

On February 10, 2007 the NBR Center for Health and Aging Health Information Technology and Policy (HIT) Lab convened 35 participants in Mumbai to discuss how disruptive technology can help scale healthcare in India. The following day, Navi Mumbai Municipal Corporation's Chief Medical Officer and his staff provided an interactive site visit of Mumbai's immunization clinics and public hospitals for Workshop participants, explaining how IT could help streamline services and free up community workers' time so that they could serve more people. Additionally, the head of IT for Wockhardt Hospitals led participants through hospital facilities and explained the institution's IT infrastructure and role as a destination for medical tourism.

The healthcare challenges of India's 1.1 billion citizens—with over 70% living outside of major cities, 80% paying out-of-pocket for services, and less than 10% covered by insurance—are as diverse and pervasive as the country is expansive and populated. Yet its distinctive role as a source of innovation and signpost of new technology adoption patterns uniquely positions India as a transformative model for other nations.

Instead of propagating a one-size-fits-all approach, workshop participants acknowledged that there will be multiple "boxes" and vendors of HIT in India's (and indeed the world's) future. We need a system that is both adaptive to this heterogeneity and also presents a unified face of HIT to the general population, even with so many players and choices. This is the challenge.



JVG Krishna Murthy highlights the PATH vaccine vial monitor technology on polio vaccines at a Navi Mumbai Municipal Corporation immunization clinic.

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Key Takeaways

Demand and entrepreneurship are the most effective drivers of HIT in India. Aid and grant assistance do not always allow basic market mechanisms to scale solutions effectively.

Use "wiki" software to create a platform for patients to communicate with each other and, in turn, help us better understand patterns of disease.

Bundle technologies to reduce the overall cost of care while increasing the reach of new innovations.

- Add sensors to cell phones
- Introduce kiosks that offer differentiated services
- Incorporate multiple functions on Smart Cards

Treat telemedicine not as an end in itself, but instead as a tool:

- A triage filtering mechanism to prevent hospital overflow
- A training and learning opportunity for doctors

Beyond Telemedicine: Demand & Entrepreneurship

Telemedicine might facilitate more diagnoses of more people, but it does not solve core problems: where do people in remote areas go to get medicine, and how do we ensure they get the right medicine and use it correctly? Effective healthcare is a lot more than a few remote consultations. It must complement—not replace—other services provided by local doctors and institutions.

While infrastructure and health needs may vary, every village should not need to develop a new system from scratch to address each problem. The key is to find a price point that is affordable and equipment that makes sense.

Where IT Could Help

In addition to providing immunization and treatment facilities, NMMC fieldworkers conduct education about services and home care, as well as prevention and early diagnosis of disease. Each worker serves 9,000 people and visits an average of 112 homes per day. The average fieldworker spends three hours of each day on documentation.

IT-enabled data reporting and aggregation could drastically improve services, freeing up fieldworkers to spend more time serving more clients more effectively, rather than filling out forms. Hospitals and health centers would also benefit from the integration of more technology.



The “blank records room” at NMMC’s General Hospital. NMMC serves the underserved through a five-tier health infrastructure developed through a grant from the World Bank: a mobile education and communication van; maternal and child health centers; mobile clinics; a general hospital; and urban health posts.

CASES PRESENTED

N-Logue’s Internet and Phone Kiosks

After four years of providing internet and phone services to rural villages, N-Logue received an e-mail from one of its kiosks with a photo attachment of a woman’s infected eye. This led to a very simple, remotely-monitored eye exam. After this incident, N-Logue arranged remote consultations with veterinary doctors, eventually moving to human patients. “We felt euphoric,” Ashok Jhunjhunwala, N-Logue advisor, recalled, “but that died down.” Telemedicine did not give clinicians the “big picture” on patients. “We needed something more.”

Aravind Eye Hospitals’ Mobile Screening Van

Aravind provides thousands of sight-restoring eye operations every year at subsidized rates, reaching India’s most remote areas and along the way restoring hope with vision. P. Namperumalsamy told participants about Aravind’s Mobile Screening Van, which visits rural villages throughout India. Using the van as a mobile exam room, staff take images and conduct assessments that are recorded in specialized software and then transmitted to an urban hospital for detailed analysis. “We just take advantage of what’s available.”

Wockhardt Hospital’s Health Information System

Pradeep Vaidya, Head of IT functions for Wockhardt, showcased the hospital’s health information system, which integrates inpatient and outpatient department data and streamlines the commercial processes that form the back end of hospital administration. The system also features interfaces to laboratory equipment, telephone exchange, and attendance and financial recording systems.

On the next page: Call to Action and Featured Participants

Featured Participants

Chintan Bakshi

Chief Operating Officer
United Villages Network, Ltd.

Baljit Singh Bedi

Advisor
Media Lab Asia

Deepanwita Chattopadhyay

Chief Executive Officer
ICICI Knowledge Park

Krishnan Ganapathy

Senior Vice President and Head
Apollo Telemedicine Network Foundation

Ashok Jhunjhunwala

Professor of Electrical Engineering
Indian Institute of Technology (Chennai)

JVG Krishna Murthy

Senior Program Manager
PATH India

Pamela Kumar

Director, Strategic Programs
Texas Instruments

Vikram Sheel Kumar

Chief Executive Officer
Dimagi, Inc.

Ashwin Naik

Founder
Vaatsalya

P. Namperumalsamy

Chairman
Aravind Eye Care System

Sanjay Pattiwar

Chief Medical Officer & Addl. Commissioner
Navi Mumbai
Municipal Corporation

P.S. Ramkumar

Executive Director
Integrated Health Care Group
Sobha Renaissance Information Technology

Kas Subramanian

Chief Scientific Officer
Strand Life Sciences

Pradeep Vaidya

Head, IT
Wockhardt Hospitals, Ltd.

Other Participating Organizations

HCL Healthcare Practice
Hewlett Packard Company
Intel Corporation
Janani
Kumar Pain Management & Speciality Centre
Microsoft
Voxiva

Call to Action Participant Recommendations

Triage Filtering Telemedicine screening centers in rural areas could help determine who needs to go to the hospital and who can be treated locally. This service could help link investment in telemedicine to hospitals as it would decrease overcrowding.

Data Collection Telemedicine could improve the collection of population health data. For example, “Master health check-ups” are not regularly performed in rural areas, but their introduction through telemedicine could provide a business opportunity while creating a foundation from which to pull together more population health data. Pharmaceutical companies might invest in such programs for the data they could generate.

Training and Community Service An “Initiation to Rural Medicine” program that would pay for three months of work on telemedicine would provide both great training and learning opportunities and enable doctors to “give back” to rural communities without changing their address.

Needs Assessment Companies and organizations should develop a pilot study to assess demand for HIT services—this study would help make the case for HIT to government.

Chronic Disease Monitoring System A national monitoring system for chronic diseases could help address or pre-empt the complications of noncommunicable diseases. This system could complement the registry that the Research Society for the Study of Diabetes in India wants to create.



A mother and her child at the NMMC Maternal and Child Health Centre in Mumbai.



Dr. P. Namperumalsamy, Chairman of Aravind Eye Care System, at the February workshop. In March 2007 he received the Padma Shri award in Medicine.

For more information about the Health Information Technology and Policy lab please visit:
<http://pacifichealthsummit.org/initiatives/hitlab/default.aspx>