Healthcare in Rural India: Challenges

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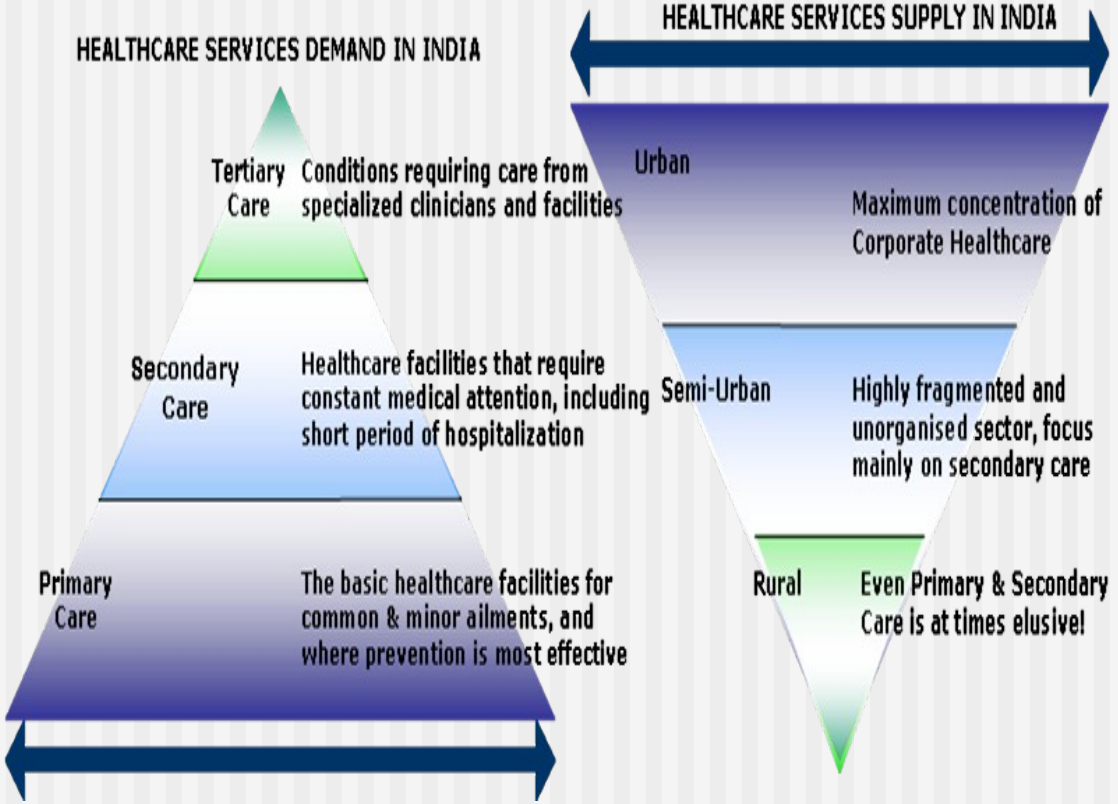
Reach of Healthcare in India

- Rural Context -

Heavily urban biased healthcare resources



- Rural Doctors to population ratio lower by 6 times
- Rural Beds to population ratio lower by 15 times
- Villagers spend 1.5 times more compared to urban counterparts for same illness
- Spurious drugs: 7 of 10 medicines in rural areas substandard / counterfeit

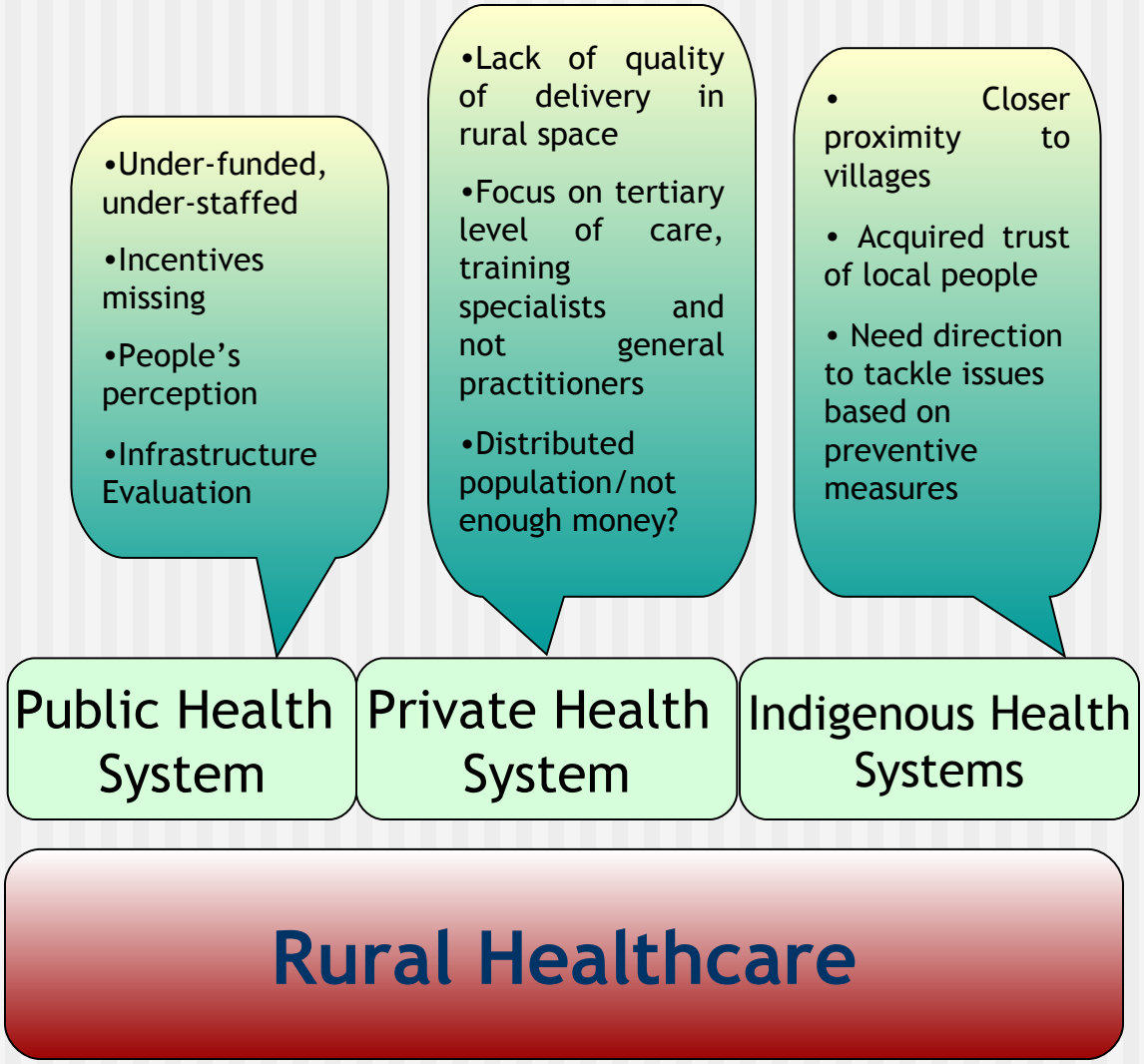
22 Million population pushed below poverty line annually due to healthcare expenditure alone, 40% of hospitalization expenditure funded by borrowed money or sold assets

Why Rural Healthcare…

- 700 million people living in 636K villages
- Preventable and curable diseases dominate the morbidity pattern; diarrhea, measles, typhoid
- 66% of rural Indians do not have access to critical medicine
- 31% of the population travel more than 30kms seeking health care in rural India
- a third of symptoms presented at the primary health setting might be psychosomatic in nature – “holistic approach is absent”

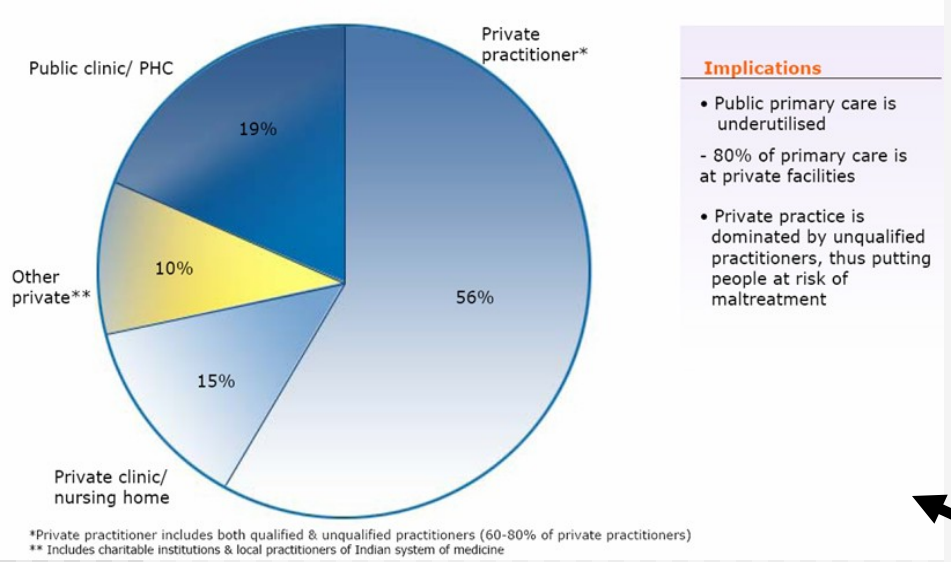
What is blocking Rural Healthcare delivery?

- Not attractive enough for private sector
  - Distributed population
  - Not enough money(?)
- Less efficient public sector
  - Incentives missing
- Lack of skilled health workers on ground
- Missing efficient distribution networks



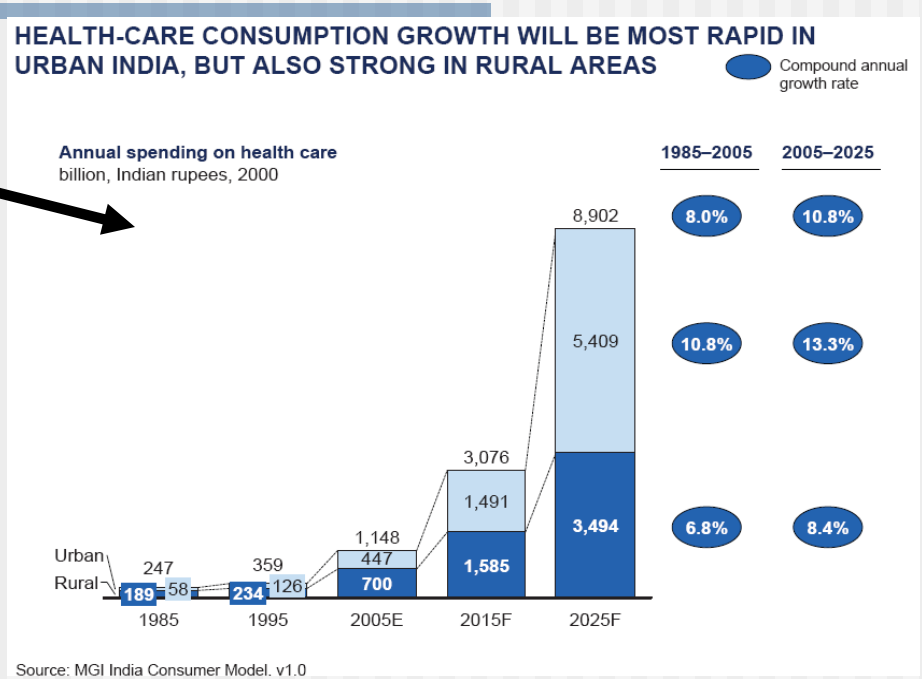
Healthcare – Some interesting realities

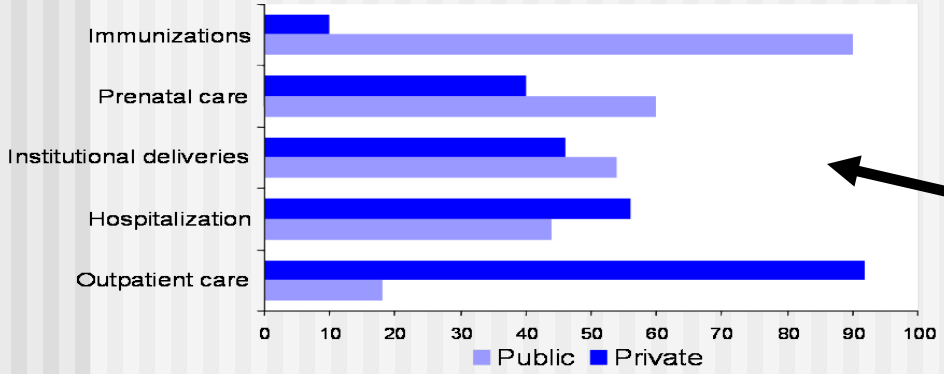
- Healthcare expenditure increasing rapidly in the rural areas



Implications

- Public primary care is underutilised
- 80% of primary care is at private facilities
- Private practice is dominated by unqualified practitioners, thus putting people at risk of maltreatment





- People who can afford, prefer private healthcare over public
- State network is predominant in preventive healthcare, private providers are preferred in curative healthcare

Some Fundamental Questions I

- We train less than 30000 doctors in India per year
  - Six years to train; expensive
  - Can we expect significant percent to live in Rural India?
- We do not have any other kind of medical practitioners
  - Three year diploma in medicine
  - Focused on Rural Health care

Some Fundamental Questions II

- Rural India largely served by RMP
  - Generally not MBBS
  - Some are quacks
  - Many are self-trained in traditional and modern medical practice / compounders /nurses
    - Some are quacks
    - Some not bad – liked by people
- Is it possible to train them?
  - Dos and donts
  - Supported by back-end consultation with doctors, referencing, tests, medicines and patient health records

Some Fundamental Questions III

- Will telemedicine bring trained doctors to rural people
  - Through video-conferencing
  - Will it be effective?
  - Will it be affordable?
  - What about medicine delivery?
  - Will a nurse at village help?
  - Can such model scale?

Some Fundamental Questions IV

- Is Modern medicine the all-in answer?
- What can be the role of traditional medicines?
  - Today, most rural people served by latter
- Can combination work?
- Who will decide and drive the combination?

Further: Can Technology Bridge this Divide?

- But technology is a mere tool
  - One needs to build a service delivery around it
  - Also, for rural delivery, they should be such that:
    - operatable by semi-skilled people – computer literate Graduates / ANMs
    - affordable to the villagers (25-40 Rs.), yet high quality
    - Should enable them to avoid unnecessary travel for the patient
      - 85% time travel must become avoidable
    - Able to utilize available infrastructure (Computer, low bandwidth)
      - should not require high end set-up
    - Improves the quality of healthcare
    - Consciously prevents misuse – eg. The operator becoming a quack!
    - And still is profitable to be scalable to entire India!!

Many Challenges…

- Connectivity and Power conditions
  - Availability, Affordability and Quality
- Compute infrastructure
- Medical Instrumentation and Telemedicine software
  - Affordability, Storage, Security
- Field implementation
  - Processes, Training, Ground Operations, Potential Misuse
- End-to-end addressing is critical
  - complete healthcare network needs to exist
- Cultural acceptability
- Business Models
  - For scalability and sustainability

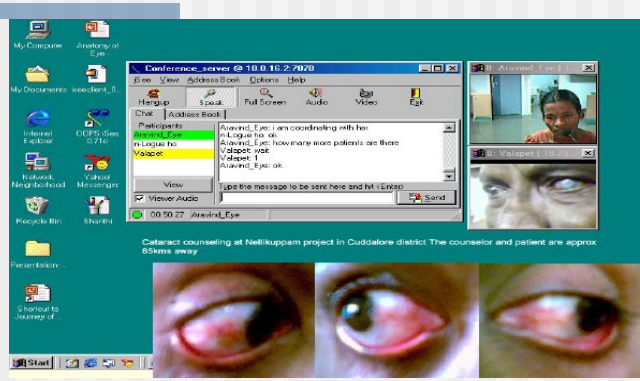
Existing Tele-Medicine solutions can’t scale to the entire RURAL INDIA for one or more of above reasons

TeNeT's Initiative for Rural Telemedicine

First step:

Connected villages to town doctors with low b/w videoconferencing through Internet kiosks

- Basic eye-care facilities, etc
- Doctors needed basic parameters for diagnosis



Remote Eye Care with Aravind Hospitals

Second step:

Developed multi-parameter diagnostics ReMeDi™ with Neurosynaptic

System Features

1. Real-time Video + audio + data transmission at 32 Kbps
2. Equipment taking rural conditions into account
3. Breaking the cost barrier while maintaining the quality

Medical Equipment – BP, ECG, temp, Stetho, Oximeter

Telemedicine Software

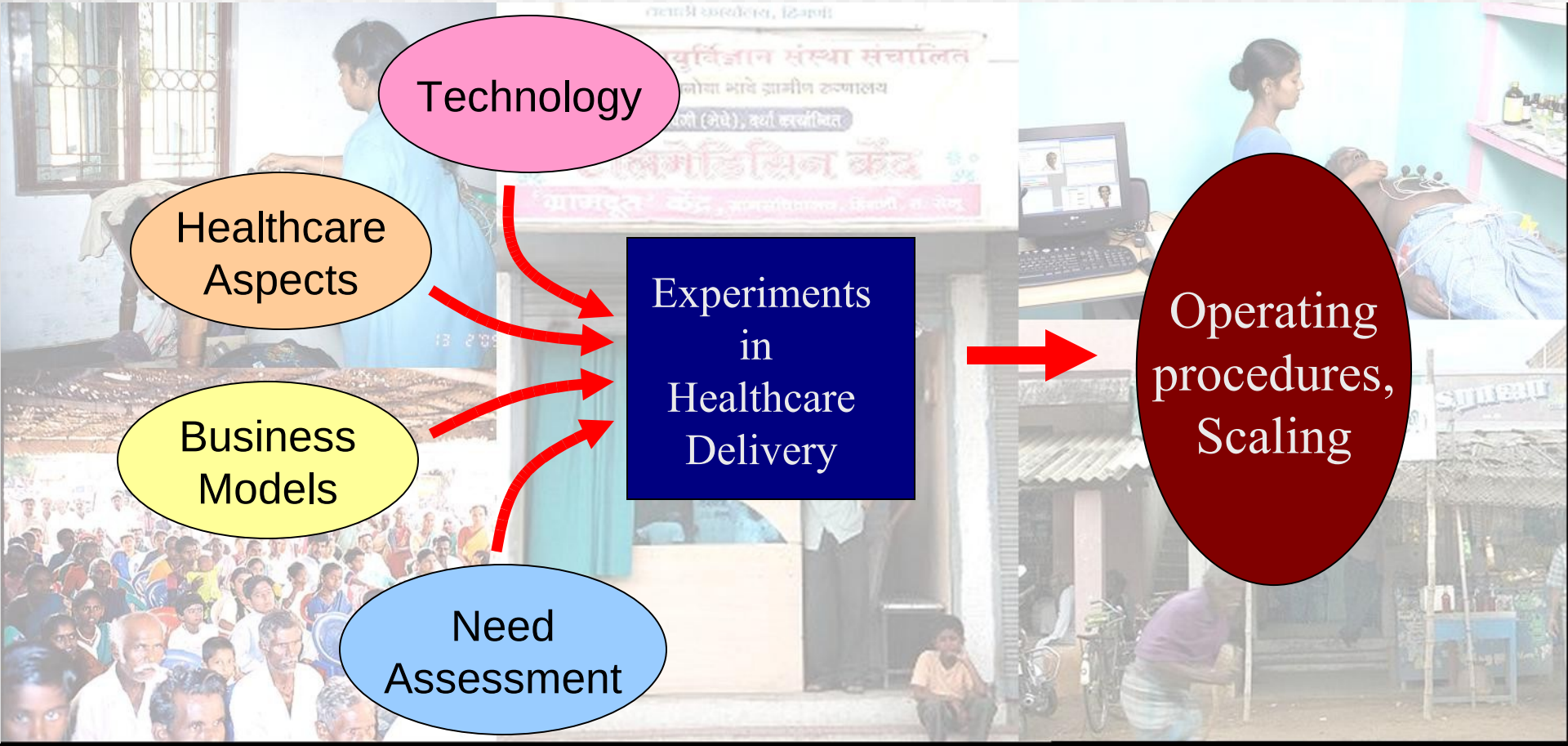
Electronic Medical Records

Client Server Architecture

TeNeT's Initiatives in Rural Telemedicine

Third step:

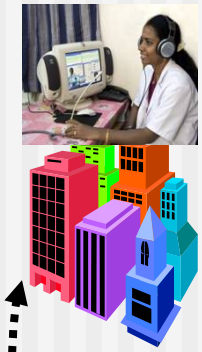
Field Deployment Experiments with healthcare domain partners



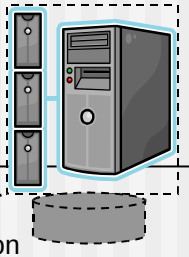
Healthcare through 100,000 Community Service Centers with Partnerships

Comprehensive Rural e-Healthcare Network

Village Health Center
- Computer & Accessories
- Power backup
- ReMeDi hardware, client software and Other Medical equipment
- Operator
- Internet connectivity

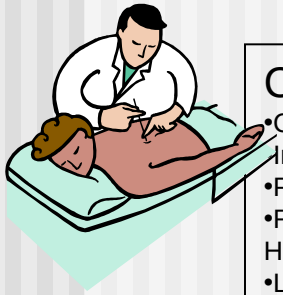


Hospital
- Doctors
- Computers with Accessories for Doctor clients
- Power Backup
- Digital Signature Facility



Central Server *
- ReMeDi server application
- Storage / backup hardware
- High Availability
- Internet for Clinics and External Doctors
- Physically located either at the Service Provider or Clinic/Hospital

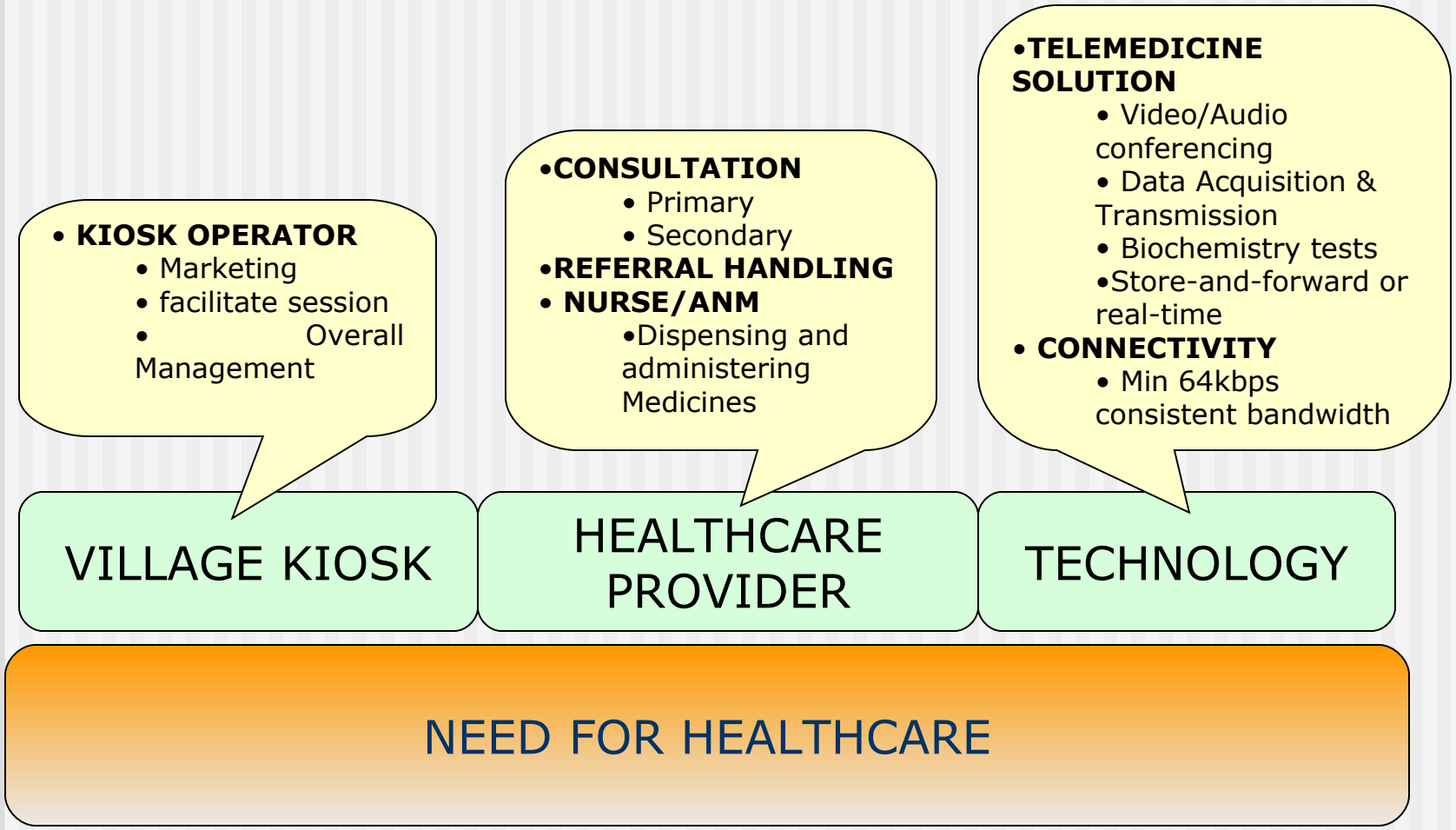
Wireless Internet



Clinics / labs / pharmacy
- Computer with Accessories Internet Connectivity
- Power backup
- ReMeDi client software, optional Hardware
- Lab test facility, referral handling
- Digital signature facility

Individual doctors
- Computer with Accessories
- Connectivity with internet
- Power backup
- ReMeDi telemedicine client software
- Digital signature facility

Business Model



Way forward

- Quality of healthcare delivery
- Collaborative Effort
- Equity in healthcare access
- Financial Impact

When will we get there?