



**CARE & CURE
FOR
A
BILLION**

Summary

The key needs of the Indian healthcare ecosystem are accessibility, affordability and efficiency. There is a significant need to improve on these aspects to enhance the quality of healthcare

Technology intervention will address and improve the key needs of the healthcare ecosystem in the following way—

- **Accessibility:** *From 0.7 doctors/1000 people (2018) → Significant percentage of the population with access to digital consultation and diagnosis (2025)*
- **Affordability:** *From 73% of Indians lacking health insurance (2018) → Universal health insurance (2025)*
- **Efficiency:** *From lacking patient data and having primitive digital solutions → Digital solutions which result in better patient health outcomes.*

Although the government and private sector are doing their parts, technology adoption is vital to re-invent and improve healthcare delivery and services

Indian healthcare market is estimated to increase from \$100B (2018) to \$280B (2025). Health-tech which is currently at a nascent stage is expected to grow into ~\$10B market by 2025

The key drivers for this growth will be—

- *Government policies such as Digital Information Security in Healthcare Act (DISHA)*
- *Improving digital infrastructure (EMR, HIS etc.) and smartphone penetration*
- *New consumer segments such as digital mothers, health enthusiasts and vernacular content users leading to the creation of new products and services*
- *Rising income levels leading to a willingness to pay for better quality healthcare*
- *Increase in chronic and lifestyle diseases*

Since 2015, investor interest in health-tech has been increasing with categories such as doctor appointments, e-pharmacies, telemedicine and home health getting a majority of the focus.

This growth potential will lead to following early-stage investment opportunities in health-tech—

- *Solutions leveraging data (AI, Analytics etc.)*
- *Tech-enabled insurance*
- *Digital healthcare content*
- *End to end service platforms*

Evolving Healthcare in India

The Indian healthcare industry is poised to grow to \$280B by 2025 from the current \$100B. The rapid growth in the sector will be aided by rising income levels, increase in lifestyle diseases, growth in smartphone penetration, increase in health awareness, an aging population, push for mass insurance and favorable government policies.

While privatization has improved the quality of healthcare in India, timely access to doctors, medical facilities and medicines continue to be restricted to metro cities. Improving the healthcare infrastructure to meet patient needs and consumer expectations is not possible with the traditional linear approach. Technology adoption is essential to reinvent healthcare delivery and provide affordable and quality care at a large scale.

The Indian government has decided to play the role of a payer and expects the private sector to play the role of a provider. The private sector will lean heavily on technology for better capacity utilization and ROI on their investments as a provider. Healthcare specific legislations such as the Digital Information Security in Healthcare Act (DISHA) indicate the government's push towards the adoption of technology in healthcare.

Accessibility

Raising the required healthcare standards—

Currently, India has 1.5 million hospital beds which cover only 30% of the recommended capacity. India has 0.7 doctors for every 1000 patients, significantly lesser than 1:1000 patients recommended by WHO.

Addressing the disparity in the availability of skilled resources between rural and urban India—

Medical resource allocation is skewed with only 5% of the doctors practicing in rural areas where the bulk of the population resides.

Raising the penetration of quality health care services beyond metros and tier-I cities—

With ~80% of the dispensaries located in urban areas, rural India lacks timely access to care.

Affordability

Increasing Health Insurance penetration in India—

73% of the population is not covered under health insurance. The government has taken initial steps for achieving the goal of universal health coverage. The government's Ayushman Bharat health scheme ('Modicare') will provide a safety net to over 500M Indians (100M families) and will go a long way in redressing healthcare related economic hardship. This scheme intends to provide an insurance cover, up to INR 0.5M per family per year.

Reducing the hassle of arranging cash at times of emergencies—

Out-of-pocket expenditure accounts for 62% of the overall healthcare expense in India and this is often not covered under insurance. 70M people are estimated to fall into poverty annually due to high healthcare expenditure. The number of hospitals that are included under the umbrella of cashless insurance continues to increase.

According to the World Health Statistics report, 2018, **India's health spending** is at just 3.9 percent of GDP. India's per capita health expenditure at \$63 is among the lowest for developing countries with China reporting a per capita spending of \$426, Thailand \$217, Malaysia \$386

Efficiency

Adoption of Electronic Medical

Records (EMR) will lead to an increase in doctor efficiency, reduction in prescription errors and better patient health outcomes.

Standardizing patient medical

records for effective clinical decision making. Over 75% of in-patients and 60% of out-patients in India visit private clinics and hence do not possess standardized medical records. Large and mid-sized hospitals have a Hospital Information System (HIS) to some extent.

A sizeable number of startups have been trying to address the above needs of the Indian healthcare ecosystem. As explained, a good amount of funding has flown into companies which are primarily solving the pain point related to accessibility.

Key Needs of the Ecosystem

2018

Accessibility



0.7 Doctors/1000 people

Affordability



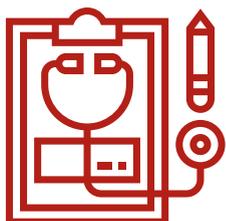
73% of Indians lack Health Insurance

Efficiency



Lack of Patient Data & Primitive Health Solutions

2025



Significant % of Population with Access to Digital Consultation & Diagnosis



Universal Healthcare

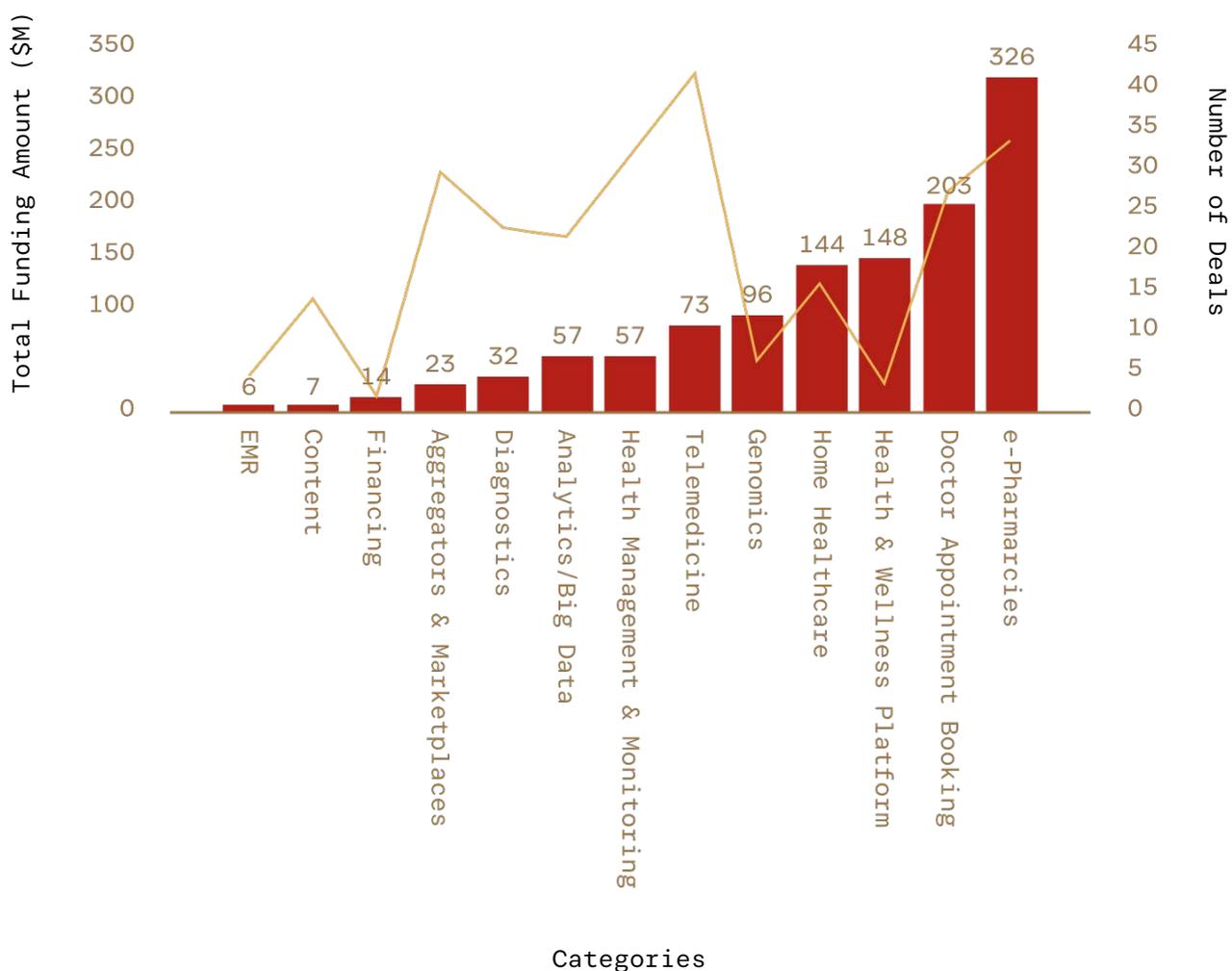


Better Patient Health Outcomes

Funding across Categories

The health-tech sector has seen significant investment interest since 2015. The graph below demonstrates the funding across the different categories in health-tech.

Funding Across Business Models in Health Tech - India (2011–2018)



From the above categories, doctor appointment and bookings, home health, E-pharmacies, genomics & telemedicine, have seen a majority of the investments in the sector.

Doctor appointments and bookings—

Doctor appointments and bookings have now become commoditized with no product differentiation. This category has matured with many startups offering doctor appointments & bookings as an add-on feature to their existing services. Consumers (patients) do not pay for such features and doctors too are reluctant to pay only for such a service.

E-Pharmacies—

With increasing clarity in regulations and the government introducing frameworks for operations of e-pharmacies, funding has picked up with many companies raising capital in 2018. Despite being <1% of the total pharmaceutical markets, e-pharmacies have no differentiation with offline players (apart from the convenience of doorstep delivery) or among themselves resulting in high customer acquisition costs because of deep discounting. As a result, this category has become a "capital game" with the likely winner to be the one who raises the most amount of money. E-Pharmacies catering to chronic subscriptions along the lines of PillPack (acquired by Amazon for \$1B) have the potential to differentiate and scale in this segment.

Home Health—

Hospitals get 90% of their revenue in the first three days of a patient's stay and hence there is an incentive to have their patients receive their remaining health care services delivered at home. Both doctors and hospitals are strong proponents of the home health segment. The two metrics which hospitals look at are average length of stay for patients & average revenue per occupied bed. Currently, the prime use case is nursing at home which is a services play resulting in lower margins. Tech solutions such as IOT etc. can bring in efficiency, reduce manual interventions and help improve margins. Insurance companies bringing home health within their purview is a potential trigger. Portea and HealthCare at Home are good examples of startups which have established themselves in this category.

Telemedicine—

Telemedicine solves for the supply and demand mismatch between quality doctors and patients, particularly for patients in tier 2 & tier 3 cities. Despite the clear need, the financial viability of the category remains to be seen. The sector has taken off in the US where billing amount varies from \$50 - \$400 with a CAC of \$6-\$8. In India, the billing amount is \$4-\$6 with a CAC of \$2-\$3 which makes the model financially impractical in the current form. Newer forms of telemedicine delivery such as a hybrid of online and offline delivery have to emerge to make the category economically viable. To a large extent, patients still prefer in-person interactions with doctors and only select categories such as mental and sexual health have seen some patient adoption.

Genomics—

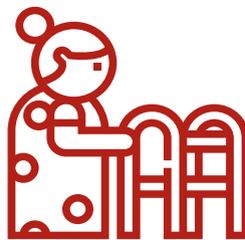
Genomics is an evolving category primarily driven by rising incidences of hereditary diseases, technological advancements and a push towards personalized treatment and medication. However, the category is at a rudimentary stage, particularly in India where consumer awareness is very low. Indian genomic data is under-represented in global economic databases (0.2% database share vs 18% population share). Although the price of genetic tests is falling every year due to technological advancements, it still is not cheap enough for mass adoption. Once awareness increases & test adoption reaches critical mass, the genomic databases can be monetized. Despite the promise, there is still a long way to go for genomics as a category to attain mainstream adoption in India.

Changing Consumer Segments

Consumers are demanding a patient-centric approach in healthcare, personalized to meet their unique requirements. They are more aware and conscious of their health and are continuously on the lookout for better information. They are open to sharing personal information for better care and to benefit from their healthy choices. There is an emergence of new consumer segments in healthcare.



Digital Mothers



Senior Citizens



Rural Internet Users



Vernacular Language Users



Health Enthusiasts

Digital Mothers—

Currently, there are 35M digital mothers equipped with new age technology ranging from mobile devices to wearables, accessing online medical resources and social media seeking information to provide the best healthcare to their growing child.

Senior Citizens—

Studies conducted over the years indicate that despite popular belief, senior citizens are receptive to and starting to get acquainted with digital healthcare mediums. Some of the features that commonly interest senior citizens include centralized health records and electronic prescription refills. There currently are ~120M senior citizens whose health outcomes can be improved through technology.

Rural Internet Users—

Estimates suggest that the number of rural internet users in India is expected to witness a 60 percent increase in the next 5-7 years, currently standing at 186M users. This could lead to an improvement in the dismal healthcare conditions in some rural areas, by facilitating the implementation of digital healthcare practices or hybrid healthcare practices (digital + physical), especially for diagnosis and consultation. These measures can reduce the number of illnesses and subsequent deaths caused due to lack of infrastructural facilities for diagnosis.

Vernacular Language Users—

About 325M users, currently seek quality digital content, consultation and health education in vernacular languages.

Health Enthusiasts—

The recent surge in the search for a healthier lifestyle has led to an increase in the usage of health and fitness tracking applications. With an increase in the number of health enthusiasts which currently stands at 30M, constantly keeping track of their calorie consumption and specific vitals using applications and wearables, this market shows promising growth. End-to-end health and wellness platforms such as Curefit (Kalaari investment) are new age businesses which are seeing a lot of traction, by capturing the growth in this customer segment.

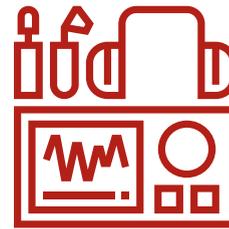
The changing consumer segments are eventually expected to push the health-tech ecosystem to provide personalized and customized healthcare solutions for each individual.

Key Drivers Enabling the Rise of Healthtech

Although the healthcare industry as a whole is expected to grow approximately three-fold from the current \$100B to \$280B by 2025, the healthtech industry in India is still nascent and is expected to be a \$10B industry by 2025. Some of the key drivers for this growth are—



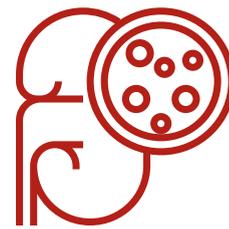
Government Policies like
Disha & Ayushman Bharat



Improving Digital
Infrastructure



Rising Income Levels



Increase in Chronic and
Lifestyle Diseases

Government Policy in Healthcare—

The introduction of DISHA which is aimed towards securing healthcare data of patients in India as well as the creation of Ayushman Bharat Yojana, which is the world's largest public health insurance initiative, showcase the intent of the government to bring a significant shift in the functioning of healthcare ecosystem in India.

Emerging Digital Infrastructure—

Increasing smartphone penetration and the growing adoption of Electronic Medical Records(EMRs) and Hospital Medical records has helped formalize the healthcare delivery chain in India.

With the integration of EMRs such as the ones provided by Healthplix (Kalaari investment) or Practo, doctors are able to treat patients with better care, precision, and get access to accurate data. The collection of clinical data at the point of care enhances efficiency and improves data quality. From the industrial point of view, pharmaceutical companies and regulatory authorities use the collected data to improve the post-marketing surveillance (PMS) of drugs. Insurance companies get accurate data of patients through EMRs so that the patients can be provided with customized policies and receive timely reimbursements.

Rising Income levels—

India's per capita GDP (PPP) is expected to increase to \$11,800 by 2023 from \$6,700 in 2018. The rising income levels will translate to increased spending on general and preventive healthcare with higher willingness to pay for better services and treatment.

Increase in Chronic and Lifestyle Diseases—

Poor nutrition, high-stress levels and rising environmental pollution have contributed to a marked increase in chronic and lifestyle diseases among Indians. The World Health Organization estimates that by 2030, approximately half of all death and disability in India will be due to chronic diseases. This has led to a massive increase in awareness among the young and millennial population who view health as an investment rather than a cost.

The above drivers will enable healthtech to be a \$10B industry in India by 2025.

Potential early-stage Investment Opportunities

The emerging transformation in consumer lifestyles, along with powerful digital intervention and systematic healthcare infrastructure, is creating a wide variety of opportunities including—



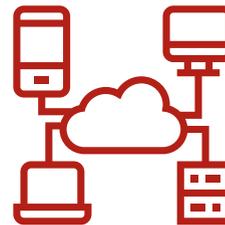
Solutions leveraging Data
(AI, Analytics, etc)



Tech Enabled
Health Insurance



Digital
Healthcare Content



End-to-end
Service Platform

AI-based Clinical Decision Support—

Today, doctors and technicians manually analyze past patient records, test reports, test data, medical images etc. which increases the time required for diagnosis. Furthermore, the diagnosis is subjective to the individual healthcare provider's knowledge and experience. Use of artificial intelligence on digitized patient records, tests, and medical history is enabling early diagnosis of serious health conditions by studying past cases. It also improves efficiency of doctors in diagnosing patients. This market is expected to be at \$1B by 2025.

Healthcare Data Analytics—

Use of data analytics to personalize medicine can help in the identification of trends and outliers, thereby leading to optimal treatment and better patient health outcomes. In addition, the growing need for efficiency and innovation in product and processes across pharma and insurance will contribute towards the growth of this market. Healthcare analytics is expected to be a \$2B opportunity by 2025.

Tech-enabled Insurance—

Technology is making health insurance affordable by providing personalized plans and accessible by easing the online purchase journey of customers. Technology will also enable the creation of microinsurance as a sustainable business model. Health insurance is estimated to stand at ~ \$3B in 2025.

Digital Healthcare Content—

The current rise in awareness towards preventive care and wellness has driven the need for easy and fast access to comprehensive healthcare content. In a diverse country like India, the need for availability of quality healthcare content in multiple languages further drives the growth of this market. This market is expected to touch nearly \$0.5B by 2025.

End-to-end Service Platforms—

There is a growing focus on convenient healthcare, including a holistic set of health care services, especially amongst health enthusiasts. Healthcare consumerism is on the rise and these customers are taking an active interest in all aspects of their lifestyle impacting their health. Platforms that provide end-to-end solutions (preventive as well as curative) are seeing success and customer advocacy. Integrated healthcare systems providing standardized workflows enable hospitals and healthcare providers to improve efficiency and customer experience. This market is expected to show considerable growth and is expected to be ~ \$3B by 2025.

Deep dive into Data Monetization Opportunities

Data utilization is enabling new ways of solving healthcare problems, creating unique experiences for patients and accelerating healthcare provider's and payer's growth and efficiency.

Data utilization will be monetized by ecosystem elements in the following ways—

Pharma companies—

Indian Pharma is a \$33B industry growing at a CAGR of 23%. About 20% of a pharmaceutical company's expenses go to sales & marketing, data analytics, insights and R&D and despite these investments, pharma companies still see high doctor churn. Data on drug sales is enabling demand estimation, product pricing and targeted sales & marketing thereby reducing expenses.

Drug discovery cost is being brought down by data models on aggregated patient and lab records. The expected productivity gain in clinical trials using data analytics is 30%, accelerating clinical trials and new product development.

Health Insurance Providers—

Health insurance is a \$6B industry in India and is growing at a CAGR of 20%. The low insurance penetration is mainly a result of high distribution costs and low awareness levels. The inability to profile customer health owing to lack of patient records necessitates the need for a high insurance premium for every customer resulting in a minimum premium of \$200 to break even. With the availability of digital records and personal activity data in the form of quantified self, schemes are being tailor-made for individuals increasing insurance penetration.

Insurance companies also have to deal with 15% of their claims being fraudulent. The health-care industry in India is estimated to be losing \$90-120M annually to fraudulent claims. Minimization of fraudulent claims is essential to make health insurance a viable sector. Distributed, immutable and accessible patient trail reduces frauds and makes claims processing faster.

Hospitals—

In India, the average time a doctor spends with an out-patient is less than 2 minutes which is significantly lower than 21 minutes in the US. The high capital required to set up hospitals makes investment viable only with models supporting faster ROI. Hospitals are seeking more efficient care delivery mechanisms to maximize the utilization of their resources. Standardized workflows and technology-based solutions are being employed to reduce administrative costs which account for 20% of hospital expenses, increase efficiency and quality of care.

AI & ML—

With large volumes of data generated, artificial intelligence and machine learning algorithms would lead to clinical decision support for doctors and enable early disease diagnosis for patients.

Data-driven healthcare and opportunities in related sectors are at a very nascent stage in India today, but with its clear strategic and competitive advantages, it is only a matter of a few years before it becomes a norm/standard in the healthcare industry.

