Telemedicine Standards: Issues and Indian Initiatives

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Telemedicine in India: The Context

- India characterized by low penetration of healthcare services
- 90% of secondary & tertiary healthcare facilities in cities and towns away from rural India where 68% of population lives
- Primary health care facilities for rural population highly inadequate
- Despite several initiatives by Government & private sector the rural and remote areas continue to suffer from absence of quality healthcare
- Significant proportion of patients in remote locations could be successfully managed locally with advice/guidance from specialists/super-specialists in cities, without having to travel to the specialists.
The Build up

- Till recently most Telemedicine activities in India were initiated by Department of IT and ISRO
- The main user, Ministry of Health and Family Welfare now taking keen interest
- Planning Commission looking at Promotion of Telemedicine in India as part of the 11th Plan
- Major impetus from Private Sector Hospitals in setting up Telemedicine Networks
- Ministry of Health &Family Welfare would like to build on the experience gained thereof of the above
The Issues and Need for Standards

- Telemedicine offers one of the best options for delivering healthcare for rural & geographically distant populations.
- Setting up of Telemedicine networks has started to grow both in Public as well as Private Sector.
- In this scenario a set of guidelines/standards will optimally leverage existing technologies, ensure continuity to evolving technical innovations and deliver cost effective solutions.
- This will help indigenous enterprises provide the right platform for telemedicine and further provide all with a practically attainable and sustainable standard of health care.
Standardisation-The Initiative

- As part of the endeavour, Department of IT, through deliberations of Technical Working Group under a high power Committee formulated a set of ‘Standards & Guidelines for Practice of Telemedicine in India’ in 2003

- Taskforce for Telemedicine in India, was constituted by the Union Ministry of Health and Family Welfare to look into various issues to promote implementation of Telemedicine,

- Specific tasks were assigned to various subgroups wherein Subgroup I was assigned the following tasks
  
  - To work on inter-operability - standards for data transmission; software, hardware, training etc.
  
  - To define standards and structures of electronic medical records and patient data base which could be accessed on a National telemedicine Grid.
Constitution of Subgroup I

- Members from different fields of experience & expertise
  - Department of Information Technology
  - Department of Space
  - Ministry of Health and Family Welfare
  - Specialists in Medical Informatics
  - Corporate Health Sector
  - Software Industry
  - Academics
Key Objectives

- Promote growth of Telemedicine
- Identify mechanisms for protecting the privacy and confidentiality of individuals’ health data
- Define processes for scientific practice of Telemedicine
- Broaden national and international cooperation in use of Telemedicine
- Provide a framework for interoperability and scalability
- Reduce delivery time for various stakeholders (vendors, users, general public, etc.)
FRAMEWORK – AN OVERVIEW

Technology
- Information Exchange Stds
- Security
- Medical Equipment
- Video Conferencing

System Requirements
- Primary
- Secondary
- Tertiary

Technology Providers

Process Guidelines
- Telemedicine Consultation
- Protocols
- Minimum Data Sets
- Identifiers

Recommendations on Guidelines, Standards and Practices for Telemedicine in India

Telemedicine Service Providers

• Hardware
• Software
• Connectivity

• Primary
• Secondary
• Tertiary

Technology
Key considerations in Defining Guidelines & Standards

Ensuring:
- Inclusion of all the stakeholders
- Making recommendations vendor neutral
- Making standards technology neutral

Usability
Reliability
Compatibility
Interoperability
Scalability
Portability
METHODOLOGY

Data Collection
- TWG & ITIH - 2003 recommendations
- Relevant International Standards (eg. DICOM)
- Literature survey

Analysis & Synthesis
- Benchmarking
- Gap & Relevance Analysis
- Brain Storming
- “Indianisation” – Look Global; make local!

Working Document
- Creation of core group
- Additional Inputs
- Final Recommendation
- Feedback/comments

The Final Recommendations have been arrived at through an iterative process; Group meetings and Offline discussions between committee members
Guiding Principles

- Evangelise existing standards rather than reinvent the wheel
- Platform Independence
- Inclusive Strategy
- Recommendatory standards, Mandatory components simple to follow
- Create an Implementation Plan
- Efforts to create compatibility and unions at various levels
- Self declaration of capabilities by stakeholders

Telemedicine is a meeting ground of different healthcare workers across a distance
Methodology

Build up on existing work done

International (Adopted)
- HL7
- DICOM
- Open Standards
  - JPEG
  - MPEG
  - WAV
  - Others

Indian - TWG / ITIH – 2003 (Modified and upgraded as per existing technologies)
- Definitions and Concepts
- MDS
- Legal Aspects
- Insurance
- Training and Certification
Broad Implementation Outline

- Support Open Standards and Architecture
- Inclusive Strategy
- Promote all Telemedicine activities
- Support Low cost Solutions
  - Ensure that lower end applications work
- Provide options for optimal utilization
Telemedicine Software

- Software supporting Telemedicine interaction
- EMR (Electronic Medical Records) / EHR (Electronic Health Records) building and reading capability
- Common EMR Formats
- Recommended Storage, Transmission and Security Formats
- Incorporation of HL7 (Health Level 7) and DICOM (Digital Imaging & Communication in Medicine) standards where applicable
What is a Minimum Data Set (MDS) ?

A collection of minimum amount of health information required about a patient, to profile a disease in a standard format that is –

- Precise, Unambiguous &
- Acceptable to all stakeholders

MDS contains the following information:

- Referrals, Demographics
- Risk Factors, Complications
- Treatment, Outcomes
What are Healthcare Identifiers?

A unique way of identifying / representing an entity in healthcare using a numeric or alpha numeric code

Types of Identifiers

- Identifiers for individuals
- Identifiers for healthcare providers
  - Hospitals, Physicians and Telemedicine Centres
- Identifiers for support service providers
  - Pharmacies, Diagnostic Centers
- Identifiers for employers
- Identifiers for Payers
  - Insurance Firms, Third Party Administrators
Standards for Network / Connectivity

- **Physical Connectivity**
  - PSTN/ ISDN/ …
  - VSATs
  - Others including fibre optic, wireless, etc

- **Logical Connectivity**
  - Based on TCP/IP protocols
    - Dialup
    - DSL
Legal Issues

- Data Retention Policy
- Privacy Issues
  - Consent
- Ensuring Quality
- Data Ownership
- Dispute Resolution
  - No existing Protocols but precedents available from Abroad
Standards for Security

- Role based access control
- Secure Transport
- Entity Authentication Mechanisms
- Encryption Mechanisms
- Data Integrity Check Mechanisms
- Schemes for Digital Signature
Telemedicine Process guidelines

- Telemedicine Centre applies for Identifier through registration with required details
- Items conforming and non-conforming are identified and notified
- Identifier allocated – posted on website and internal database
- Using the identifier the Telemedicine Centre connects to the Telemedicine Grid
- Information posted
Next Steps

- Circulate the Recommendations on Guidelines, Standards & Practices for Telemedicine in India to all stakeholders to solicit comments for wider consensus - the Recommendations already finding acceptance
- Steps for adoption of Mandatory component
- Initiate discussion for Training & Certification
- Suggestion to Set up Telemedicine Promotion Board of India or other operational mechanism for compliance to recommended Standards
THANK YOU

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