

# Can Technology be the Answer to India's Healthcare Woes?



**Vivek Mahendra**  
Chief Information Officer  
Stratmed

India began with a glorious tradition of public health, as seen in the references from the Indus valley civilization (5500-1300 BCE) which mentions "Arogya" as reflecting "holistic well-being. At almost 18% of the global population, realising the goal of public health across the diversity, presents an enormous challenge to the healthcare delivery system. To appreciate the impact of technology, it is important to understand the current care deficit for accessible and affordable healthcare in India. These include:

- Mind-set-is the biggest barrier.

Patients look at reactive care due to the trust deficit towards medical fraternity and choose alternatives, sometimes un-registered

- Inadequate Insurance Coverage- although it is fast changing with Pradhan Mantri Jan Arogya Yojna (PM-JAY)
- Limited reach- only 3% of specialists' catering to rural demand
- Fragmented Delivery, with 74% healthcare infrastructure catering to 1/3rd populace
- Patient: Doctor Ratio of 1:1674 - a gap of over 1.5 million doctors
- Inadequate Healthcare Infrastructure -bed: patient ratio 1:1050 , a gap of over 1.8 million beds

Contrary to the points above, most of the healthcare facilities work at 50%-60% capacity (in normal times). With the Return on Capital Employed at <10% and EBITDA of 8%-9% for the best managed care providers, some of the care deficit can get addressed through better utilization - Crowd Sourcing from a central pool of underutilized resources by leveraging technology.

However, the answer to the India's care deficit is a combination of increased throughput of formal medical education, service coverage of the Primary Care Infrastructure, robust insurance coverage and leverage of alternative therapies in addition to technological interventions.

The significant technological trends, supported by the Central Government's National Digital Health Mission (NDHM) and the ever-increasing start-up incubation ecosystem, which will enable the accessible, affordable, and accountable care delivery in India include:

- Preventive Care through leverage of telemedicine, Medical IoT devices and mobile clinics (integrated at the Primary Health Centres, in Public Private Partnership model) to enable screening, ePharmacy and point of care diagnostics services. Institutionalization of this will address the shift from reactive care to preventive care and reduce the burden on secondary and tertiary care facilities that handle >60% of chronic cases and aligned mortalities. With the penetration of 3G networks to >80% of the remote corners of the country, this ecosystem

of connected care can become a reality and address the issues of limited reach and fragmented delivery. A solution in the public health screening system currently being rolled out that covers patients from the door to the district hospitals while seamlessly maintaining the continuum of care. The program envisions screening 1 million people in the next 9-12 months.

- b. Creation of a Single repository of eHR (electronic Health Records) and PHR (Personal Health Records) that presents a single view for clinically verified data (including Past Medical History, Family Medical History, Lab Reports, Prescriptions, Vaccinations and Growth Charts) and patient's uploaded data. Blockchain can be leveraged for establishing antecedent traceability for each data element. This becomes

significantly important when triaging a patient condition remotely at a subcentre or PHC (Primary Healthcare Centre) or at patient's home. Even more, during an emergency, this data can help the Physician take quick lifesaving decisions. This data can significantly improve the symptom analysis and disease identification leveraging an AI / Machine Learning Decision Support System. Institutionalization of the Unified Health Interface (under the aegis of the Ayushman Bharat Digital Mission which is establishing the national backbone necessary to support the integrated digital health infrastructure) aims to make the eHR / PHR data interoperable across healthcare providers. A Next gen of Radiology tool for India's health discovery platform is being developed that will leverage Machine Learning techniques to

deep dive into each pixel level to diagnose exceptionally large digital radiology images that can allow radiologists to identify nuances that may escape the human eye. There's gigantic potential for this technology to extend access to healthcare, in Tier 3 cities and in rural India.

- c. Care navigation and home care services, supported by Medical IoT based Home ICU / Remote Monitoring devices, can address the inadequacies in the healthcare infrastructure. These fully functional, management by exception platforms will enable significant reduction of pressure on the tertiary and quaternary care centres, enabling them to focus on acute and post-acute care cases.
- d. Wearables and sensors have started establishing the basic tenets of population health. With increased focus from the Regulators (Health Technology Assessment in India, under the Department of Health Research, US FDA and the European Health Authority), to authorize usage, these will start addressing the overall goals of "holistic wellbeing".

In conclusion, the combination of technology with the appropriate support from the Central and State Government and deeper Public Private Partnership aims to take India towards its goals of "Arogya."

*The author is Chief Information Officer, Stratmed*

