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Pahal
Partnerships for Affordable Healthcare Access and Longevity
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Business Models In Telemedicine

Improving Last Mile Health Delivery

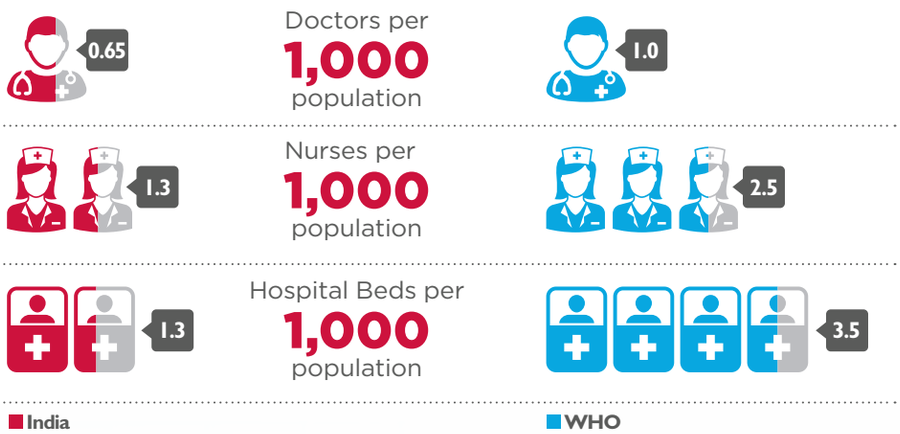
December 2017

Contents

Executive Summary

Despite rapid economic progress, India is home to some of the world's poorest health indicators. There are reportedly only 7 physicians for 10,000 people (WHO Statistics 2014), and public health infrastructure is absent in remote locations. Moreover, there is a clear disparity in the distribution of healthcare infrastructure and resources in rural and urban areas. While 66% of India's population lives in rural areas, they have access to only 33% of the doctors (PwC Report).

Availability of Health Infrastructure in India as Compared to WHO Standards



Source : PwC Report

This indicates that the existing public healthcare infrastructure in India is not sufficient to meet the needs of the burgeoning population. The central and state governments do offer universal healthcare services, free treatment and essential drugs at government hospitals, but the hospitals are understaffed and under-financed, forcing patients to visit private medical practitioners and hospitals, consequently leading to high out of pocket expenditure.

PAHAL

Partnerships for Affordable Healthcare Access and Longevity (PAHAL or "Pahal") is a joint initiative of United States Agency for International Development (USAID) and IPE Global, which aims to provide catalytic support to growth stage and scalable social enterprises in developing affordable & quality healthcare solutions for the urban poor. Pahal is a collaborative platform which seeks to connect, capacitate and catalyze innovative social enterprises focused on improving health outcomes.

Reach 10 Million Urban Poor in India

By 2020 Pahal will

Reduce out of pocket expenditure on healthcare for underserved urban communities by 30% in coverage areas

Currently, Pahal is evaluating innovative solutions with the dual goal of improving access to healthcare and reducing out of pocket expenditure for the poor. Pahal platform has also launched the Pahal Health Fund to invest in growth stage, scalable social enterprises improving health outcomes.

PAHAL PLATFORM

The project has collaborated with healthcare provider networks consisting of 700+ hospitals, 3,000+ doctors and over 15,000 community workers and owning an exclusive health care delivery model, with the objective of reaching out to 10 million urban poor and reducing out of pocket expenditure by 30%.

700+ Health Facilities

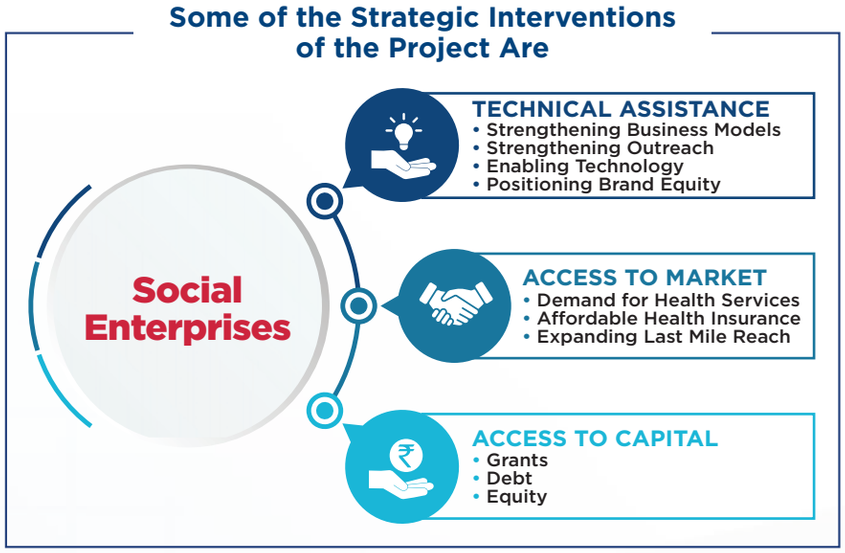
3,000+ Doctors

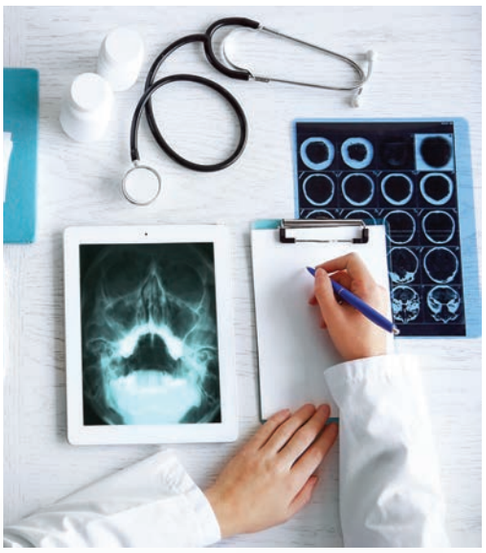
15,000+ Health Workers

10 Million Urban Beneficiaries

STRATEGIC FRAMEWORK

PAHAL has adopted an **ecosystem approach** to strengthen and scale market based healthcare solutions to improve access to quality healthcare for underserved urban communities. The project focus is to identify innovative business models, provide them with Technical Assistance, Market Access and Access to Capital in order to help maximize their capacities by keeping the cost of delivery low, increasing the reach and ensuring quality delivery protocols and improved patient experience.





PAHAL'S REVIEW OF BUSINESS MODELS IN TELEMEDICINE

Telemedicine enables healthcare professionals to evaluate, diagnose and treat patients situated remotely using telecommunications technology. A comprehensive telemedicine solution has the potential to bridge the disparity in the distribution of doctors and health infrastructure, reduce cost of primary care and improve delivery of quality healthcare to the last mile. Therefore, telemedicine is one of the key focus areas for Pahal. In order to develop a comprehensive understanding of the telemedicine landscape in India, Pahal took up the review of ten business models in telemedicine for identifying challenges and opportunities, using secondary review and informal discussions. A brief summary of the models assessed is given below.

MODEL		BRIEF PROFILE
Neurosynaptic Communications Enabling Healthcare. Anytime. Anywhere.	**Neuosynaptics** **Bengaluru**	Provides hardware and software solutions for remote diagnosis and consultation. Products equipped to work in low resource conditions. They only provide technology & depend on service providers for execution.
Apollo HOSPITALS	**Apollo Tele-health Services** **Hyderabad**	Promoted by Apollo chain of hospitals, focused on specialized care like tele-radiology, tele-cardiology etc. Have run primary care models in partnership with the government.
GLOCAL HEALTHCARE	**Glocal Digital Dispensary** **Kolkata**	G1 Digital Dispensary delivers healthcare solutions – consultation, medication and basic diagnostics. Glocal has a proprietary decision support system and a web-based tele-consultation platform supported by its hospitals; management has experience of scaling-up.
YOLO Health Healthcare at Your Doorstep	**Yolo Health ATMs** **Mumbai**	Health ATMs perform health check-up, connect to a doctor and maintain records. Yolo is a technology solutions provider and depends on implementation agencies/service providers for expansion and execution.
medongo	**MedOnGo** **Bengaluru**	Provides telemedicine services through its kiosks and medicine dispensers; only technology provider; depends on implementation agencies/service providers for expansion and execution.
eVaidya®	**eVaidya** **Telangana**	Leverages different platforms including voice, video chat, email, instant messaging, discussion forums and social media. Also runs ePHCs in partnership with government of Andhra Pradesh. Focus shifting towards corporate wellness programs.
WORLD HEALTH PARTNERS MAKING MARKETS WORK FOR THE POOR	**World Health Partners** **New Delhi**	Not for profit organization working on Social Franchising model for providing healthcare in remote areas. Focus on reproductive health services; dependent on donor funding.
WELCARE Health Systems	**Welcare** **Chennai**	Remote Ophthalmology services, operating out of established hospitals and clinics (revenue sharing); scalability depends of finding suitable local partner.
hello HEALTH	**Hello Health** **Mumbai**	A company initially focused on homecare and tele-cancer care, now setting up digital clinics which provide affordable tests and intend to enable tele-consultation as well.
Doctor Insta	**Doctor Insta** **Gurgaon**	Providing patients video consultations from enrolled doctors through an app. Focusing on middle class urban population.

In the following sections, the report aims to present an in-depth analysis of the ten telemedicine models selected, and subsequently list down the opportunities and challenges facing the telemedicine industry in India. The report concludes with suggestions on the possible next steps that could help in scaling-up of existing telemedicine solutions in the country.

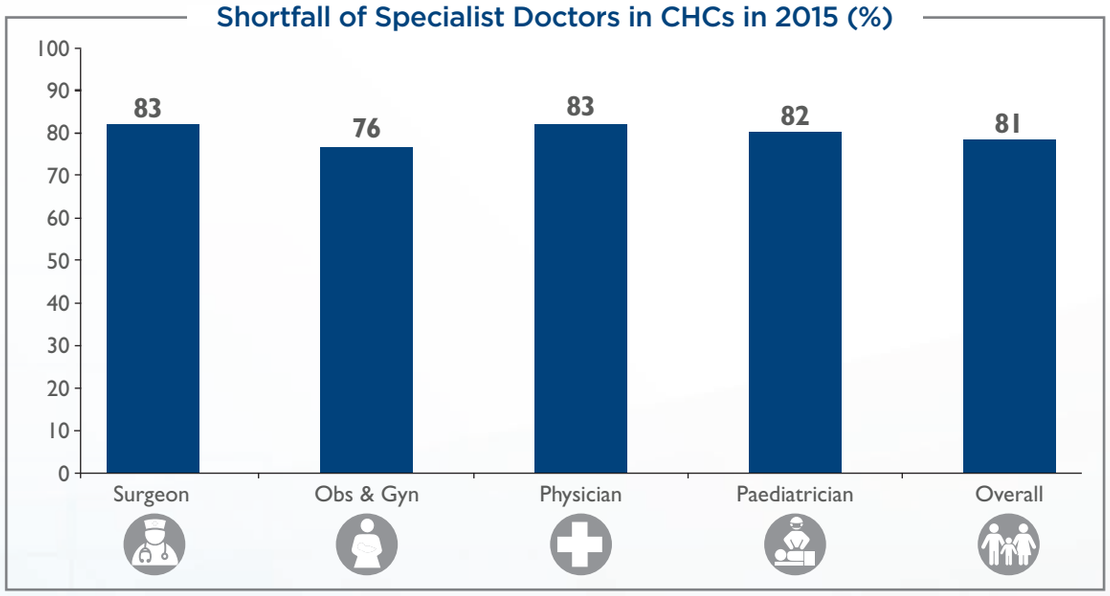
Background

The Indian Healthcare Challenge

India has made significant economic progress, sharply reducing extreme poverty. However, its achievement on human development is far from satisfactory. India has one of the poorest health indicators globally. A new health index launched at the UN General Assembly ranks India 143 out of 188 countries. India's total healthcare spending is less than 5% of its GDP, significantly lower than the world average of ~10%. Public expenditure on health has been historically low in India, barely over 1% of GDP, one of the lowest globally.

Consequently, the existing public healthcare infrastructure in India is not sufficient to meet the needs of the burgeoning population. The central and state governments do offer universal healthcare services, free treatment and essential drugs at government hospitals, but the hospitals are understaffed and under-financed and suffer from inadequate infrastructure, shortfall in trained manpower, massive absenteeism and poor quality of care.

The availability of health infrastructure and health professionals in India is inadequate in proportion to its population, with less than 8 qualified doctors per 10,000 people[1] against global average of 15 doctors per 10,000 population and 7 available hospital beds per 10,000 population as opposed to 29 beds per 10,000 globally. (WHO Statistics and World Bank Data).



Source : PwC Report

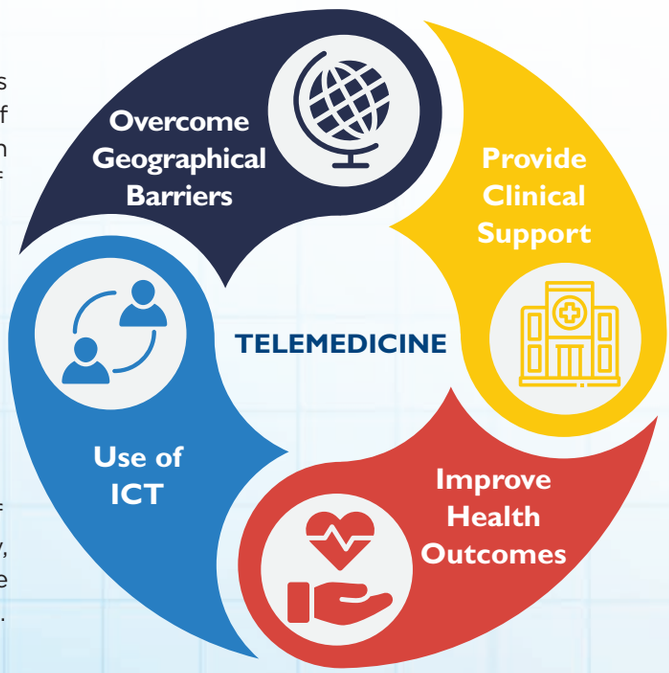
1 Allopathic Doctors registered with MCI, 2017

Nearly 75% of dispensaries, 60% of hospitals and 80% of doctors are located in urban areas, where only 23% of the population resides[2]. Most of the medical practitioners are concentrated in metros/tier-1 cities, especially in the prosperous areas. Rural, peri-urban areas and urban slums lack adequate access to quality primary healthcare. Much of the care delivered in underserved areas is through private unlicensed providers commonly called Registered Medical Practitioners (RMPs) or "quacks" or through the public sector primary or community health centers.

The convergence of technology and healthcare has opened up a whole new world of possibilities. Telemedicine models using cloud computing, wireless technologies, electronic health records, hospital management information systems, and tele-care services are best positioned to bring in cost-efficiency, reduce consultation time, improve accuracy of treatment and diagnosis, cater to a large number of customers remotely, and maintain high standards of service delivery by providing access to quality care on a real time basis.

WHAT IS TELEMEDICINE?

Telemedicine helps individuals to access healthcare services by the usage of telecommunication and information technology and is completely independent of the distance between the health care expert and patients. Telemedicine is primarily used to overcome distance barriers and improve access to medical services that would often not be consistently available in distant rural or urban communities. Residents of these areas often have substandard access to specialty healthcare, primarily because specialist physicians are more likely to be located in areas of concentrated urban population. Recently, telemedicine has widely taken assistance in handling critical care procedures as well.



2 Rural Health Statistics Government of India Ministry of Health and Family Welfare Statistics Division, 2014-15

In India, the telemedicine services are majorly classified under the following areas:


Tele-consultation


Tele-radiology


Tele-ophthalmology


Tele-ICU


Tele-dermatology


Tele-surgery


Tele-pathology


Tele-psychiatry

The telemedicine market has been largely dominated by Tele-radiology. Tele-radiology involves the electronic transmission of patient's radiographic images such as x-ray, CT scan or MRI from one location to radiologist sitting at another location for interpretation. Tele-consultancy is the second largest contributor to the revenue earned by Indian telemedicine industry during FY'2015. Tele-consultancy is defined as audio and video communication link between the patient and the doctor or between doctors of different disciplines. Tele-ICU has been regarded as the third largest category in the telemedicine market of India according to a report by Ken Research.

"The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities"

— WHO

Benefits of Telemedicine


Access to Primary Healthcare


Access to Specialists

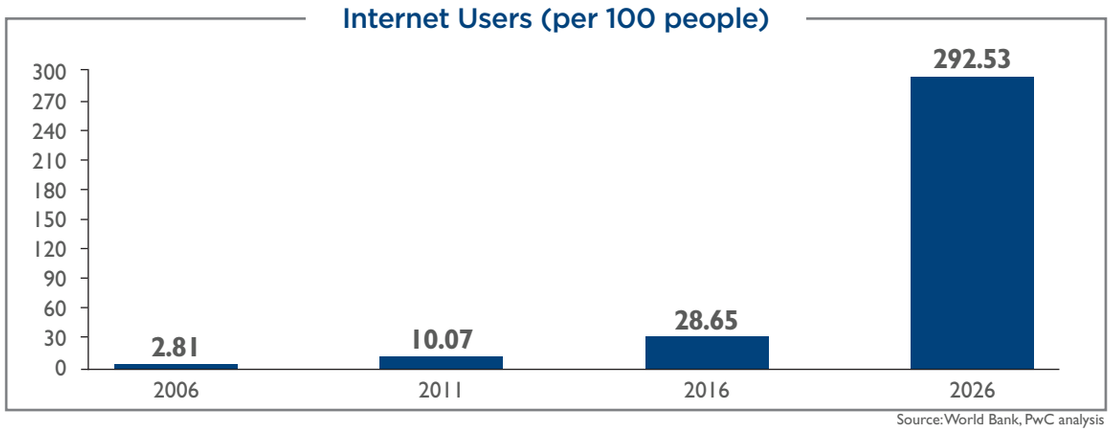

Regular Monitoring


Reduced Cost of Healthcare

Telemedicine has the potential to revolutionize healthcare in India and make universal healthcare access, a reality. Telemedicine solutions can help in bringing down provider and patient costs as well as improving the accessibility to quality medical professionals. With the coming of telemedicine, regular and timely monitoring is possible, eventually leading to improved health outcomes among patients.

GROWTH OF TELEMEDICINE

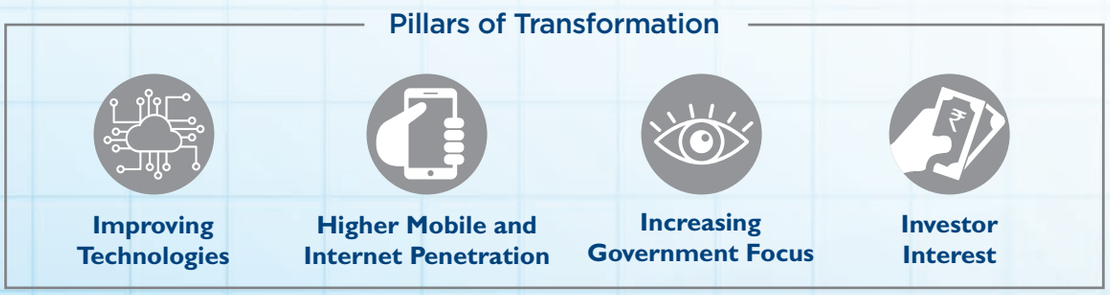
The growth of telemedicine is a result of numerous developments taking place in the technology and digital landscape in India. India is witnessing a digital revolution, aided by its growing smartphone and internet penetration. The usage of smartphones and the internet continues to increase YoY in India, currently at a 20%-30% CAGR, and it has been predicted that India's smartphone population will surpass that of the US in the next few years[3]. Digital adoption offers greater connectivity and collaboration, increased accessibility to information and services and personalization of products and services.



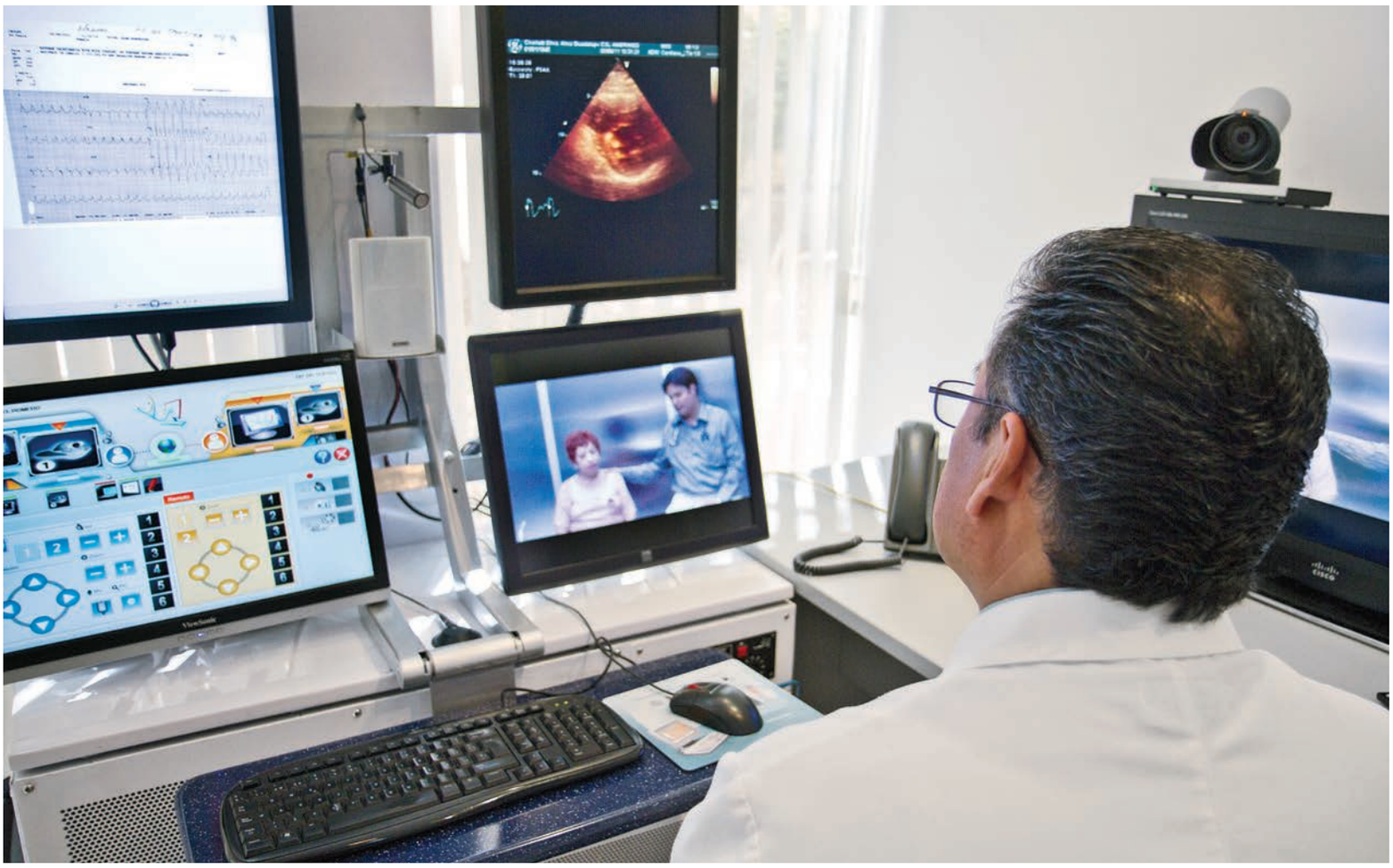
Source: World Bank, PwC analysis

Growing awareness, particularly with the younger and middle age of Indian demographics, has resulted in a huge demand for online consultations and second medical opinion as it helps patients get medical advice from experts from anywhere in the world. With the advent of e-health platforms, assisted by telemedicine, physical distance is no more a barrier. Due to easy accessibility, convenience, reduced travel time, and affordability several patients are opting for telemedicine and online healthcare services.

The telemedicine landscape is further enhanced as a result of India's thriving entrepreneurial and start-up culture. India is ranked 3rd among middle-income economies in the Global Innovation Index[4]. The public sector's investment in this culture, through the Startup India initiative, is adding to this interest. The stage is set for a more disruptive, engaged and digitized India. While these digital drivers are fairly recent, India has had other more long-standing indicators, such as a growing economy, that are conducive to the growth of telemedicine in India. Moreover, healthcare is one of the fastest growing industries and is expected to expand at a CAGR of 18.3% during 2012–20 to reach $280 billion.



3 PwC Report
4 https://www.globalinnovationindex.org/userfiles/file/reportpdf/GII-2015-v5.pdf

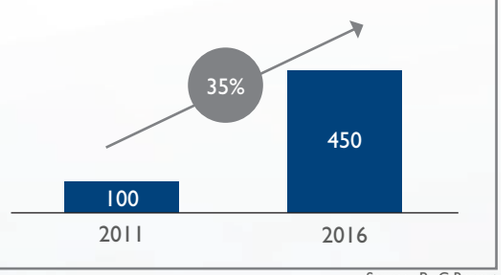


Innovators are increasingly capitalizing on the technological and digital revolution to manage disparity and inequity in healthcare. This focus on technology is driving a CAGR of 14.02%[5] from 2014-2019 in the Healthcare Technology Market in India. India is increasingly being identified as a global playground for latest and innovative trends in healthcare deliveries. India's telemedicine market was valued at $100 million in 2011 and has reportedly grown to four times by the end of 2016.

The Ministry of Health and Family Welfare, Ministry of Communications and Information Technology, state governments, and ISRO have all taken on significant roles in improving the IT infrastructure for health facilities in India.

Thus, the pillars enabling this transformation in India are: improving technologies, higher mobile and internet penetration, increasing government focus and investor interest.

India Telemedicine Market (million USD)



Source : PwC Report

5 Technavio Analysis

Introduction

In line with Pahal's objective of supporting scalable and sustainable business models improving health outcomes amongst Indian poor, below is an in-depth analysis of ten business models in the telemedicine space that have the potential to increase access to affordable healthcare in the remotest of areas, thereby generating significant social impact.

OBJECTIVE & METHODOLOGY

Ten telemedicine models in India were reviewed in order to identify opportunities and challenges and understand requisites for achieving scale. These models do not represent an exhaustive list. They are a sample of the different types of models operating in the market. These were the most prominent models at the time, and have been selected keeping in mind the variety of technology interfaces used – mobile apps, telephony, video consultations, and kiosks among other technologies to offer generalized as well as specialized care to different demographic segments.

The review of models was based on available secondary information, supplemented by one to one discussions with the management team of few of the models. Each telemedicine model was analyzed on the following parameters:

Focus of Care | **Business Model** | **Technology** | **Affordability** | **Management Team**

Primary data from implementation was used to analyze early trends.

Telemedicine Business Models

Neurosynaptic Communications

Founded Year	2002
Headquarters	Bengaluru
Current Investors	Axilor Ventures, Health Quad, Indian Angel Network, Ventureast, Currae HealthTech Fund, Grand Challenges; total disclosed funding: $1.04M
Promoters/Founders	Sameer Sawarkar (Founder & CEO): Graduated from Indian Institute of Science, Bangalore. Over 16 Years of experience in key technical, engineering and management roles. Rajeev Kumar (Founder & COO): Graduated from Indian Institute of Science, Bangalore. Over 15 years of experience in technical, operational and management roles.
Outreach	Deployed its ReMeDi solution in over 2,000 villages across 10 states of India largely through WHP/NGO partnerships. Presence in nine other countries in South-Southeast Asia and Africa

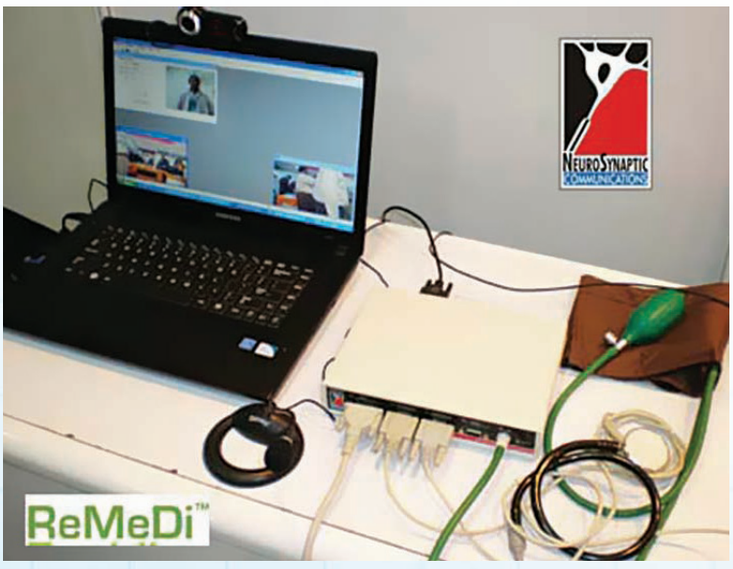
Overview

Neurosynaptic Communications Pvt. Ltd. (NCPL) provides integrated hardware and software solutions for primary diagnostics and telemedicine and also provides turnkey project management to healthcare delivery companies and other implementation partners.

NCPL's offerings include:

ReMeDi® Solution: Integrates end to end healthcare ecosystem. The solution provides real time measurement of vital parameters and is easy to operate for paramedics or even non medicos. Solution is compliant with IEC 60601 and validated by some of the most prestigious Medical Institutes of India.

ReMeDi® Nova: Android based portable solution which can perform ECG, BP, Heart Rate, Auscultation, Oxygen Saturation & Temperature; point of care (PoC) diagnostic tests like Fetal Doppler, Blood and Urine tests. The ReMeDi® – NOVA is a portable solution with multiple diagnostic working on Bluetooth with low energy connectivity to the tablet mobile.



ReMeDi® Platform: Solution for screening, primary diagnostics & triaging that connects Doctors, Tele Medicine Center, Pharmacy, Hospital, Diagnostic Lab and can be operated by non-medicos. NCPL sells its remote e-Healthcare delivery platform and enterprise solution to governments (India and abroad), private sector hospitals and NGOs to create an ecosystem for rural healthcare through end-to-end linkages for delivering care. NCPL provides products which are suitable to perform in the challenging environment of rural areas, providing primary care to the most vulnerable section of society.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Comprehensive telemedicine solution, captures most of the vital diagnostics, and enables remote consultation • Diagnosis and test on 35 parameters
Affordability	• The cost of services is dependent on the partner, which implements the solution on the ground • Cost of device is reasonable, around ₹2.5-3 lakh, which can translate into lower pricing
Business Model	• Only a technology provider (B2B) • They have provided equipment to most of the large telemedicine networks, including government of India, Sky Clinics and Glocal • Scale-up is dependent on implementers
Technology	• Proprietary product, but uses some third party devices • Covers most of the vital parameters and is internet enabled • Uses 32 Kbps of bandwidth and 2 watts power which can be charged with the help of USB port • ReMeDi® – NOVA is a portable solution with multiple diagnostic tests and works on Bluetooth with low energy consumption
Team	• Founders have a sound expertise in building technology solutions • Progress on innovation front but challenges in scale up

Apollo TeleHealth Services

Founded Year	1999
Headquarters	Hyderabad
Promoters/Founders	Vikram Thaploo (CEO): 15 years of experience across companies such as Barista Coffee, Pattisier's Gallery, Express retail and Steeplejack Prathap C Reddy (Founder): Indian entrepreneur and cardiologist, who founded the Apollo Hospitals Group
Outreach	115 telemedicine units across 13 countries including India, Sri Lanka, Nigeria, Oman, UAE, Uganda, Yemen among others

Overview

Apollo TeleHealth Services (ATHS) is the telemedicine arm of Apollo which provides a host of services and solutions through various programs. Apollo leverages its existing human resources to provide tele-healthcare services to the people. It launched PPP models with state governments to serve local communities. Apollo also provides tele-consultation services in CSCs (Common Service Centers). Apollo provides a large set of services including niche services such as tele-cardiology, coupled with extensive range of programs for its patients.

The Apollo TeleHealth solution uses high speed VSAT enabled connectivity, Mobile Medical units designed by Phillips. An in house team of experts in Apollo is involved in software development & maintenance for the purpose of tele-consultation.

- **Services** include tele-consulting, tele-radiology, tele-cardiology, tele-emergency, condition management, tele-home care and tele-ICU.

- **Solutions** include kiosks, mobile medical units for disaster management and mHealth. Kiosks are equipped with medical instruments such as digital ECG, body scale, computer with **Medeintegra** enabled & printer, digital BP monitor, digital stethoscope, video conference and patient couch.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Although running eUPHCs, the focus is on enabling access to specialist and super-specialist care e.g., tele-cardiology, tele-radiology etc.
Affordability	• Cost of consultation for primary care in CSC is ₹100. However, the specialist consultation costs are higher, ranging between ₹1,000 to ₹2,000
Business Model	• PPP with State Government (government pays) • Partnered with CSC to provide tele-consultation (franchise model) • Specialization telemedicine centers in its existing facilities
Technology	• High Speed Technology, VSAT enabled • Tie ups with ISRO and Phillips • Has its own software division for managing the IT infrastructure
Team	• Able management with experience in successfully running hospitals

- **Programs** undertaken by company include – eUPHCs with Government & Telemedicine centers.

- **Common Service Centers:** Provide primary & preventive healthcare services to rural communities and also promote social health education.

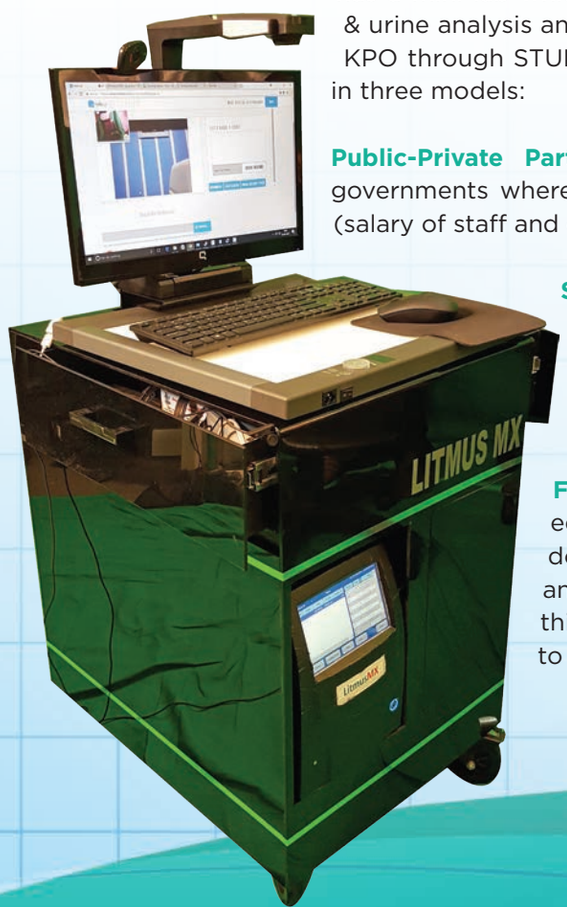
- **Corporate Care:** Telemedicine setup is made available at the workplace and staff can consult Apollo doctors.

Glocal Digital Dispensaries

Founded	2010
Headquarters	Kolkata (West Bengal)
Promoters/Founders	Dr. Sabahat Azim (Founder & CEO): A trained Medical Doctor and ex-IAS; founded SREI Sahaj e-Village Ltd, a pan India rural ICT Venture and Glocal's affordable hospital chain.
Outreach	100+ digital dispensaries in Rajasthan, Odisha, West Bengal and Jharkhand

Overview

Glocal Healthcare Systems Private Limited, which has successfully launched low cost hospitals in underserved cities, intends to setup a chain of **'Digital Dispensaries'** called G1 Dispensaries to deliver comprehensive primary care including consultation, medication, and investigation in the underserved parts of India. Glocal has developed a proprietary software solution, **Hellolyf** which is used for tele-consultation and works on 2Mbps connectivity. It has also developed an intelligent clinical decision support system tool called **LitmusDx**. Services include tests & diagnosis for primary healthcare, consultation with the doctor, prescription for the treatment and dispensation of drugs as per prescriptions. The digital dispensary has a mini-lab which can test for Malaria, Dengue, Typhoid, HB, Blood Sugar & urine analysis and a pharmacy. Each of the dispensaries is linked to Medical KPO through STUN & TURN servers. G1 digital dispensary currently operates in three models:



Public-Private Partnership Model: Glocal enters into a PPP with state governments wherein the government pays for the setup and operating cost (salary of staff and other running costs).

Self-owned Model: In this model all the expenses are undertaken by Glocal and the customer is charged directly. The average pricing for a complete consultation is aimed at around ₹120 (consultation inclusive of medication) and tests are charged separately.

Franchised Model: A local entrepreneur invests in the equipment and Glocal provides the backend support (including doctors for consultation). The patients are charged as above and the revenues are shared. Glocal is looking to scale up using this model and has tied up with financial institutions for loans to franchisees for the set up investment.

Review of Model

PARAMETERS	DESCRIPTION
Focus of Care	• Comprehensive primary healthcare, with referrals to Glocal and government hospitals
Affordability	• Dispensaries operated for the government are free for the public (Government pays) • Consultations with basic medication priced at ₹120, with separate charges for tests
Business Model	• Owned, franchised and PPP models with state governments • Owned models charge the patient directly • In PPP models, government bears the set up as well as operating costs • Utilizing capacity of in-house doctors from its hospitals • Referral to Glocal and government hospitals for higher level treatment
Technology	• Glocal's telemedicine framework uses webRTC, a browser based communication between patients and doctors. • Uses LitmusDx – end to end Clinical Decision Support System, developed by Glocal • Electronic medical record and prescription • Sources hardware from other vendors and integrates it into a kiosk (has earlier used Yolo and Neurosynaptic hardware) • Offering also includes a remotely controlled medicine dispenser
Team	• Able management team, which has scaled up hospitals and previously CSCs (computer kiosks in rural India).

Yolo Health

Founded Year	2015
Headquarters	Mumbai
Current Investors	Chandigarh Angel Network, Fund Tonic, GrayCell Ventures; total disclosed funding: $235,000
Promoters/Founders	Dhilly Babu (Founder& Director): B.Tech and M.Tech, founded a Fintech company, which has been acquired by Miles Software Solution. Shreyas Gandhi (Founder & Director): Ph.D in Biomedical engineering, IIT B, worked in R&D.
Outreach	Currently 44 ATMs deployed across Karnataka, Chhattisgarh, Kolkata and Mumbai; struck a deal with a consortium of NGOs which have potential to deploy 2,000 units in 3 yrs.

Overview

YOLO Health builds Health ATMs which can perform health check-ups, connect to a doctor and maintain patient records. The Health ATM caters to multiple diagnostic tests including BMI & Body Composition, Pulse rate, Oxygen Saturation, Blood Pressure, Lipid Profile, Blood Glucose, Hemoglobin, etc. It has a 12 Lead ECG, IR Thermometer, Derma scope, Digital Stethoscope, HD Video Conferencing, finger print authentication, printer & scanner and a capacity to instantly deliver health reports.

A patient can walk into a YOLO Health ATM, get a health check-up done while consulting a doctor through telemedicine, get a prescription and even have mobile health access in the future. The ATM has a tele-consultation module for remote consultation and can share patient vitals with the doctors. The communication is done over a 1 Mbps bandwidth using cellular network (2G/3G). The ATM offers both online and offline consultancy.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Provides technology for primary care and diagnostic services • Enables remote consultation
Affordability	• YOLO is largely a technology provider and the cost of services depend on the implementer • ATMs are priced between ₹2-5 lakhs, which is comparable to other similar products
Business Model	• Technology solution provider that sells product to service providers – hospital chain, NGO, government etc. • Gets revenues from maintenance and replacement of consumables • Dependent on orders from implementers for scale up
Technology	• Works on 2G/3G bandwidth (1 mbps) • Online/offline consulting • Integrated with mobile platform and other HMIS solutions • Includes several parameters of diagnostics; can integrate other diagnostic devices and card based tests
Team	• Both the founders are serial entrepreneurs, and have been successful in scaling up technology businesses in the past.

The ATM can also be easily integrated with other diagnostic devices and HMIS applications. The YOLO health solution has the following features:

- Live video consultation
- Instant diagnostics
- Preventive health check-up
- Digital health record
- Option of continued mobile consultation

YOLO has the following two revenue models:

1. Selling the Health ATM unit to other health service providers, i.e., hospitals who want to open rural health clinics or implementation agencies funded by Govt./NGOs.

2. Pay-per-use ATM – installed such ATMs at railway stations.

The Yolo device provides both diagnosis and consultation with a good list of features. The technology is a platform which integrates existing point of care solutions.

Medongo

Founded Year	2015
Headquarters	Bengaluru
Promoters/Founders	Nikhil Kariappa (CEO & Co Founder): Computer science engineer also the director of Holkoi Technologies Puneet Gurnani (CFO): Electronic engineer, Puneet has held the position of manager with Grupo Kaybee and is also CEO at EHRscribe Inc.
Outreach	Currently operational in 100 Mohalla clinics in Delhi and managing 10,000 consultations per day; claims 25 lakh consultations completed within 1 year of its establishment

Overview

Medongo is a healthcare delivery company, which not only provides telemedicine services through its own kiosks but also provides technology solutions to other hospitals and clinics. Their clinic management systems are being used in 100+ Mohalla clinics across Delhi. Medongo also provides online consultation through remote care options, where people can consult doctors from their homes. They have also ventured into services such as provisioning doorstep sample collection, e-pharmacies, ordering home care services, thus creating a complete health ecosystem.

MedonGo claims to have a unique cognitive, artificial intelligence interface to record, analyze, and diagnose illness to support the health care systems. Some of the services offered by the company are as follows:

Health Kiosks: Company has set up 20 kiosks which provide instant doctor consultation through telemedicine, remote diagnostics and medicines through a vending machine. Telemedicine kiosks are equipped with Digital thermometer, Stethoscope, ENT scope, BP Monitor, Glucometer, HB monitor, Urine analyzer, Pulse reader, ECG and body weight analyzer.

INIC Management Systems are loaded with features such as OPD management, appointments management, clinical decision support system, pharmacy inventory management and billing systems.

The Kiosks are installed at strategic locations to assist patients at hospitals, and primary care centers. In rural locations, Kiosks are a key interface that assist access to e-consults for users who may not have access to personal computers or smart phones.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Provides technology solution for telemedicine, currently covers vital diagnostics only • Has a medicine dispenser controlled remotely
Affordability	• Product priced around ₹5 lakh for ATMs & dispenser
Business Model	• Primarily technology providers with limited focus on managing service provision to patients • MedonGo depends on various partners to develop a healthcare delivery system
Technology	• Integrated with mobile platform • Both online/offline consulting • Managed to reduce diagnosis time by 2-3 minutes per patient due to digital records of patient history
Team	• Experienced founding team with serial entrepreneurs

The Medongo team is looking for government partnerships and NGOs to support setting up health kiosks in rural areas where they integrate the rural demand with the urban supply. They have also started to manage their own kiosks, however this is in experimental stage.

eVaidya

Founded Year	2011
Headquarters	Hyderabad
Promoters/Founders	Srinivasa Rao Paturi (Founder & CEO): 20 yrs. experience in power sector in various positions including COO and CEO Dr. PBN Choudhary (COO): He has an experience of over 14 years in Healthcare and Healthcare IT industry. He worked earlier for UnitedHealth Group, Napier Healthcare Solutions Pvt. Ltd, MedRC Edu Tech and Cecilia Healthcare Services Pvt. Ltd. He has MBBS from NTR University and MS in General Surgery from Manipal Hospital
Outreach	500-700 remote consultations through Dial ur Doctor as of 2016.

Overview

eVaidya runs a dedicated medical helpline wherein doctors are available 24/7 for advice. The company provides help in non-emergency conditions, working on primary and preventive healthcare. It also provides customized healthcare plans for individuals, families and corporate. It offers medical consultation over the phone, email, video chat, instant messaging, discussion forums and VoIP. In PPP model eVaidya, with the state governments, sets up and operates ePHCs.

eVaidya offers following services:

Dial ur Doctor: Helps patients connect with specialist doctors from their home on a per consultation basis or Monthly/Yearly subscriptions.

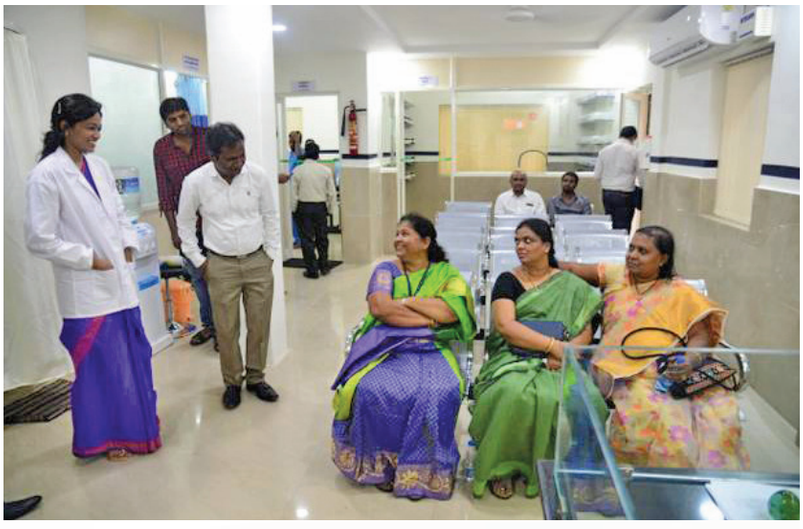
Public Q&A: People can post queries on a public platform, which are answered by doctors, free of cost.

ePHC: In a PPP model with Andhra Pradesh government, company sets up healthcare centers which provide physical/virtual access to physicians, lab (63 lab investigations), virtual access to specialists, pharmacy and imaging services .

Corporate Wellness: Company offers comprehensive healthcare packages including Digital Clinics.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Primary care as well as specialist consultation. Customized healthcare plans for individuals, families & corporates • ePHCs in PPP model only in Andhra Pradesh • Increasing focus on wellness programs
Affordability	• Subscription prices for 'dial ur doctor' range from ₹199 for General Practitioner to ₹2,500 for specialist unlimited annual package
Business Model	• Online consultancy is targeted towards urban educated consumer • ePHCs in PPP with State Government • Moving towards higher ticket size per customer and aggregated services like corporate wellness programs
Technology	• Medical consultation over the phone, email, video chat, instant messaging, discussion forums and VoIP. • Works on 2G/3G bandwidth • The retail model only offers consultations, while they have installed diagnostics capacity at the ePHCs
Team	• Founders have two decades of experience in various corporate roles to entrepreneurship.



eVaidya provides virtual general as well as specialist Doctor consultation to patients on subscription basis apart from providing free personal health record storage for all the customers.

eVaidya, in PPP models with the Government of Andhra Pradesh has set up primary care centers. It also offers corporate wellness program in which it partners with corporate organizations and offers healthcare packages to its employees.

WHP - Sky Program

Founded Year	2008
Headquarters	New Delhi
Promoters/Founders	Gopi Gopalakrishnan: Over 20 years of experience in implementing large-scale service-delivery programs in low-resource settings.
Outreach	Over 210,000 teleconsultations, largely for primary care in underserved communities through their 6,000 rural Sky franchisees (as of 2014); presence in India (Bihar, Uttar Pradesh, West Bengal, Jharkhand, Gujarat and Rajasthan), Kenya

Overview

World Health Partners (WHP) is an international not for profit organization that provides health and reproductive health services in developing countries by harnessing local market forces to work for the poor. In the telemedicine segment, WHP launched “Sky Clinics” that use a social franchise model with local entrepreneurs.

The Sky Clinics aim to provide healthcare by supporting local providers with additional training, connect them to a reliable supply chain for medication and build telemedicine connections with other providers. Initially, the Sky Clinics used to source the telemedicine devices from Neurosynaptics. WHP has now come up with its Althea products and a central medical facility to enable tele-consultation solutions.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Primary health services
Affordability	• Sky clinics charge between ₹50-₹300 per consultation
Business Model	• Social franchisee model with trained local entrepreneurs • The franchisee pays an upfront fee for joining the network (training and the equipment). The patient is charged for the consultation, while WHP charges a fixed fee from the entrepreneurs for each consultation • The initiative has been mostly grant financed
Technology	• Althea Plus works on 30 kbps Bandwidth. The other variant Althea works on less than 30 kbps • Web based algorithm solution for tele-consultation
Team	• Experienced and dedicated Management

The products offered by WHP are:

Althea Plus: A range of plug and play devices, integrated into a technology platform housed in a tablet. The devices can be used offline to conduct screening patients and online to communicate with distant doctors.

Althea: Lower version for situations where the bandwidth strength is lower than 30 kbps. This captures only still images, and audio can be transmitted for these consultations.

Central Medical Facility: Based in Delhi with qualified physicians which are connected through a software solution for remote consultation at Sky Clinics.

Welcare Health Systems

Founded Year	2013
Headquarters	Chennai (Tamil Nadu)
Promoters/Founders	Dr. Tamilarasan Senthil (Founder& CEO): Ophthalmologist and Healthcare Entrepreneur with 10 years of experience in Healthcare Businesses Dr. Malathi (Director): Experience working in top Corporate Eye Hospitals in India and teaching in Sri Rama Chandra Medical College Chennai
Outreach	Welcare's Tele-ophthalmology solution has reached out to over 350,000 patients through 275 centers in across Delhi, Rajasthan, Kolkata, Odisha, Telangana, Karnataka, Kerala, Tamil Nadu & Andhra Pradesh

Overview

Welcare Health Systems targets the fragmented ophthalmology market with special focus on diabetic eye care. Welcare sets up an affordable eye screening service inside existing Diabetes centers, General hospitals, Clinics and other health centers.

The company provides:

- **Pediatric Vision Screening**
- **Diabetic Retinopathy Screening**

Welcare installs an internet-connected retinal screening device in existing health centers and trains staff to take the subject images which are then uploaded via internet onto a cloud based server. The back-end team of Ophthalmologists then reviews the images and sends the reports back within half an hour.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Provide partial solution to ophthalmology • Focus on vision screening and Retinopathy
Affordability	• Retinopathy screening costs between ₹100-₹200 • Pricing is significantly lower (half) than the market price
Business Model	• Focuses on B2B partnerships. Unit is set-up in existing clinics and hospitals which already have patient footfall • Integrated with the host clinic/hospital, with easy referral • Pricing is variable based on a minimum volume commitment • Tie-up with individual doctors, Apollo and Government Andhra Pradesh
Technology	• Currently use the equipment from Forus Health • Key features – EMR, patient management, referral, billing, Cloud integrated • Works on low bandwidth
Team	• Promoters combine medical and managerial expertise • Have experience of managing medical businesses

Patient information is securely transferred online to Welcare's certified Ophthalmologists for review and diagnosis. The results and recommendations for follow-up are then shared with the patient via staff at the facility of their registration. The solution's bandwidth utilization is low and communication can be performed on a telephonic network.

The company operates two revenue models:

Reporting Model (Software & Ophthalmologist Reports): Partner Centre/health facility invests in the Equipment and Welcare provides the software and Ophthalmologist reporting solution.

Telemedicine Package Model (Equipment, Software & Ophthalmologists Reports): Welcare invests in setting up the Equipment and works on a revenue sharing model with partner centers.

Hello Health

Founded Year	2009
Headquarters	Mumbai
Promoters/Founders	Suvanjay Kr Sharma (CEO): Ex Vice President at Yes Bank, has also worked with Morgan Stanley and UBS
Outreach	Piloted in CSCs in West Bengal, Tamil Nadu, Punjab & Haryana and 8 Digital Clinics across New Delhi

Overview

Hello Health is a healthcare delivery company which provides Home Care, Corporate Health Care and Cancer Services and has started telemedicine services through its Digital Clinics recently. Hello Health also deploys "Remote Patient Monitoring" technology which is used to continuously track conditions of critical and Cancer patients.

Its main business is on-demand home care services for nursing, caregivers, pre & post-surgical care, mother & baby care, Parkinson's and Alzheimer's care etc. Additionally, Hello Health has set up Medical Rooms in corporate centers and Health camps in association with various organizations. Hello Health has also set up Smart Cancer Care Centers for comprehensive cancer care at smaller locations.

Hello Health has integrated technologies such as remote health monitoring, personalized portals, portable medical equipment across its services. Some of the services offered by the company are as follows:

Home Care Services: Services include bringing of medical equipment at home, specialized care unit at home, Remote Health Monitoring devices and personalized health monitoring portal.

Smart Cancer Care: Cancer Diagnosis, Pathology, Chemotherapy, Remote Monitoring and virtual doctor consultation provided through Smart Cancer Care Centers.

Digital Clinics: Providing diagnostic tests, pathology and tele-consultation (currently tele-consultations not enabled).

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Major focus is Home Care and Smart Cancer Care • Digital clinics for offering primary care is a new initiative
Affordability	• Basic diagnostics/tests in the digital clinics cost between ₹10-100, which is very affordable
Business Model	• Digital Clinics have been set up in partnership with the government (CSCs & NDMC). NDMC or CSCs provide the space, while Hello Health invests in the setup and training. Customers pay for the services availed, which is shared between Hello Health and the operator
Technology	• Tele-consultation, remote monitoring devices and portable medical equipment. The equipment is sourced from third party vendors
Team	• Experienced management team has successfully run the homecare business earlier

The Digital Clinics have been started in association with the government (Common Service Centres (CSC) and New Delhi Municipal Corporation (NDMC)). In this model the government provides the space for the Clinic, while Hello Health sets up the equipment and trains the person running it.

The revenue is split between Hello Health and NDMC or clinic operators in CSCs. People can walk into the clinic and get tests like Blood glucose, BP, ECG, BMI, Spyrometry, Pulse oximetry and Body temperature etc. at a fraction of the market cost.

Doctor Insta

Founded Year	2015
Headquarters	Gurgaon
Promoters/Founders	Amit Munjal (Founder & CEO): CFA, Harvard and Kelly Graduate, Amit has worked with Deloitte, BAML, Citi Bank, BrahmaX Ventures Dr Amarjeet Bhatia (CMO): Has more than 15 years of experience in General medicine field and has worked with hospitals such as Apollo, Batra and Fortis
Outreach	Approximately 1,000 consultations per day; covered more than 3,00,000 families

Overview

Doctor Insta Private Limited is a video-medicine platform that provides online consultation through an online application – Doctor Insta. It offers telemedicine, online video consultation, and online doctor service, online medical consultation for pediatrics, psychology, Gynaecology, Dermatology, Psychiatry, Sexology, Homeopathy, diet and nutrition. It also offers facilities for online appointment booking.

The company enrolls doctors on the app and provides them the backend App through which they can see patients and provide consultations. Doctor Insta has apps on iOS, Google Play Store and web platforms which enable online consultation through inbuilt video calling functionality. The app also maintains health records of the patients and diagnostic reports based on historical data. It is also used to book appointments for doctors.

Doctor Insta also provides an option of second opinion from doctors based out of the US. Additionally, the company also has tie ups with corporates where employees can consult the doctor over the apps and the company pays for the services to Doctor Insta.

Review of the Model

PARAMETERS	DESCRIPTION
Focus of Care	• Primary care • Doctor consultation through video for general as well as specialist physicians (such as in the field of pediatrics, psychology, Gynaecology, Dermatology, Psychiatry, Sexology etc.)
Affordability	• Doctor Insta charges ₹400 per consultation catering largely to the middle class population
Business Model	• Enables video-consultation with empaneled doctors and gets a fixed fee for each consultation • Being an asset light model, it is highly scalable, but will require huge marketing expenses • Only provides technology and quality is dependent on the service provider, therefore quality control is a challenge
Technology	• Mobile App with patient record maintenance, video consultation feature and also appointment booking feature
Team	• The management is experienced and well-networked

The Opportunities

As is evident from the reviewed models, Telemedicine is not a new concept and some of the models have been in existence for more than 15 years. With an improving ecosystem and growing acceptance by the government, Telemedicine, today, holds greater promise than ever before. Good Telemedicine models can solve the challenge of universal primary care in India.

OPPORTUNITIES THAT TELEMEDICINE CAN UNLOCK

Access to Primary Healthcare: Telemedicine can take the doctor services to underserved areas without their physical presence. It solves the issue of unavailability of qualified doctors and basic diagnostics in such areas.

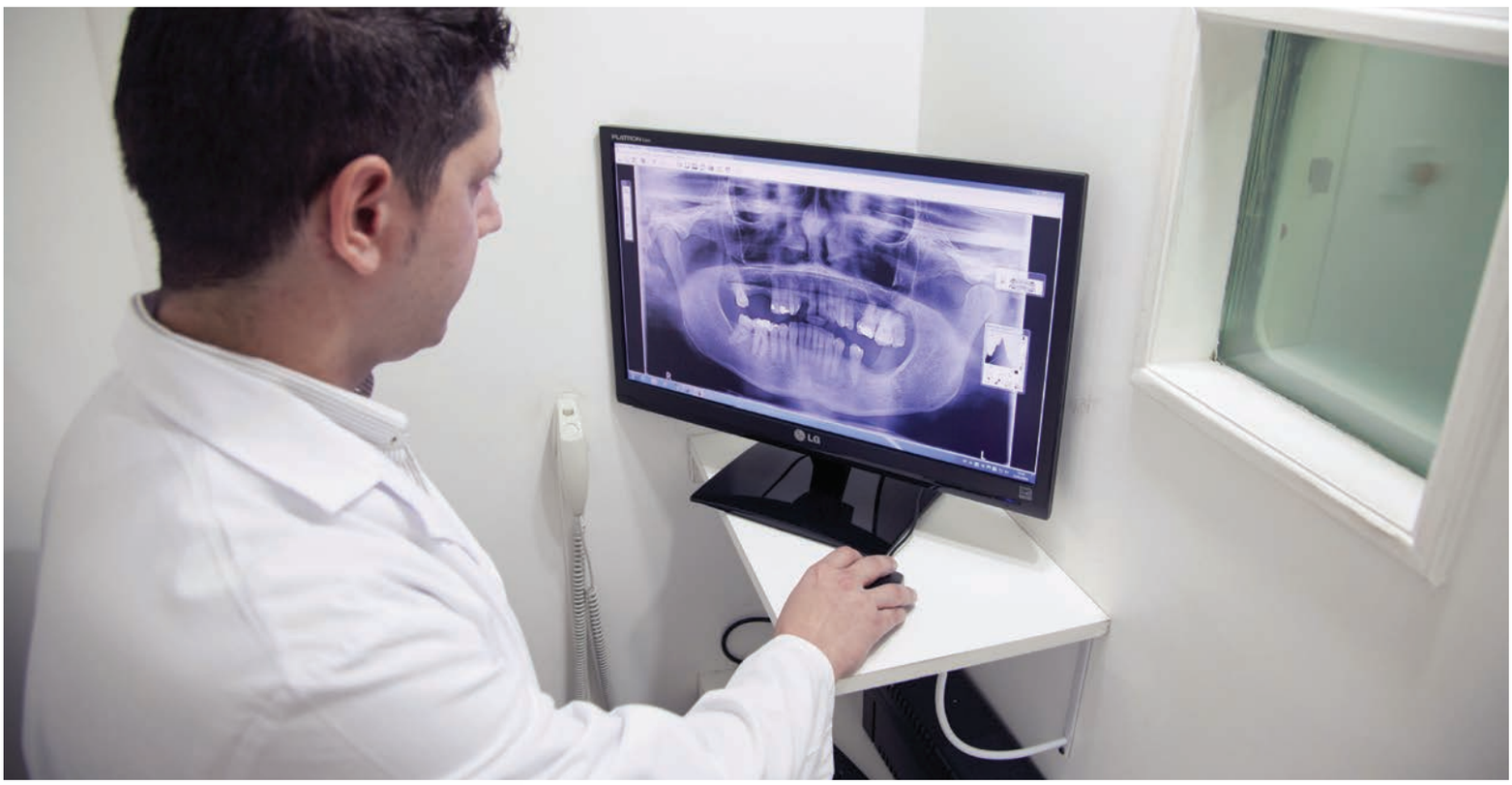
Reducing Cost of Healthcare: Telemedicine can provide cost effective medical care and convenience bringing down cost for the providers as well as out of pocket expenditure of the poor by precluding travel for primary care. Early diagnosis and cure can prevent catastrophic expenditure on healthcare.

Access to Specialists: By establishing a network of e-diagnosis and referral, specialized care and second opinions can be made accessible to the people in remote areas as well as for the urban middle class in the convenience of their homes.

Regular Monitoring: Remote monitoring for chronic ailments, critical, cancer and post-operative patients can improve convenience, reduce travel requirements and bring down cost.

Operationalizing PHCs: Government has a huge number of PHCs, which struggle to function due to unavailability of manpower. Telemedicine can provide a viable alternative for making these PHCs functional.

The Challenges



Telemedicine players can broadly be categorized into (1) technology providers and (2) healthcare service providers or implementers. Technology providers are companies focused on designing technology modules for healthcare services. Examples include – Yolo, Neurosynaptics, Medongo, etc. Service Providers/Implementers are companies operationalizing telemedicine solutions and providing last mile access to the patients. Examples include – Glocal Digital Dispensaries, Apollo Telehealth, WHP & eVaidya. Both technology as well as service providers face challenges in scaling up these models.

CHALLENGES FACED BY TECHNOLOGY PROVIDERS

Market Access: Technology providers depend on implementers/service providers for their business. Most of them lack the capability of managing a network, inventory, manpower, including doctors, at scale. They struggle to create market for their products. Presently, they have been selling solutions mostly to donor funded NGOs, which is not scalable.

Technology Differentiation: Most technology providers offer similar solutions with very little differentiation in the offering. Building intellectual property and getting clinical validation will create entry barriers and help deepen market penetration.

The Challenges

CHALLENGES FACED BY SERVICE PROVIDERS/IMPLEMENTERS

Competition: Existing medical practitioners in areas of operation have an established patient base and goodwill in the community. This is a barrier for new entrants. In addition, provision of free primary healthcare services by the government means that, customers will pay only if they perceive real value in the services.

Connectivity: Uninterrupted power and seamless internet connectivity with sufficient bandwidth is a pre-requisite for telemedicine. In remote locations, both inputs are unreliable and back-up in the form of battery/generator may increase operational cost substantially.

Technology Adoption: Technology adoption challenges exist both for patients as well as doctors. Customers still prefer a certain amount of human touch/face to face interaction with the care provider. Telemedicine players need time and effort to build trust in the community to overcome this challenge.

Human Resource: Providers not only need to enroll doctors to use technology, but recruit and train frontline (nursing or paramedic) staff. Availability of such human resource is a challenge in remote locations.

Volume of Profitabiity: Building patient volume requires upfront investment in awareness generation and marketing. Most providers have been unable to generate volumes of paying customers to achieve profitability across their network.

Access to Capital: Both technology as well as service providers need access to patient capital for investment in technology, manpower, capacity building and marketing for expansion.

The Way Forward

In order to achieve scale, the models will need to create a comprehensive offering and better customer experience. There is scope for innovations to bring further efficiency and offer a good combination of technology and execution capability, required to scale up telemedicine.

SUCCESS FACTORS FOR SCALE-UP OF TELEMEDICINE

Technology: Most of the technology solution providers are using an assembly of existing point of care diagnostic devices to build an integrated platform for delivering telemedicine. There is little differentiation and low barriers to entry on the hardware. The value add is mostly on the software or integration platform. There is a need for technology to be differentiated to build a competitive advantage and further innovate to improve functionality, affordability and adoption. Simple to use devices which can be operated by low skill human resource, protocol based decision support system or intelligent systems for quicker diagnosis and management will improve efficiency and standardize the quality of care across the network.

Service Offering: Although, telemedicine can facilitate virtual interaction with doctors and specialists and remote monitoring of patients, its defining disruption is ensuring universal primary healthcare for the underserved. From this perspective, a telemedicine model should offer a one stop solution for primary health needs – including doctor consultation, basic diagnostic, medication and referral if required. This will require a network with physical touch points (nodes or centers) through which offerings can be promoted and patients can access them conveniently.

Sustainability: Majority of telemedicine business models have been funded by donors or the government. Providers have to strike a balance between affordability and sustainability while pricing their services. Since, telemedicine is a new concept, there is need for significant investment in marketing, customer education and behavior change to build receptivity and acceptance towards remote health solutions. Most models will need regular flow of 15-20 paying patients per day at each center to achieve sustainability. The centers need to be located in areas lacking quality healthcare, with sufficient catchment population and at a prominent and accessible place in order to generate adequate footfall.

Financing: The telemedicine enterprises require significant patient capital for upfront cost of setting up telemedicine networks and customer outreach as well as to cover initial operating losses. Due to lack of models with proven sustainability, investors shy away from investing large amounts in telemedicine solutions. Hence, softer funding leveraging CSR, donors and Public-Private-Partnerships to build volumes and demonstrate viability is the way forward in the short/medium term.

For succeeding at scale, providers have to build a value proposition through technology/ process innovation and/or service package which is hard to replicate by local players. In the fast evolving technology context, providers will switch to the most convenient and affordable technology. Execution capability of creating and managing a large network of telemedicine nodes will be the differentiating factor for any model, which will ultimately drive the demand.

Conclusion

India has had a history of poor health indicators. While health outcomes are improving gradually, trends show a wide disparity in the way progress is taking place. The lack of quality care in government facilities and the unaffordability of private care have created a vacuum of quality affordable care for the most vulnerable sections of society. This is being manifested by a lack of adequate healthcare infrastructure and medical professionals in low income pockets of India, eventually resulting in premature deaths, and high out of pocket expenditure on healthcare pushing 39 million people into poverty each year.

The first step in overcoming the challenge is making universal primary care accessible and affordable. With the advent of telemedicine based models, geographical barriers can be overcome and quality medical help can reach the remotest of areas in a timely manner. The use of ICT to deliver care can reduce cost for the patients substantially and the emphasis on regular monitoring can significantly bring down the chances of late diagnosis and increase in severity of illness, indirectly leading to a reduction in medical expenses.

Several models have emerged that are leveraging technology to enhance access to healthcare. However, market based sustainability is yet to be proven. Telemedicine models must strive for superior technology that is simple to use, operate and is tailored to meet the requirements in remote areas. They should focus on creating a better customer experience by offering comprehensive care and long term sustainability. Simultaneously, patient capital is required for supporting these models in their scale-up phase.

Today, with high mobile prevalence, infrastructure for reliable electricity and internet, reducing data costs, recognition by the government and changing customer behavior, telemedicine is at an inflexion point in India. The IT industry is taking giant strides towards futuristic technologies and the start-up culture is aiding the growth of innovative tech-enabled models. The application of these concepts for affordable and accessible healthcare solutions, for the large magnitude of needy population, is becoming increasingly hopeful. This is evident as India's telemedicine market, which was valued at $100 million in 2011, has reportedly grown to four times by the end of 2016.

Thus, the ecosystem is ripe for the growth of telemedicine models, and increasing government focus and investor interest means that this sector is poised to grow in the years to come.

Pahal
Partnerships for Affordable Healthcare Access and Longevity

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