportunity for civil society?' (2019)

<https://ncdalliance.org/resources/realising-the-promise-of-digital-health-for-ncds-and-uhc>

Pew Research Center, 'Mobile divides in emerging economies' (2019)

[https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2019/11/PG\\_2019.11.20\\_Mobile-Divides-Emerging-Economies\\_FINAL.pdf](https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2019/11/PG_2019.11.20_Mobile-Divides-Emerging-Economies_FINAL.pdf)

WHO, Be He@lthy Be Mobile initiative <https://www.who.int/ncds/prevention/be-healthy-be-mobile/en/>

WHO, 'Factsheet: Noncommunicable diseases' (2018) <https://www.who.int/news-room/factsheets/detail/noncommunicable-diseases>

WHO, *Global Action Plan for the Prevention and Control of NCDs 2013–2020* (2013)

[https://www.who.int/nmh/events/ncd\\_action\\_plan/en/](https://www.who.int/nmh/events/ncd_action_plan/en/)

WHO, *WHO Guideline: Recommendations on Digital Interventions for Health System Strengthening* (2019) <https://www.who.int/reproductivehealth/publications/digital-interventions-health-system-strengthening/en/>

