Telehealth for Resource Poor Locations

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Introduction and Background

Tele-Health in India

History

Current issues

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- RSBY
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India – Health Situation

General

1.3 Billion population

Health - a state subject

<1 % of govt budget

- 5.3% of GDP spend
- Balance from patients' pocket

Exports Medical manpower to USA and other countries

- 375 Medical colleges
- Gets doctors trained in China, Nepal and Russian federation

70% of healthcare spend is private

- Corporate care 10%
- Large supply by SME sector

70-% of population rural

- Served by 30% (?5%) of qualified doctors
- Less qualified predominate in rural areas

Medical Tourism a growth area

- Indians too poor to afford them

People

WHEN healthcare NEEDS communication *support*

- Immobility *(patient or provider)*
  - Convenience
- Emergencies (*disasters*)
- Remote locations
  - Inadequacy of
    - Skills
    - Knowledge
    - Equipment?

Creating a communication link is easier than building a road

What is Telehealth

- Use information and communications technologies (ICTs) to deliver health services and transmit health information over both long and short distances.
- About transmitting voice, data, images and information rather than moving care recipients, health professionals or educators.
- Encompasses treatment, preventive (educational) and curative aspects of healthcare services for recipients
- Typically involves care recipient(s), care providers or educators

E health – Technical Infrastructure

Hardware

Telemedicine started 2000

- ISRO/DIETY/ School of Telemedicine etc

Mobile penetration >1 billion

- 75% of population
- Highest user of WhatsApp

Broadband -100 million

BBL –

- Collaboration of Powergrid , Railways and BSNL (for last mile)

NKN –

- Connecting all medical colleges with Fiberoptic network

Software - India Perspective

Largest manpower pool in the world

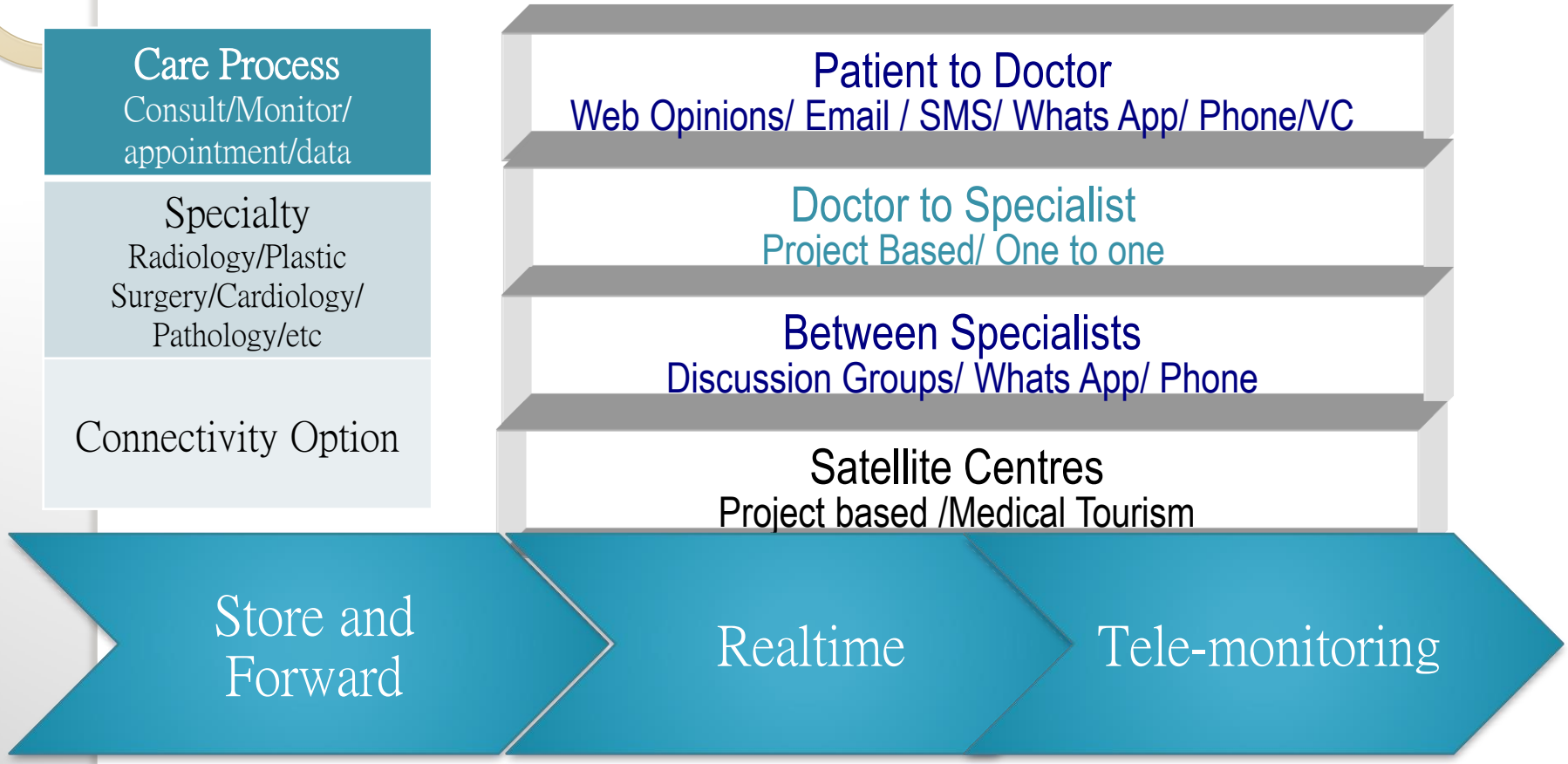
Largest exporter of software

English – A connecting Language

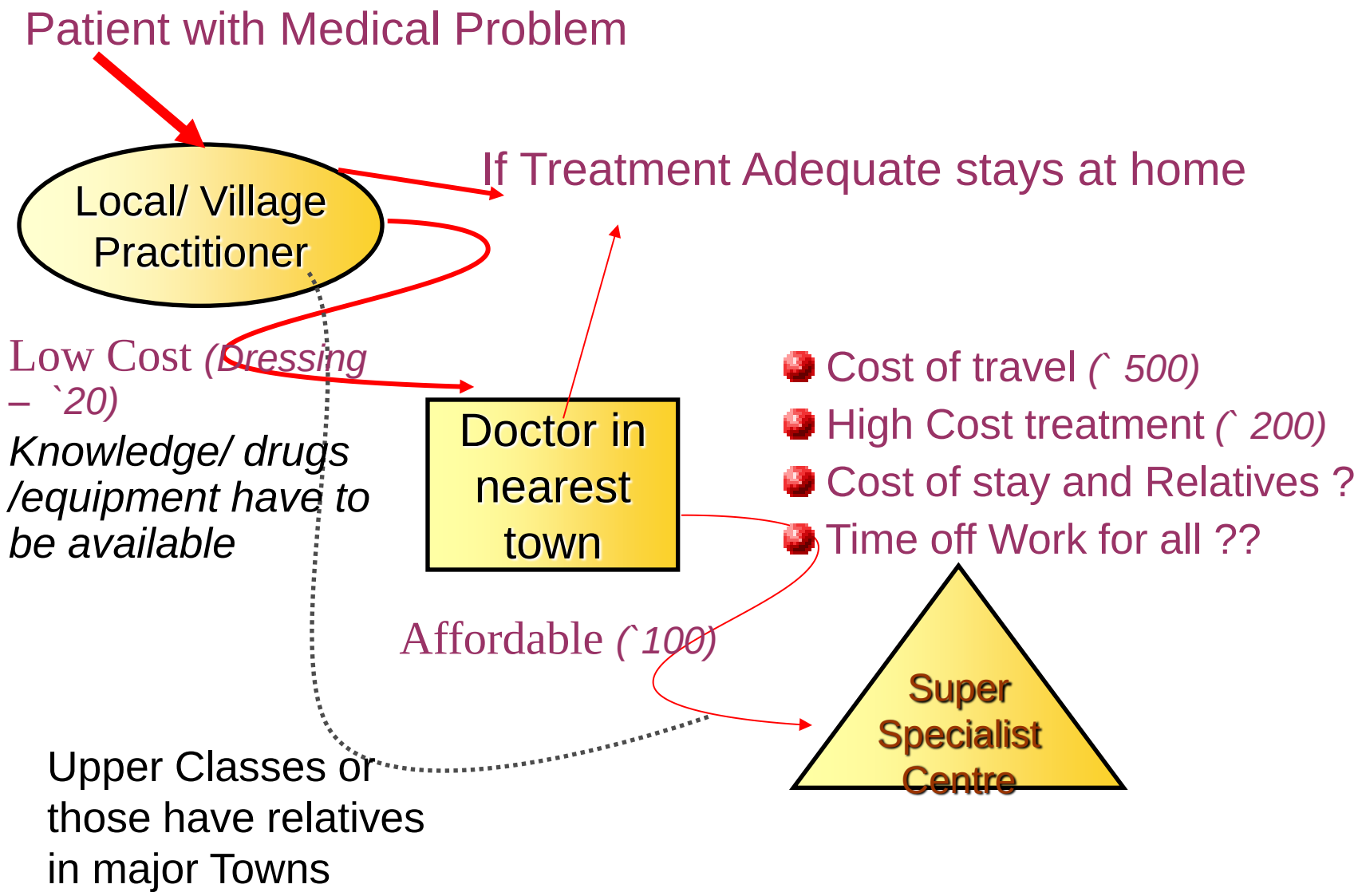
- <10% business spent inside India

Health IT Companies??

Classification



Treatment Processes



Communication modes

Speed required

- TEXT = <0.1 MBPS
- CLOUD BASED SYSTEMS ??
- VC / STREAMING = 0.5 - 1 MBPS

Wired

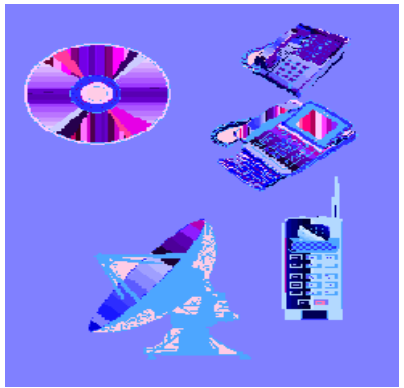
immobile/consistent

- Dial up
- Isdn
- Broadband
  - copper
  - Fiber-optic
- Ethernet (LAN)

Wireless

Mobile/Less consistent

- 2G/3g/4g
- Wifi/wimax
- Bluetooth
- Infrared
- satellite



The Philosophy

Telemedicine is a process - not a technology

People Rate Higher

Success teaches more than failure

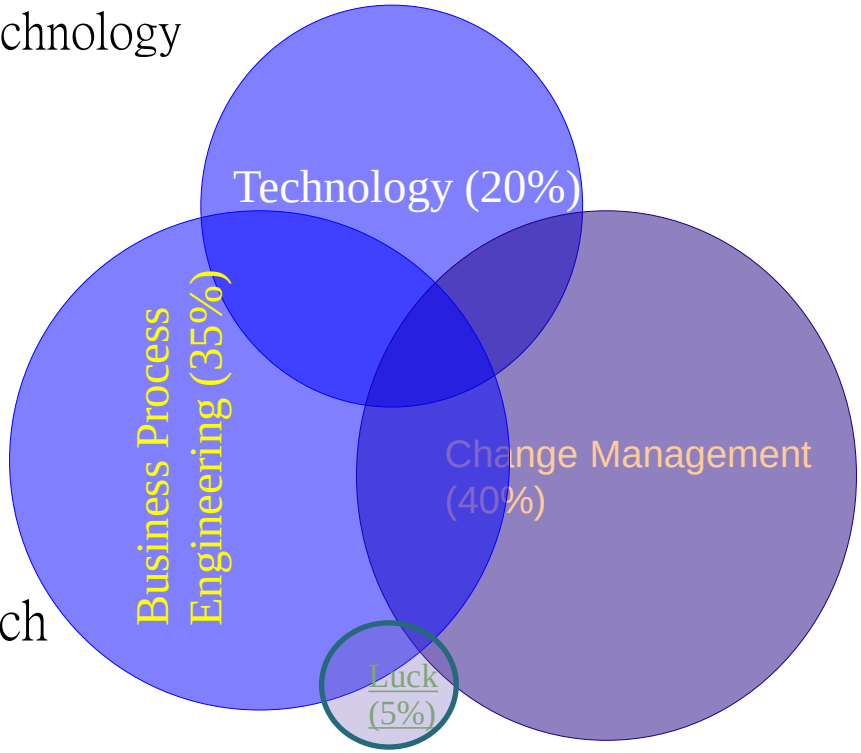
Follow Change Management principles

Reduce costs

Project failures have been high (?95%)

- More due to the personnel (40%) than technology (20%)
  - Change Management important
  - Role of common SOPs/software
    - standards

- Training /upskilling the key
- Appropriate and locally available tech
- Minimal /evolutionary change approach



Projects with limited success

EHealth Point in Punjab

- Packet of facilities
  - Telemedicine
  - Clean Water
  - Pharmacy
  - Lab
- Private / share holding pattern
  - Telemedicine handed over - after 20000 consults

Sky Health Centres

- Funded and awarded by Gates Foundation

Rashtriya Swasthya Bima Yojna (RSBY

Insurance at Rs 1 per day (free for BPL

Use of card (with embedded chip)

Fixed charges for a procedure

Online payments through smart chip

Online transactions /redressal

http://www.rsby.gov.in/

Precurser to NeHA

NeHA
National eHealth Authority

- ICD10/ICD 10 PCS
  - Training program since 2008
- LOINC
  - Labs for accreditation
- Govt mandated EHR Standards
  - Working from 2003
  - Notified in 2013
    - 2nd revision 2016
- SNOMED CT
  - Countrywide license 2014
  - NRC
- Others

SATHI Tsunami Project

- a case report

Telemedicine based healthcare support for the 2004 tsunami victims in Tamilnadu

Concerns *(after disasters)*

- More people die of after-effects of natural disaster than the disaster itself
- Need for reverse flow (Evacuation rather than send supplies)
- Mismatch between needs and services
- Need for mental health support
- Stress and fatigue among relief workers
- No community participation

Healthcare provision after Tsunami

Nagapattinam,Tamilnadu

- Excellent management by Government
- Felt need for Mental Health Support
- Mental health not part of WHO guidelines

PTSD suggested by

- Alcoholism
- Panic Reactions
- Depression and Helplessness
- Suicidal Tendencies
- Unable to go to work

The partners

- Oxfam – Funding and administrative support
- SATHI – Technical support, designing and operationalization of telemedicine system
- Local NGOs – Implementation and coordination
- Government of TN
  - Service delivery
  - Frontline workers
  - Health subcentres/ PHCs
- Specialists' institutions for actual Expert advice (SCARF, AIIMS)

Managing Change

Procedures followed

- Needs Assessment
- Check Background
- Concept marketing
- MOUs
- Installation
- Training

- Test Sessions
- Streamlining
- Create TCS Time Table
- Feedback
- Reporting Mechanisms

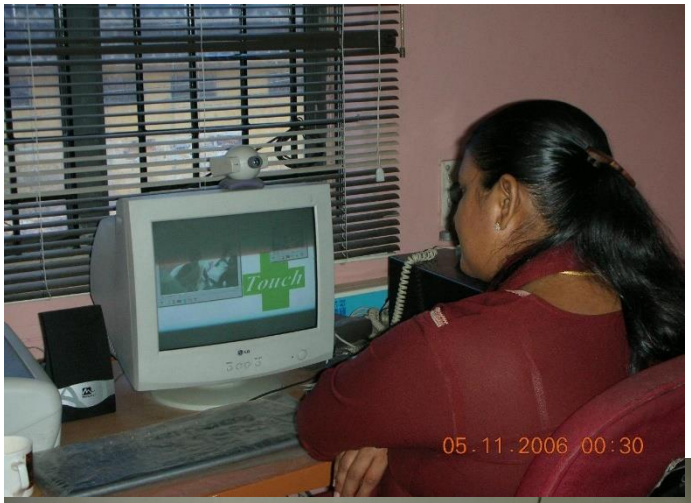
Outcome Analysis

Technology contribution to success - 20%

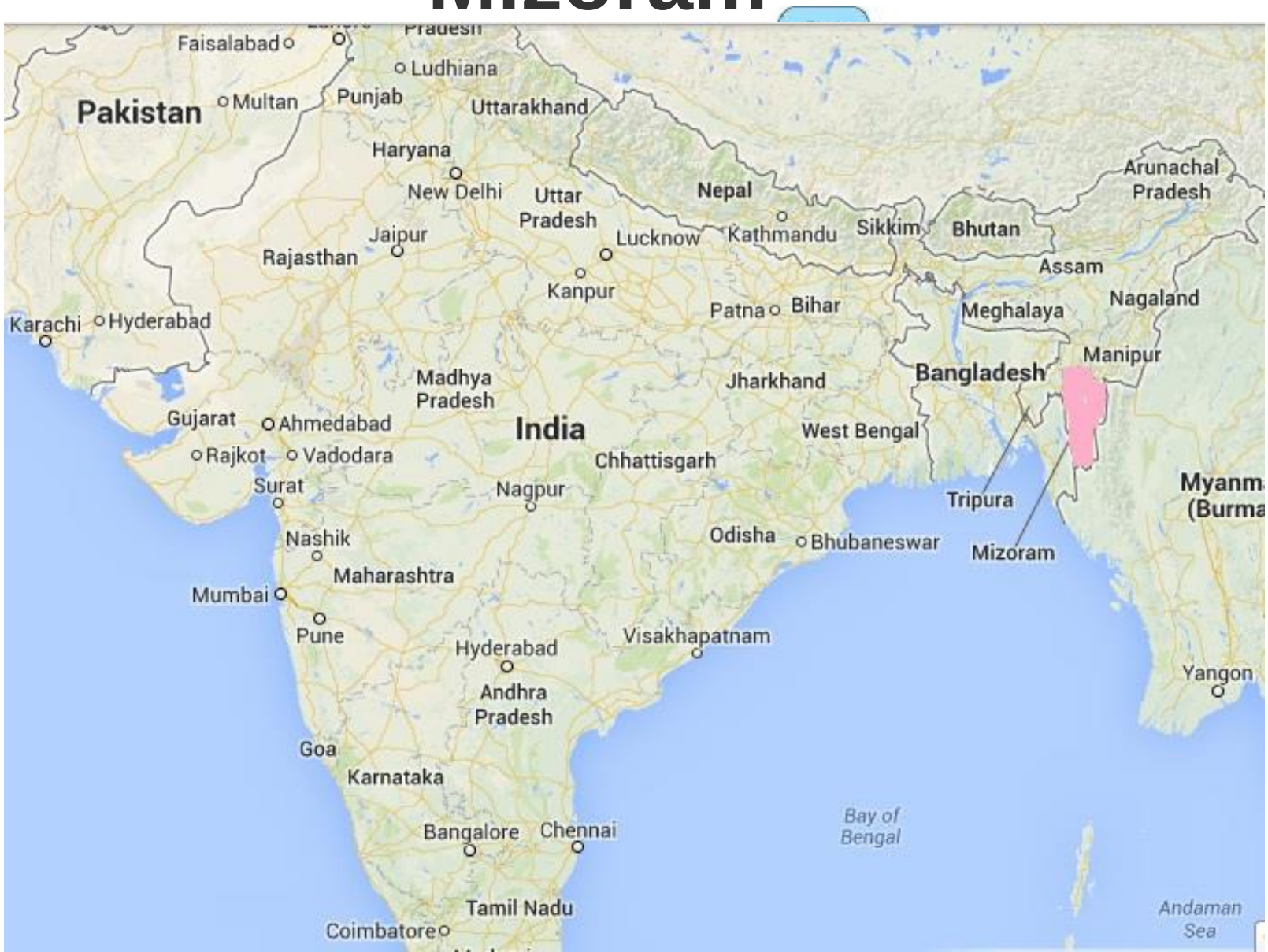
Outcomes *(2005)*

- A developed operational Model of telemedicine system that
  - ensures access to needed healthcare services
  - operable at village level
  - sustainable
- Capacity built : Community Health Team, NGOs, specialists institutions
- Package of Rapidly deployable Telemedicine Unit for disaster response developed and ready.
- Mental Health Services provided at community level (Over 250 consultations, 2 possible suicides prevented)

And it worked



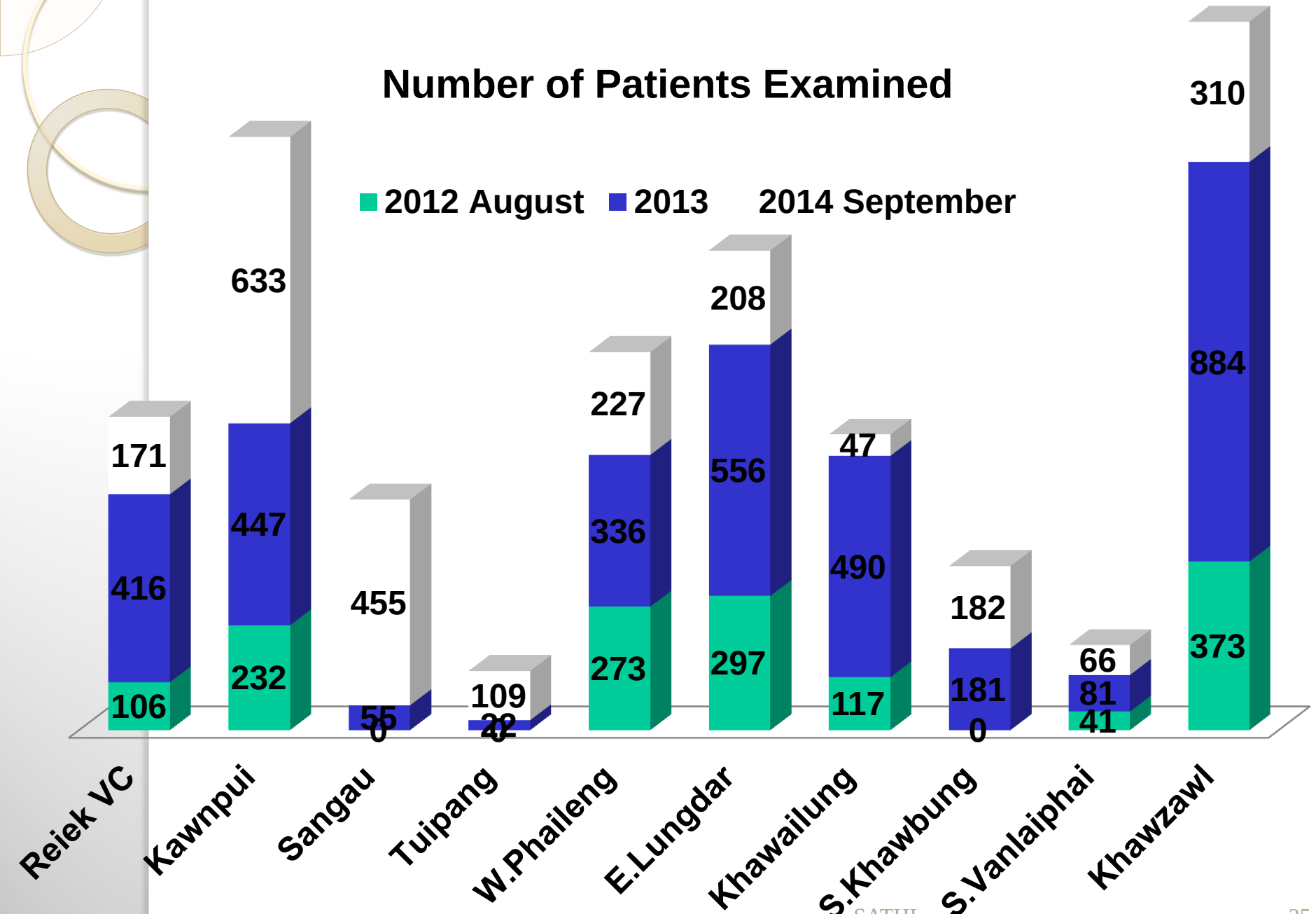
Tele ophthalmology centres in Mizoram



Ten fully equipped centres --

- Hardware
  - PC, server, printer etc
- Medical Equipment
  - For eye incl. Slit Lamp with camera
  - General Medical Examination
- Software for Tele-consultation
  - Medic Aid
  - Teamviewer
  - eSigning
  - Routine –like antivirus etc
- Smart Mobiles (later)

Patients Examined in 2 years	
Years	**No. of Patients**
2012 (August)	**1439**
2013	**3996**
2014 (September)	**2867**
Total	**8302**


Number of Patients Examined
2012 August
2013
2014 September
171
416
106
633
447
232
455
0
109
42
227
336
273
208
556
297
47
490
117
182
181
0
66
81
41
310
884
373
Reiek VC
Kawnpui
Sangau
Tuipang
W.Phaileng
E.Lungdar
Khawailung
S.Khawbung
S.Vanlaiphai
Khawzawl

Patients referred to Aizwal

Si No	Block	District Hospital	Sumo Ra(up-Down)	Time required to come from Block to Aizawl district	Per Day Expenditure for 2 day @ 500.00	Return Same Day	No. of Patients Examined	Total Savings
1	Kawnpui	Aizawl	₹ 300.00	3 hrs	₹ 500.00	Possible	1312	₹ 10,49,600.00
2	Reiek	Aizawl	₹ 200.00	1.30 hrs	₹ 500.00	Possible	693	₹ 4,85,100.00
3	Khawzawl	Aizawl	₹ 800.00	7 hrs	₹ 1,000.00	Not Possible	1567	₹ 28,20,600.00
4	S.Khawbung	Aizawl	₹ 1,000.00	8 hrs	₹ 1,000.00	Not Possible	363	₹ 7,26,000.00
5	W.Phaileng	Aizawl	₹ 600.00	4 hrs	₹ 1,000.00	Not Possible	836	₹ 13,37,600.00
6	Khawlailung	Aizawl	₹ 700.00	4 hrs	₹ 1,000.00	Not Possible	654	₹ 11,11,800.00
7	E.Lungdar	Aizawl	₹ 800.00	6 hrs	₹ 1,000.00	Not Possible	1061	₹ 19,09,800.00
								₹ 94,40,500.00

Does not include costs for travel /stay for relatives, or for spectacles +time

Patients preferring Lunglei

Si. No	Block	District Hospital	Sumo Rate	Time required to come from Block to district	Per Day Expenditure for 2 day @ 500.00	Return Same Day	No. of Patients Examined	Savings
1	Tuipang	Lunglei	₹ 600.00	4 hrs	₹ 1,000.00	Not Possible	131	₹ 2,09,600.00
2	Sangau	Lunglei	₹ 800.00	4 hrs	₹ 1,000.00	Not Possible	510	₹ 9,18,000.00
3	S.Vanlaiphai	Lunglei	₹ 800.00	4 hrs	₹ 1,000.00	Not Possible	188	₹ 3,38,400.00
								₹ 14,66,000.00

Aizawl	₹ 94,40,500.00
Lungei	₹ 14,66,000.00
Total Savings	₹ 1,09,06,500.00

District	School Eye Screening	Health Camp
Aizawl	8	1
Champhai	2	2
Lunglai	5	0
Kolasib	1	0
Mamit	9	1
Serchhip	9	3
Saiha	0	2
Lawngtlai	0	0
Total	35	6

OUTPUTS OF THE PROJECT - end of year 2

- 8,102 no of patients checked in the VC’ s
  - One VC covers 4 to 6 villages (5000 population)
- 10 school eye camp done with 1 at Aizawl office
- Cataract Eye survey is under process.
- Created Awareness at national & international Level
- Saving Time and Money
- Near & Quick access to eye care
- Eye care in absence of doctor.
- Provided Medicine.
- Providing spectacles
- **Provide an alternative to unsafe cataract surgery by quacks which have resulted in complete loss of vision**

Take home messages

- Tele only an addon to Telehealth
  - Care principles same
    - not better than the next door doctor
    - Best Alternative to no doctor
  - Many doing it without realizing
- Project success depends on Change Management
- Costs have been a hindrance
  - Innovation can be expensive or cheap
    - Fevikwik cost Rs 5/-, Medical Glue Rs 200/-
  - Cost of transport needs to be factored as health cost

Summarizing

Acknowledgements
SATHI
HKSMI
APAMI

- No actual person lives in a virtual world
  - Physical care will be required
- Tech importance overrated
- Need for Training and local skills enhancement
- Standards
- Social and interpersonal issues

We look forward to meet you all at APAMI 2016 www.apami2016.org