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Web Exclusive

What makes telemedicine the next big mover in the Indian healthcare space

Apart from lab services, diagnosis and second opinions from super specialists, telemedicine even offers long-distance ICU services to the remotest corners of the country today

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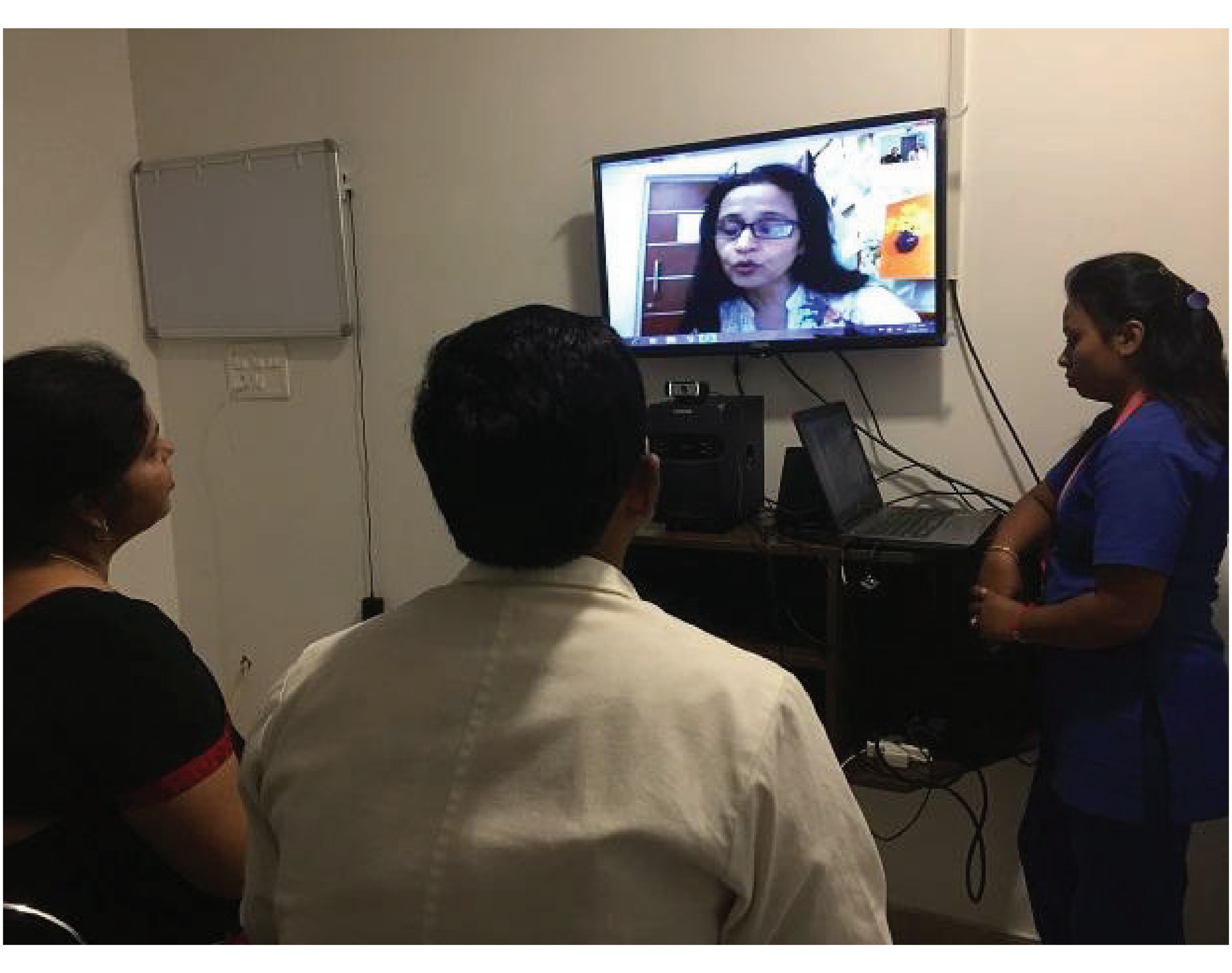

A telemedicine centre run by Tattvan in Bareilly

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A 22-year-old from Bhatinda suffering from epileptic fits for 10 years tried various therapies in his hometown to get rid of his ailment. Nothing worked. Desperate, the boy's parents thought of consulting a specialist in Delhi. Thankfully, they didn't have to travel all the way to the Capital. Instead, they were connected online from the local clinic in Bhatinda to a neurologist in Delhi, through the MedECUBE network. MedECUBE is a healthcare service provider with several telemedicine clinics in India and 12 abroad. This company, in turn, referred the case to a specialist at Stanford, who is on the firm's panel of over 100 experts.

An examination of the scan reports revealed that the patient did not need medicine for epilepsy, as the problem was psychiatric in nature. So the young man's treatment regimen was changed, and he was soon administered anti-anxiety medication. This is a classic case of a second opinion delivered long distance through a healthcare system called telemedicine, which has rapidly gained traction in a connected world.

Reaching super specialists across the globe

MedECUBE's second-opinion offering is one of its most utilised telehealth applications, a model used intensively internationally.

Depending on the patient's screening, appointments are taken with a specialist or super specialist and the final diagnosis is done. The telemedicine clinics that MedECUBE operates are managed by a doctor who is able to understand the language of a specialist. "A second opinion is as much for the patient as it is for the doctor. I believe in this day and age, patients can easily access second opinion and the best of care," say Dilpreet Brar, Founder and MD, MedECUBE.

The big advantage is that a specialist needn't waste time travelling to a remote place for OPDs. "A pediatric neurologist attached to a large, city-based healthcare centre, wouldn't want to take the trouble of travelling to a smaller town, simply because he will not have enough cases for him handle there. It isn't worthwhile either financially or in terms of the time and energy spent. In such cases, tele-consult works very well," explains Brar.

Telemedicine was developed to reach remote areas that have limited access to healthcare. During the past twenty years, several different models have been tried and tested, and now that the technology is mature, telemedicine clinics have a clear agenda. Even the government is readying its health and wellness clinics to offer telemedicine in tier-II and tier-III towns. Second opinions, pre-operative, post-operative continuum of care, reduced travel costs for patients and access to care closer to where patient lives are some of the key benefits of this mechanism. This is after almost 19 years since the first telehealth clinic was set up at Aragonda by the Apollo Hospitals group in 1999. In fact, March 24, the day Bill Clinton inaugurated the centre, is now marked as Telemedicine Day by the Indian Medical Association.

Connectivity within hospitals

Apollo uses a mesh network to connect doctors within its 74 hospitals with one another, and also to reach patients. Initially, the group started telehealth as a B2B service within the hospital, for internal communication, board meetings, and for doctors to discuss cases online. The network also facilitates grand rounds in which complicated cases are presented, and a super specialist within the system is consulted.

Since all its clinics are connected as well, a sophisticated web portal and an app provide patients access to any doctor at any location within the network. Apollo telehealth clinics are franchisee services within a hospital, pathology lab or a radiology lab. "The telehealth centres are set up at places with significant patient footfalls," says Vikram Thaploo, CEO, telehealth, Apollo Hospitals Group. Patients walk in and consult with any doctor within the Apollo health network. The group has 100 telehealth centres in India and 20 in nine other countries.

E-ICU: Breaking new barriers in healthcare

Apollo has been running is an E–Intensive Care Unit, creating a virtual ICU with a command centre in a tertiary care, super-speciality hospital. It has partnered with the Himachal Pradesh government in Lahaul Spiti, at a district-level hospital close to the China border. "We have set up a tele-emergency centre and have saved more than a thousand people the past three years," says Thaploo. The emergencies range from heart attacks to skull fractures to snake bites. Paramedics have been trained in emergency response by Apollo and are connected to emergency rooms in Chennai and Hyderabad, 24x7. The moment an emergency is reported, the paramedic connects with the intensivist at Apollo and is guided to treat the patient through telehealth connect in real time.

This model is also being used by a standalone company, CritiNext, founded by Dr Amit Varma, who is also the founder of Healthcare Fund, Quadria Capital. "We have a command Centre based out of Fortis Escorts, Delhi and through it, we monitor 350 ICU beds across India, Nepal and Bangladesh," says Varma. The idea came when, as an emergency room intensivist, Varma would get a call almost daily from tier-II and tier-III cities requesting medical help or wanting him physically to come out and see a critically ill patient.

He had seen a similar model during his fellowship days in the United States 25 years ago, so he decided to create a hybrid model of care himself. CritiNext works with Philips and GE. Its sophisticated machines were installed in hospitals that would transmit live data to the command centre in Fortis Escorts. A two-way audio-visual camera was placed on the patient's bed to facilitate communication, so that critical advice could be given to the doctor at the site.

A doctor is trained in ICU protocols, SOP skills and then sent back to man the remote location. At the command centre, there is a bank of monitors, one trained and certified intensivist, two physician assistants manning the command centre who monitor the remote sites 24 hours. As soon as an alarm goes off, the patient needing immediate attention is identified and instructions given. Secondly, at night, monitoring of patients in the ICU moves to the command centre, since remote areas are unlikely to have many trained intensivists. "We have six doctors who are part of CritiNext and we keep on hiring more and more people as we expand our footprint," Says Varma.

CritiNext partners with Fortis on a profit-sharing basis and a team of trained doctors runs it.

Tele-diagnostics

The technology used in digital radiology has come of age, the quality of machines has improved substantially, images are sharper, and bandwidth has improved. Moreover, the CT scanner and MRI have been around globally for the past 30 years, and enough domain expertise is available. Yet, it is the unequal distribution of radiologists that has led to the rise of tele-radiology.

Arguably the most exciting use of telemedicine is in tele-diagnostics and tele-radiology, where Max Hospitals is staking its claim with its 14 hospitals. The chain has one of the biggest concentrations of radiologists -- over 100 in various locations with 25 sitting at its nerve centre in Saket, headed by Dr Bharat Aggarwal, Director, Radiology Services. Max has specialist radiologists who focus on specific body parts.

"The software is sophisticated and can serve areas even with low bandwidth. It is nimble and versatile, with a wide variety of features that help improve diagnosis," says Aggarwal. All images are completely digitised and the standard language used in radiology, called D–Com, is universally understood. With integrated images and reports, there is respect for privacy.

Max Healthcare has set up tele-radiology centres within India at Rudrapur, Srinagar, Allahabad, Banaras, Meerut, two in Agra, Gwalior and Naguar in Rajasthan. It also has two growth offices, co-branded with MedECUBE. in Afganistan and Africa -- countries quite low on healthcare services.

It has also tied up with a secondary international service provider, Alum Health with a patient base across Asia and Africa. Patients can log into the Alum Health portal from anywhere in the world, and upload their reports. This is a B2C portal so they can even request for a radiologist of their choice to assess their report.

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It also makes economic sense for hospitals to connect through tele-radiologists because an entry-level machine costs Rs 15 million, while a high-end one comes for as much as Rs 150 million. Add to that the maintenance costs.

Pathology too is making its mark in tele-diagnostics. CORE Diagnostics, a focused pathology lab, offers second-opinion services in that area.

A hospital or pathology lab needs to place a high-end scanner at the point where the patient's slide is prepared. It scans the report and sends it to CORE for further action. CORE has more than 100 pathologists on its global panel, apart from its team sitting in Gurgaon. The international panel is 'site' specific – with experts in a particular 'site' in the body. For example, slides on breast cancer are reviewed by Dr Mark Pegrum at Stanford, while prostate cancer slides are examined by Dr Mahul B Amin, a respected expert at US Cedars Sinai Medical Centre. "We have the world's foremost experts on board and work through them. Any lab or hospital willing to put up a slide scanner can avail tele-pathology, which is currently offered to 12 centres," says MedECUBE's Brar.

Tele-ophthalmology

Hyderabad-based LV Prasad Eye Institute (LVPEI) sees a large number of patients with a wide range of diseases. With two hundred units connected to the main centre in Hyderabad, it sees between 4,000-5,000 patients daily. "The things we are doing here don't even exist in the best engineering schools. We are trying hard to capitalise on technologies to improve patient care, healthcare and human life," Says Dr Ashutosh Ricchariya, associate director, engineering group, Srujana Innovation centre, LVPEI.

The innovation centre at LVPEI focuses on raising the benchmark of clinical practice by evaluating the diseases objectively, in order to get an indication of the disease early and understand it better. The second objective is to make care accessible and affordable. So telemedicine is being used to push existing technologies and take the best practices of the main campus to rural centres.

The innovation team under Dr Ricchariya has come up with a unique slit lamp -- a basic tool used in eye examination -- robotized it and installed in a rural centre. Using this lamp, a doctor sitting in Hyderabad can do a real-time examination of the patient at a remote place. At the rural centre, an optometrist helps the patient sit in front of the system and connects to the tertiary centre.

The idea started in partnership with LVPEI cornea consultant Dr Mukesh Taneja, who went to Bascom Palmer Eye Institute at The University of Miami. The Ophthalmic Biophysics lab at Bascom Palmer had a prototype that was developed for the US military for facilitating examination in battlefield. Dr Taneja wanted to modify it and use it in rural areas. The University of Miami agreed to share the prototype, so the innovation centre reoriented the entire technology to make it suitable to Indian conditions.

Ten systems have been installed and in the second stage, 16 more will be in place. The scale-up to 200 centres will roll out in phases. Two thousand patients have been seen so far, and a team of 20 engineers -- optics, mechanical, Electronics, artificial intelligence and software -- are working on this project.

Independent tele-clinics: Bareilly Ki Telemedicine

After recovering from a major accident when he was college, Ayush Atul became obsessed with changing conditions on the ground for people facing similar circumstances. As a professional at Moody's, he came across international telemedicine projects. "If any country needs telemedicine, it is India, both in terms of medicine and rural outreach," says Atul.

Five years ago, he found a solution when he met with Dr Sanjay Swarup, head of Orthopedics at Artemis Hospital, Gurgaon. He quit Moody's and started his own market intelligence venture in order to fund his dream – Tattvan. With Dr Swarup as a co-founder, the first telemedicine clinic with a local doctor as partner in Afganistan was set up.

The second clinic opened in Bareilly and next on the anvil is Guwahati.

Atul's hometown is a leading healthcare hub in western Uttar Pradesh. Within a 60-km radius, there are five key districts -- Badaun, Pilibhit, Rampur, Shajapur and Rudrapur -- which depend on Bareilly for healthcare. Besides, there is an influx of patients from neighbouring Nepal. The patient pool is large, but the facilities are good for primary and secondary care only. For more sophisticated care patients need to visit a metro. For follow up too, one has to make a cumbersome trip to big cities. But a tele-clinic takes care of both issues, connecting patients to Artemis, a super-speciality tertiary care hospital that takes care of treatment and subsequent follow up.

The cost of setting up a clinic is Rs 1.5-2 million with all its equipment. Operating costs are estimated to be over Rs 3 million a month, with two doctors, support staff and diagnostic facilities available at the clinic itself. In the first thirty days, Tattvan attracted 26 new patients.

India's healthcare requirements throw up opportunities at every level, particularly in rural areas, where the majority of the population lives and has limited access to good hospitals or medical practitioners. Opportunities abound to fill that gap. One such has been tapped by Gramin Health Care services.

The Indian Farmers Fertilizers Cooperative Limited (Iffco), is one of the biggest societies owned by Indian cooperatives. Founded in 1967, it currently has over 36,000 members. Apart from selling fertilizers, it is also into Insurance and rural telephony. In order to ensure the welfare of its membership base, drawn mainly from the rural farming community, Iffco invited Gramin Healthcare services to use its Iffco Bazaar premises to set up rural clinics. Since 2016, Gramin has been running 100 of its 280 Iffco bazaar centres.

The Primary Care Clinics are manned by a paramedic. The model is assisted telemedicine.

A Gramin Health card with a prepaid amount of Rs 120 is being tested for a family for one year. Eighty per cent of healthcare requirements are met at this level. Anyone from the community can walk into these clinics and consult a doctor. Basic diagnostic tests are managed and monitored through a technology platform. In Tier-III and rural areas about 15-20 villagers walk in every day. Minor ailments are taken care of by a health worker who mans the clinic.

Tattvan clinics charge Rs 600 per specialist consultation, which is the going rate in Bareilly, even while the same doctor charges 1,500 in Delhi. MedECUBE charges a little more than the doctor's OPD fee to cover its marketing costs. It pays the doctor the amount he receives in his clinic.

PPP in telemedicine

Apollo has partnered with the Andhra Pradesh government to set up electronic Urban Primary Family clinics, or E-UPFC, under a public-private partnership model. Out of 220 clinics across the state, Apollo manages 164. Each UPFC has a paramedic, nurse, doctor, ANMs, a person to handle technology. All data is digital and the patient is able to consult with specialists online. "The clinics have been running for 18-20 months, and we have done over 100,000 consultations," says Thaploo. All centres are manned by our staff. Primary consult happens with a staff member, and video consultation is for super specialists, online. The government pays a monthly lump sum per centre, irrespective of the number of patients visiting the clinic.

Apollo also runs 115 vision centres for the Andhra Pradesh government. At a Primary health centre, a room is allocated for ophthalmology, fully equipped with an auto refractometers, lensometers, fundus cameras, with which you get your eyesight checked. The doctor manages from the hospital while the front end is manned by the optometrist. In this project, the government is distributing prescribed spectacles free of cost. The glasses are custom made and delivered to the patients. The seven-month project has led to 400,000 to 500,000 spectacles being delivered via tele-ophthalmology.

Continuum of care is an important pillar of healthcare and can run successfully through telemedicine. Apollo uses it in its condition management programme. Once a patient enrols, he receives a call on well-being 21 times a year, after the introductory call in which he is informed about the facilities, nutrition details, counselling for diabetics, and such like.

It is well known that there is an immediate need for primary health care in rural India. Government hospitals are understaffed and not very well equipped. NFHS-4 data shows that 55 per cent of households do not generally use government health facilities. Forty five per cent of them say there is no nearby facility and 48 per cent feel that the quality of care in government institutions is poor.

This is where telemedicine can intervene and change the face of healthcare in India.

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