Digital Health in the Aftermath of COVID-19

By Ankita Sharma
Strategic Investment Research Unit, Invest India
The COVID-19 pandemic has brought to the forefront the critical need for cutting-edge technological tools and innovation in the areas of public health, medicine and wellness. It has reopened the realm of ‘digital health’ in the policy and public discourse, with consumers increasingly looking at the wide canvas of wearable gadgets, mobile health apps and Artificial Intelligence (AI), as well as robotic carriers, sensors and electronic records.

As the health responses to the pandemic are strengthened, there is a tangible shift in the erstwhile focus of apps and hardware from lifestyle enhancement to medical and emergency care. This may be possible with new innovations in hardware and software such as sensors and other potentially life-saving functionalities.

It can safely be said that in the run-up to the future, holistic technology and data-driven overhaul of present-day digital tools is in the offering, allowing patients to have greater control over their health and medical outcomes.
Digital health market

29.6% INCREASE IN CAGR FROM 2019-25

$86.4 Bn

2018

2019

2020

2021

2022

2023

2024

2025

$504.4 Bn

U.S. procured a massive share of the global landscape in 2018

U.K’s industry share by 2025 $28.3 Bn

Germany’s market CAGR (2019-25) 29.8%

Japan’s industry revenue by 2025 $27.4 Bn

DIGITAL HEALTH SYSTEMS TECHNOLOGY SHARE BY 2025: $156.9 Bn

MHEALTH TECHNOLOGY CAGR (2019-25): 38.8%
Experts suggest that the digital health market across the world is likely to witness a massive spike both from the demand and supply sides. Already, digital healthcare companies are assessing capacities and avenues, pursuing evidence-based innovating and developing new technologies across the board, including diagnostic and telemedicine tools, cellphone apps for on fitness, well-being, medical and healthcare, and data-driven software. This impending revolution in the healthcare domain directly corresponds with and builds on the rise in ownership of smartphones and tablets, a sustained push by governments towards digital economies, and the rise in lifestyle-related health concerns.

In India, the government, under the leadership of Prime Minister Narendra Modi, has been actively promoting digitization of the economy to unleash and harness the nation’s collective entrepreneurial spirit. The PM has highlighted the potential of telemedicine in the country. He said, “We are already seeing several consultations without actually going to the clinic or hospital. Again, this is a positive sign. Can we think of business models to help further telemedicine across the world?”

On this front, several companies have come to the forefront in the recent past, with a wide range of tech-driven digital healthcare tools and products. The canvas of national and global funding opportunities to these technologies has also expanded widely. For instance, some media and public reports suggest that Practo Technologies Pvt. Ltd. has raised USD 55 million in Series D round of funding led by Tencent Holdings Ltd., a Chinese investment holding company. A UK-based development finance institution, CDC, has funded USD 48 million in Narayana Hrudayalaya to expand affordable treatment in India. Similarly, Gamma Group, a UAE-based firm is finalizing plans for investing around USD 449.68 million. Other prominent digital health companies that have raised money in India include M-fine (USD 23 million), from four founders of Myntra, Stellaris Venture Partners and Prime Venture Partners, and SBI Investment, SBI Ven Capital and Beenext (all from Japan), and 1mg technologies whose latest Series-C round of USD 15 million came from a group of investors led by HBM Healthcare Investments.

Digital healthcare technologies in India

**Telemedicine**
Medical alert systems, mobile monitoring

**Telehealth**
Remote diagnosis of vital health signs, healthcare education services, blood pressure or ECG, remote patient-doctor consultations

**Video Consultation**
Telemedicine that uses technology to provide real-time audio and visual assessment remotely

**m-health**
The practice of medicine and welfare supported by mobile smart devices

**Wearable Sensors**
Health monitors and pedometers help people track their body functions
At the same time, India’s medical industry has also been backing and accepting digital technologies developed by both public and private players. Supported by the government-led social welfare initiatives such as Aadhaar and Digital India, such technologies and tools have attracted funding support as well as helped foster an ecosystem of digital health start-ups.

However, faced with increasing demand, stakeholders in this space have been grappling with issues such as inadequate digital infrastructure, limited human resources and prospects to scale-up their initiatives and products. All this, while ensuring affordability of their products for the customer, addressing the cost burden on consumers, increasing accessibility to their products and providing quality service.

According to the Future Health Index (FHI) 2019 report

India is leading in the adoption of digital health technology with 76% of healthcare professionals in the country already using Digital Health Records (DHRs) in their practise.

64% of Indian healthcare professionals agree that patients having access to their own health data (including test results, prescriptions, scabs etc.) has positively impacted their patient’s experience.

87% of Indians with access to their digital health record say they want their healthcare professionals to have access as well.

80% of healthcare professionals in India have shared patient information with other professionals inside their health facility.

67% of Indians feel comfortable or neutral about seeking medical advice from their doctor through a health application on the phone, suggesting a high willingness and openness to further adopt telehealth and unlock its benefits.

Lessons from COVID-19 Pandemic

Some of the key learnings from the global responses to the ongoing COVID-19 pandemic are:

- With more than 200 countries under lockdown, governments, healthcare providers, civil society and even citizens across the globe are increasingly shifting to digital media and online space. Responding to the extremely restricted physical access to socio-economic infrastructure, facilities and services amid the pandemic, many stakeholders in the healthcare are looking at flattening the spread of COVID-19 through community-driven contact-tracing technologies. These are also aimed at enabling citizens to adopt and use digital tools and services to receive information
and seek social and medical assistance and support vis-à-vis COVID-19.

- A critical imperative that has emerged for many governments is to support and enable private companies to produce innovative tools en-masse such as facial recognition cameras, drones and sensors that can help gauge a person’s body temperature and medical condition. This is important to allow authorities to quickly identify suspected coronavirus carriers and patients, verify their trail and identify and contain anyone with whom they may have come into contact.

- The need for countries to refocus on ‘preventive healthcare’ as the first line of defense has come to the forefront. This is especially relevant for India with such a diverse and massive population, with disproportionate infrastructure that impacts medical responses to pandemics like COVID-19. Recalibrating healthcare strategies to ‘preventive healthcare’ can help improve physical and mental well-being and productivity of communities, families and individuals, and ease the economic burden on disadvantaged and marginalized groups.

**Why Preventive Healthcare needs Maximum Attention during COVID-19:**

**REASON 1**

![Deaths caused by contagious diseases chart](chart.png)

**Deaths caused by contagious diseases**

**DEATHS BY TYPE OF DISEASES (PER 100,000 POPULATION)**

Source: IHME Global Burden of Disease, 2017
Respiratory illnesses are the deadliest among communicable diseases

SHARE OF DEATHS DUE TO COMMUNICABLE DISEASES, 2018 (IN %)

- Pneumonia: 27%
- Acute Respiratory Infection: 8%
- Acute Diarrhoeal Diseases: 8%
- H1N1: 8%
- Others: 8%
- Acute Encephalitis Syndrome: 8%
- Viral Hepatitis (All Causes): 8%
- Encephalitis: 8%
- Enteric Fever (Typhoid): 8%

Source: Johns Hopkins Center for Health Security
Use of digital healthcare by the Government of India

Aarogya Setu
Mobile app developed by the Ministry of Electronics and IT to help citizens identify their risk of contracting the novel coronavirus.

Telemedicine Practice Guidelines
Ministry of Health and Family Welfare in consultation with NITI Aayog released these to legitimise the practice of remote consultations. Doctors can now provide consultations through video, audio, email or text.

National Heath Stack (NHS)
It is a visionary digital framework with a holistic approach to support healthcare across the nation. The recent NHS study has also aimed for Digital Health Records for all citizens by 2022 to leverage all benefits of telemedicine and E-health for Indian citizens.

National eHealth Authority (NeHA)
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e-Sanjeevani
This app has been shortlisted by the Ministry of Health and Family Welfare for supporting Government's plan for a pan-India tele-medicine rollout.

Covid-19 has seriously impacted the way the world functions, showing that the health of each member of a society impacts that of the other. And without health, it is not possible to create wealth. The current lockdown to fight the pandemic highlights -

• Our digital infrastructure needs strengthening to deal with the impact of COVID-19 and future public health crises
• Better integration of Artificial Intelligence into the public health response should be a priority;
• Analysis of big data relating to citizens’ movement, disease transmission patterns and health monitoring could be used to aid prevention measures.
Trends post-COVID-19

As the world regains its feet after COVID-19, there is likely to be an emphasis on recalibration of public health strategies towards digital tools, especially in the context of preventive healthcare. Most global technology-centered firms are likely to build on the growing consumer appetite on digital health in the context of post COVID-19 safety and care. With cutting-edge biotechnology at its core, this space is likely to emerge as the most profitable for investors, with a massive potential in terms of returns on investment and social welfare.

<table>
<thead>
<tr>
<th>Major trends in digital health post COVID-19</th>
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<tr>
<td><strong>Smartphones</strong></td>
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<td>Since the number of smartphone users in India is expected to soar to 442 Mn within the next two years, effective use of digital technology can be further utilized to support health care, address health needs and enable access to m-health services.</td>
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<td><strong>Big data</strong></td>
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<td>Big data will prove to be a game changer as it will ensure lower rate of medication errors and more accurate staffing thereby facilitating preventive care.</td>
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<td><strong>Virtual reality</strong></td>
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<td>This is already contributing to digital healthcare in a big way by treating everything from anxiety to post traumatic stress disorder and even stroke. Going ahead, it will play a major role in complicated surgeries.</td>
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<td><strong>Wearables</strong></td>
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<td>Wearable technology devices with heart rate sensors, exercise trackers and seat meters can provide up-to-date monitoring of high-risk patients to determine the likelihood of a health emergency.</td>
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<td><strong>Artificial Intelligence</strong></td>
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<td>The power of AI can be best observed in areas like precision medicine, medical imaging, drug discovery and genomics. The use of chatbots and virtual health assistants will see an increase in the times to come.</td>
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<td><strong>Blockchain</strong></td>
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<td>The use of blockchains in creating Electronic Health Record (EHR) has already been in place. EHR is a digital version of a medical chart that includes everything about a patient’s medical history.</td>
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It is obvious now that what demonetization did to digital payments, COVID-19 has done to digital healthcare. Conventionally, healthcare delivery has been perceived as impossible without a human touch. The empathetic touch of the healthcare providers is the prime reason why anyone would prefer an in-person consultation versus teleconsultation. During this crisis of COVID-19 situation, people are compelled to avail various form of digital healthcare services for their health needs. This exposure has had a positive impact in the way digital healthcare is perceived and accepted in the society not just by the customers but most importantly, by the Healthcare professionals themselves. The benefits of availing digital healthcare are sinking in and being lapped up more aggressively. The response is evident by the surge in number of virtual consultations conducted through Call Health platform. It has seen increase of around 100% in review consultations. This we believe has certainly aided to maintain the social distancing norms. We have also seen a significant increase in demands from various corporates for tele health services to be included as a part of conventional employee health services imparted through employee welfare facilities.

Hari Thalapalli,
CEO, Call Health Pvt. Ltd.

Tools and innovations that facilitate and enable easy-to-use and affordable doctor-patient consultations; provide an accessible interface that connects patients, doctors, diagnostic clinics and pharmacies in a holistic manner will be the products of tomorrow. These could also revolutionize healthcare access and delivery in India’s Tier-2 towns and rural areas, especially for women, vulnerable and marginalized groups, and economically disadvantaged sections of the society. This will be vastly different from the various public-private partnerships on e-health operational right now, as the focus would be on greater accessibility, affordability and quality services.

Research and Markets, for example, says that the global digital health market would be worth USD 223.7 Bn by 2023, while Global Market Insights predicts USD 379 Bn by 2024 and Transparency Market Research foresees by 2025 a digital health market worth USD 536.6 Bn.1

Digital healthcare is no longer an aspiration but a reality and a business imperative in these times and going forward. We have seen increased levels of customer need and utilization in the areas like - telemedicine i.e. remote doctor consulting; health at home services in terms of guided work-outs, stress and anxiety counselling sessions etc. and digital end to end journeys being used by customers for their health insurance/funding needs.

Mayank Bathwal, CEO, Aditya Birla Health Insurance Co. Ltd.

There is also expected to be a greater focus on AI, robotics and big data tools and analytics to cement and strengthen India’s new digital infrastructure. In the era of Internet of Things (IoT), integrating medical and healthcare services with AI applications should be a priority for tech providers and policymakers. This may also include mechanisms to enable patient tracking, movement of citizens, identification of viral loads and disease cluster/hotspots, etc. to strengthen monitoring and containment measures. These are areas that may also facilitate the building of big business models that place the consumer at their core of operations.

Going forward with technological advancements and with increased acceptance by both the users and the doctors, digital healthcare and especially telemedicine usage will see an unprecedented growth. The acceptance levels will allow other fields like - tele-ecg reading by qualified cardiologists, tele-icu, tele-pathology, tele-dermatology, tele-ophthalmology and tele-radiology all of which have already advanced further its presence. This will also lead to standardizing EMR using blockchain technology which will improve the quality of healthcare being provided to patients.

Dr. Alexander Kuruvilla, Chief Health Strategy Officer, Practo

Clearly, the pandemic has unraveled the myriad avenues and opportunities in boosting healthcare and life sciences in India and the world. Paraphrasing the oft-repeated adage, health is wealth, one may safely say, that in the post COVID-19 world, health will still be wealth, with technology as its greatest investment.
India is more vulnerable to epidemics compared to China and Italy, the most affected in the COVID-19 episode

GLOBAL HEALTH SECURITY (GHS) RANK OUT OF 195 COUNTRIES AND INDICATOR SCORES OUT OF 100

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall</th>
<th>Prevent</th>
<th>Detect</th>
<th>Respond</th>
<th>Health</th>
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<tbody>
<tr>
<td>India (rank 57)</td>
<td>46.5</td>
<td>34.9</td>
<td>47.4</td>
<td>52.4</td>
<td>42.7</td>
</tr>
<tr>
<td>China (rank 51)</td>
<td>48.2</td>
<td>45</td>
<td>48.5</td>
<td>48.6</td>
<td>45.7</td>
</tr>
<tr>
<td>Italy (rank 31)</td>
<td>56.2</td>
<td>47.5</td>
<td>78.5</td>
<td>47.5</td>
<td>36.8</td>
</tr>
<tr>
<td>United Kingdom (rank 2)</td>
<td>77.9</td>
<td>68.3</td>
<td>87.3</td>
<td>91.9</td>
<td>59.8</td>
</tr>
<tr>
<td>United States (rank 1)</td>
<td>83.5</td>
<td>83.1</td>
<td>98.2</td>
<td>79.7</td>
<td>73.8</td>
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Source: Johns Hopkins Center for Health Security