CONQUERING NEW FRONTIERS

TELEMEDICINE AND e-HEALTH

in ANDHRA PRADESH

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VISAKHAPATNAM
* Application of Telecommunication systems to deliver health care.
* Largely non internet service.
* Means "**distance healing**“.
* Derived from a Greek word "**Tele**" meaning "**distance**" and a Latin word "**mederi**" meaning "**to heal**“.
* Is not one specific technology but a way of providing healthcare services at a distance using telecommunications technology, medical expertise & computer science.
* **Telemedicine is the future of global healthcare.**
“TELEMEDICINE PROVIDES HEALTHCARE WHERE THERE IS NONE AND IMPROVES THE HEALTH CARE WHERE THERE IS SOME”
BRODENING

* Telemedicine
* e-Health
* m-Health (1033.2 million by May 2016)
  Teledensity -82.82% (May 2016)
* Tele health
* Digital health
Available today

* mHealth
What is e-Health?
ehealth is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies.

APOLLO Arragonda Hospital in Andhra Pradesh in 2000

Why Telemedicine and e-Health?
- Population > 1.3 Billion
- States - 29
- Union Territories – 7
- Wide Geographical Area
- Increase population density
- Lack of Transport
- Inaccessibility
- Illiteracy
- Poverty
- Poor Nutritional Status
- Low budget for health
- Lack of co-ordination &
- Diversity in food habit and life style
THE PARADOX…..

* 68.8% population Rural
* Only 2% doctors Practice in rural
* 1 doctor – 1,25,000 population

* 31.2% Urban & Semiurban Population
* 75% Doctors Practice in urban
* 23% Doctors Practice in semi urban

Current status of e-health in India by Prof. S.K.Mishra
http://openmed.nic.in/1265/01/skm12.pdf.
* WHO Doctor-population Ratio 1:1000
* In India, Doctor-population Ratio 1:2000

http://pib.nic.in/newsite/erealese.aspx?relid=77859
THE PARADOX CONTINUES....

* The Aging population
* Current - 6%
* World’s 2\textsuperscript{nd} largest population of elderly (> 60 yrs)
* By 2050 : 20% Indians
* 80% Elderly : In Rural Areas
* 30% Below Poverty line
* Feminisation of Elderly – 51% (2016)
* Steady increase in older old (> 80 yrs)
* PARADIGM SHIFT TO NCD
TELEMEDICINE IS THE ANSWER

- Reaching the Masses
- Basic health services to one and all
TELEMEDICINE CONCEPT

District Hospital

Video Conferencing

Cardiology

Pathology

Specialty Hospital

Video Conferencing

Panel of Doctors
WHAT SERVICES CAN BE PROVIDED BY TELEMEDICINE?
1. Interactive video
2. Store and forwarding of diagnostic images (Radiology)
3. Vital signs or Video clips
4. Pt. data for review
ANDHRA MEDICAL COLLEGE
VISAKHAPATNAM

- 1 out of 7 centers in India for Pilot project
- GOI & NIC
- Software evaluation for Tele radiology
- Cost effective & Workable
REMOTE PATIENT MONITORING

1. Home Tele health
2. Remote diagnostic testing facility (RDIF) for interpretation
3. Includes Blood Glucose, ECG etc.
CONSUMER MEDICAL AND HEALTH INFORMATION

Use of

i) internet

ii) wireless devices

To get specialized information, online discussions to provide peer to peer support
MEDICAL EDUCATION
1. For health professional
2. CME credits
3. Special Medical Education seminars
4. Live relay of rare / complicated & delicate surgeries
* Networked programs – To link tertiary care hospitals with outlying clinics, CHCs and RHCs
* Point-to-Point Connections: Radiology, Stroke assessment, mental health and ICU’s
* Monitoring Centre links: Cardiac, Pulmonary, Fetal monitoring related care to patients in Home
* Web based e-health patient service sites
Telemedicine Tools
Wi-Fi Smart Scale
Otoscope
Blood Pressure Monitor
Bluetooth Stethoscope
Blood Glucose Meter
Digital Thermometer
PARTNERS

* Department of Information Technology (DIT)
* Indian Space Research Organization (ISRO)
* NEC Telemedicine program for North-Eastern states
* Apollo Hospitals
* Asia Heart Foundation
* State governments
* Telemedicine technology also supported by some other private organizations
WHAT ARE THE BENEFITS OF TELEMEDICINE

IMPROVED ACCESS:
1. Health care to distant locations
2. Physician’s to expand services beyond office
3. Shortage of Professionals: To increase services to millions of patients
GOALS AND NEEDS

Looking to the past experience for success of telemedicine:
• Video conferencing

• Accompanied by data and image transfer (live)

• Common software usage at both ends, thus globalization of a single database software

• Role of trained technical personnel is equally important and necessary at the patient end.

• Successful remuneration system to attract private practitioners
COST EFFICIENCIES DECREASED BY

1. Better management of chronic diseases
2. Shared staff
3. Decreased travel time and stress
4. Shorter hospital stay
IMPROVED QUALITY

1. As good as in-person consultation
2. Mental health and ICU care: Superior services
3. Greater patient satisfaction
PATIENT DEMAND

1. Greater impact on the pts. their families & community
2. Saving time and stress
3. Access to unavailable health services
IN THE SUNRISE STATE OF ANDHRA PRADESH……..
Mukhyamantri Aarogya Kendramulu
Govt. of Andhra Pradesh
* Urban Health Centres under PPP mode, were renovated into State of the Art Digital MAK’s
* 222 UHC’s in AP under PPP mode converted to MAK’s
* Along with Primary Consultation, 4 Specialties are available via Teleconsultation
* Working Hours- 8am to 12 noon and 4pm to 8 pm
* Integrated technology and EMR
* Realtime Dashboard
INTEGRATION OF THE TECHNOLOGY

* Patient Registration
* Vitals
* Doctor Consultation
* Telemedicine (Specialty Consultation)
* Pharmacy
* Lab
* Dashboard
Specialties with MCI/NEB certified DM/MD/MS/DNB degrees-
1. General Medicine
2. Orthopaedics
3. Cardiology
4. Endocrinology
List of Tests at the MAK (28 Tests)

- Hemoglobin Estimation (Hb)
- Total Leukocyte Count
- Differential Leukocyte Count (DLC)
- Platelet count
- MP (Slide Method)
- ESR
- Clotting Time (CT)
- Blood Group (ABO-RH typing)
- Pregnancy test
- Blood Sugar
- S. Bilirubin
- HIV Test
- Sputum for AFB
- Stool for OVA and cyst
- Blood Urea
- S. Creatinine
- S. Bilirubin (T)
- S. Bilirubin (D)
- SGOT
- SGPT
- S. Alkaline Phosphates
- S. Total Protein
- S. Albumin
- S. Total Cholesterol
- S. Triglyceride
- S. VLDL
- S. HDL
- S. Amylase
Utilization of integrated high end technology to deliver Primary and Specialty Care

* Single window access to integrated Primary Healthcare needs-
  - Physician (8am-12 noon and 4pm to 8pm)
  - Lab Investigations
  - Pharmacy
  - Tele-Consultation (Specialist Doctor Services)

* Electronic Medical Record (EMR) for each individual

* Demographic based Health Census

* Real time Reporting Dashboard
On 23rd February 2017

In the Sunrise state of Andhra Pradesh
For the FIRST TIME in India

ALS Ambulances in 13 Districts
32 lakhs Equipment in Each Ambulance
Telemedicine Services
EQUIPMENT

* Defibrillator with Monitor
* Neonatal warming blanket
* Ventilator – transport
* Portable Oxygen Cylinder with flow meter
* Glucometer etc.,
BARRIERS AND CHALLENGES

* Budget allocation: Lack of earmarked budget
* Lack of Infrastructure:
  - Dependable Electric supply
  - Basics: telephone, computers, and internet
* Trained personnel
* Need for Central & Regional Cord. Centres
* Legal & Ethical issues
BARRIERS AND CHALLENGES

- Urgent need for: Guidelines for e-Health
- Pt awareness and acceptance through health education
* Herculean task to setup a perfect e-Health system
1. Step-wise approach
2. Proper prioritisation
* INDIA: World leaders in IT & Networking
* Huge IT manpower
* Vast geographical area with predominant rural population: **IDEAL SETTING**
* GOI Neeti Ayog: 12th plan, 2012-17
  All District, PHC’s & Subcentres: Telemedicine connectivity
FUTURE PROSPECTS

* Skype & other AV media: Remote corners of country
* India guiding SSARC & African countries for setting Telemedicine
* Close to catchup with the rest of the Developed world.
Robotics

Remote Surgery

Live Monitoring via Cell Phones
“Telemedicine: one small step for IT, a giant leap for Healthcare!”
Any Questions?