UK Government

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Landscape study of digital health developments in non-communicable diseases (NCD) care during COVID-19 across Southeast Asia

Overview

The COVID-19 pandemic resulted in significant disruption to the delivery of health services in Southeast Asia, as is the case globally. Although all health and disease areas have been affected by the pandemic in some form, **non-communicable diseases (NCDs) appear to be one of the most severely affected areas of healthcare, particularly in Southeast Asia.** The screening, diagnosis and treatment of NCDs was noted as the number one service backlog area across the WHO Southeast Asia region, as of January 2022.

While the transition to digital health services during a pandemic represents a significant shift, there is limited data and analysis relating to the transition - both in Southeast Asia, and globally.

We conducted a landscape study over Jan-Mar 2022 comprising a literature review and 20 stakeholder consultations (multilateral organisations, professional and industry associations, academia, policymakers, regulators and planners, and digital health intervention users), to draw some broader trends, conclusions and lessons from the data available, to consider developments in Southeast Asia that may be of wider relevance.

We primarily focused on four countries - Malaysia, the Philippines, Thailand and Vietnam - with some additional consideration of leading practice examples from the Asia-Pacific region (including Singapore, China, India and Indonesia).

Key highlights from our analysis
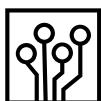
Countries with more mature digital health systems had a higher number of digital health interventions relating specifically to NCDs. Malaysia recorded the highest number of digital health interventions relating to NCDs, followed by Thailand and the Philippines.

The highest number of relevant interventions targeted diabetes. Many of these related to remote glucose monitoring, which was relatively well established as a digital health tool prior to the pandemic. This finding is consistent with a study by the WHO on telehealth interventions in Southeast Asia, where it was found that the majority of studies reviewed (on telehealth interventions during the pandemic in Southeast Asia) also related to diabetes.

The vast majority of NCD-related digital health tools identified existed prior to the pandemic (as opposed to being developed during the pandemic). While it may seem that theoretically, the pandemic has proven fertile ground for the development of new digital health applications (given increasing demand) - in reality, typical barriers to entry (including regulation, the competitive landscape, user testing etc.) are likely to have remained, rather than reduced.

Providers and patients quickly pivoted to using social media for telehealth, showing that familiarity and useability were key uptake. Users pivoted to social media app such as Facebook Messenger, LINE, Viber, Zalo for appointment scheduling, teleconsultations, broader communication with clinicians (e.g., by chat) and e-Prescriptions. Due to their extensive reach and ease of use, these were highly successful in terms of user uptake.

Most of the tools identified were directed at both the 'inform and communicate' stage and the 'intervention' stage (the latter including diagnosis, treatment and monitoring). These correspond to Tier B and Tier C of the NICE Framework respectively*. This reflects the fact that an important objective of many digital health interventions during the pandemic was to simply enable communication between the clinician and patient - overcoming the challenge of being unable to hold in-person consultations.

There are significant barriers to replicating digital health tools across borders - including regulation, infrastructure and provider incentives. Some of these challenges also provide a significant barrier to replicability within a particular country, particularly in a decentralised health system (for example, within the Philippines).

*Note: The study focuses on Tier B and Tier C of the NICE Evidence Standards Framework (ESF) for Digital Health Technologies (DHTs). The ESF is designed to be complementary to existing guidance and regulations on relevant standards for DHTs.

Vietnam

Growing focus on the digitisation of healthcare, with various digital health intervention apps developed both by the public and private sectors

Lessons learnt:
- Physical visits to healthcare facilities appear to still be the preferred method of care for patients with NCDs.
- While there has been development and use of new digital health tools, some key challenges remain, including:
  - standardisation in the digital ecosystem and application (e.g., fragmentation of information in different systems/applications which cannot promote a unified decision making or policy);
  - investment to upskill the healthcare providers and the public towards the use of digital tools;
  - Geographic disparities (most of the digital health tools developed by the private sector are targeted at users in the city or urban areas);
  - information quality disseminated from social media: some instances of public users creating inaccurate 'information' for page traction and following has been observed, building on the current concern of the public for COVID-19 and NCDs. This type of inaccurate information is a serious problem as it may not come from a professional healthcare provider and undermine the credibility of certain online platforms.

Thailand

A successful integration of digital and non-digital measures to support NCD patients in the Pakkred district, limiting COVID-19 risks

Lessons learnt:
- Collaborations between healthcare stakeholders together with careful planning to integrate digital means (social media LINE, teleconsultation, virtual booking, etc.) and non-digital means (consolidation of in-person services to one physical area) resulted in an effective way to maintain continuity of NCD services.
- Community health volunteers (CHVs) had played an important role in maintaining continuity of healthcare services, even where movement restrictions are in place.
- The elderly are a particularly challenging patient group for adoption - some patients in rural communities have difficulties in using smartphones, no access to digital devices and/or have limited digital skills to use them.
- Internet connectivity was a challenge - although the government supplied internet hot spots to all villages in Thailand, the hot spots were not able to cover every household.
- Lastly, there is data fragmentation across the local government units and lack of EMR data integration from the hospitals.

Philippines

A decentralised health system meant that NCD-related digital health responses varied significantly between different regions, and between the public and private sector

Lessons learnt:
- Approaches to policy implementation and regulations vary per local government (e.g., cities, municipalities, rural provinces). This is a predominant challenge as the differences in strategy rollout across LGUs in both public and private healthcare affected how they adapted and responded to the need to provide continuity of care for patients with NCDs.
- Other significant challenges included the lack of reliable internet connectivity and logistics (e.g., procurement of computers, smart devices that cater to digital health applications).
- In some metropolitan areas, access to digital healthcare tools and self-monitoring devices made the gap in social status more prevalent - setting up a clear divide between those who can access these digital services and those who can not.
- While there is greater adoption of digital health technologies by the private health sector in the Philippines at the moment there is certainly an appetite by public health policymakers, planners and providers to adopt digital health tools at a more systematic level - particularly if resource, upskilling of healthcare workers and regulatory challenges could be overcome.

Malaysia

A relatively mature digital health ecosystem, where the public and private sectors were able to adapt rapidly

Lessons learnt:
- The integration of teleconsultation services into the Government's primary COVID-19 contact tracing app (MYSejahtera) facilitated the uptake of teleconsultation services.
- As Malaysia was starting from a strong base in terms of Electronic Medical Records (EMRs), digital health interventions were able to be more rapidly developed or scaled up.
- Affordability of data and digital devices is of concern - with the increased dependence on digital technologies due the pandemic, this could potentially worsen the existing disparities of digital access in disadvantaged patient groups.
- Since digital technologies are likely to remain at the centre of healthcare delivery, the digital divide is a persistent issue that needs to be addressed.

Looking to other major countries in the Asia-Pacific region, it is clear that many successfully supported the rollout of NCD-relevant digital health interventions at a large scale - enabling continuity of care for NCD patients during the pandemic.

The examples considered below also indicate a positive outlook for continuing these developments in the future, particularly where they are well integrated into the public health system.

China

Digital health technologies played a critical role in preserving continuity of healthcare services in China, with rapid growth in telemedicine.

- During the pandemic, **NCD patients (with co-morbidities) were hesitant to go to hospitals for check-ups**. The Chinese health authorities responded to this situation by **promoting telemedicine services**.

- China's leading telemedicine platform, **Ping An Good Doctor** uses a combination of "mobile medical and AI technology" and **provides 24/7 medical services from online consultations to online drug purchases and deliveries.**

- As a result of the COVID-19 outbreak, there was a **20x increase in diagnoses and 10x increase in prescriptions on online healthcare platforms**. As of October 2021, the platform has over 400 million users and cumulative consultations were almost 1.2 billion.

India

India provides a leading practice example of an existing, NCD-focused digital health tool, which was able to scale further and successfully during the pandemic.

- **DigitalLife Healthcare** is a cloud-based mobile, web and analytics solution to manage NCDs at scale by digitising health records and supporting HCWs with population-based screening programmes. **It is a public-private model** by Dell, in collaboration with the Ministry of Health and Family Welfare, National Health Systems Resource Centre and Tata Trusts.

- **The platform helps healthcare workers** – from auxiliary nurse midwives in rural areas and villages to doctors in urban hospitals t**o screen, diagnose, manage and track NCDs at multiple levels.**

- The solution is **integrated with the government's NCD IT system** and has grown from 58,000 enrolled in late 2018 to over 100 million as of August 2021.

Indonesia

With a low physicians-to-population ratio (0.38:1000) and hospital beds-to-population ratio (1.49:1000), there has been significant pressure for the Indonesian government to meet healthcare demands during the pandemic.

- **The government is actively directing the public to the links of telehealth services** from its virus task force website, including startups such as **Halodoc** and **Alodokter**.

- Halodoc (which offers medicine delivery together with virtual consultation) had 12 million monthly users prior to the pandemic. **In May 2021, it has over 20 million monthly active users, with 20,000 doctors and 4,000 pharmacies**.

- Alodokter has a **network of more than 30,000 doctors and has partnered with more than 1,400 hospitals and clinics.**

- Major hospitals follow suit as they launched their own teleconsultation services.

Singapore

During the "circuit breaker" in Singapore, all medical practitioners were asked to defer non-essential medical care resulting in missed opportunities on screening and early detection, particularly for cancer.

- To ensure screening services continue during the "circuit breaker", the SingHealth Patient Advocacy Network has worked closely with the Singapore Cancer Society to **introduce alternative screening methods.**

- Singapore has **leveraged telemedicine as a response to the disruption of healthcare services**. The government provides subsidies and a **national medical savings plan (Medisave) to pay for video consultations of approved chronic diseases**.

- Healthcare institutions from the **SingHealth group have rolled out teleconsultation services for NCD** patients.

Common success factors across tools for successfully expanding and supporting digital health delivery in Southeast Asia

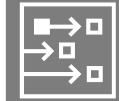## A strong product or service which existed prior to the pandemic, at a reasonable scale

✓ Well-established services appeared better able to adapt to the pandemic situation and to scale further.
✓ Related to the high of existing users, maturity of operations and knowledge of the market, as well as the flexibility to trial new add-on services with a diverse (existing) user base during the pandemic.

Multiple channels or end users

✓ Expanding the reach of Digital Health applications not only to end-user patients, but also to healthcare providers, insurers and employers (while providing a tailored service offering to each via an integrated platform).

Ability to adapt their service delivery model

Successful interventions were able to either
✓ add further services (e.g., e-prescription services).
✓ ensure more of an end-to-end experience for patients.
✓ or to adapt their service delivery model to include a combination of in-person and digital services.

The right enabling environment - in terms of policies, regulations and incentives

As these could be complex and may vary significantly between public and private sectors, as well as across countries
✓ The possibility of leveraging on existing Social Media platforms to increase healthcare reach during lockdowns.
✓ Incentivising the use of Digital Health tools to make it more appealing to healthcare workers (who receives higher fees from face-to-face consultations).

Key lessons learned & recommendations from three main perspectives

Sustainability

Our findings show that while there are strong prospects for telemedicine applications and platforms to continue to be used at scale in a non-pandemic context, the continued use of social media platforms for these purposes may face multiple challenges. These **challenges** may include: **a) patient preference and demand; b) provider preference and demand; c) government policy and regulation; d) cost; e) convenience; and e) level of complexity of the particular service.**

Private companies, who led the development (or re-development/repurposing) of digital health tools, may look to partner with government health ministries and public health providers to gain reach and traction nationwide as well as additional support for innovation and research (to further improve the tool and make it sustainable for use in the long run).

Transferability

Several of the telemedicine platforms identified in this study were already present in various SEA countries prior to the pandemic. For the platforms which were only present in one country, some developers expressed an ambition to expand to other countries, but noted this was challenging during the pandemic due to the constantly changing policies, regulations and restrictions within and across countries.

It is expected that some of these developers will continue to look at **scaling their solutions** outside of their immediate country or outside of SEA, and these are **factors** that may be relevant in those decisions: **a) regulatory environment for telemedicine delivery; b) policy and enabling environment; c) competitive environment, and d) user preferences.**

Future pandemic preparedness

Future pandemic preparedness remains an important priority for South East Asia, as it does globally. The following key observations can be made to **support greater continuity of NCD care** through digital health interventions in a similar pandemic situation: **a) a robust EMR base and Unique Health Identifiers are critical enablers; b) scenario planning for regulatory adaptations can provide flexible options; c) leveraging on existing digital health tools with the appetite to reinvent and repurpose the application for a new focus; d) digital health awareness and upskilling for healthcare practitioners and the general public, and e) proactively putting in place measures to address the spread of health-related misinformation.**

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