

**E-Governance &  
Telemedicine**

**Chapter**

**20**

## 20.1 E-GOVERNANCE INITIATIVES

Ministry of Health & Family Welfare (MoHFW) has undertaken various e-Governance/e-Health (i.e. use of ICT) initiatives for improving the efficiency & effectiveness of healthcare system. The Ministry is progressively planning several new initiatives to be implemented in the coming years. The various initiatives cover different areas including citizen centric services, information management systems, standardization (adoption & promotion), regulation etc.

### 20.1.1 Progress & Achievements

MoHFW undertook various activities/tasks during 2016 towards its aim of implementing e-Health in an integrated manner across central and state levels. These activities/tasks are highlighted as below:

#### A. National Health Portal (NHP)

The National Health Portal serves as a single point access for authenticated health information for citizens, students, healthcare professionals and researchers (<http://www.nhp.gov.in>).



A number of new & value-added features were incorporated in National Health Portal, such as:

i. **Mobile Apps for NHP** - NHP has launched Mobile Applications/Mobile Health Initiatives for the benefit of the Indian citizens. These are:

- **Health Directory Services** provides information related to Hospital and Blood banks across India.



- **India Fights Dengue** enables a user to check Dengue Symptoms, get nearest Hospital/Blood bank information and also share feedback



- **Swasth Bharat App.** provides authentic and detailed information regarding healthy lifestyle, disease conditions, symptoms, treatment options, first aid and public health alerts.



- **Vaccine Tracker (Indradhanush Immunization)** facilitates parents in tracking the immunization status/schedule of their children.



- **Stress Management:** It refers to the wide spectrum of techniques and psycho-therapies aimed at controlling a person's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning. Stress is an inseparable part of human existence. It affects all individuals. The Stress Management Application not only provides information about stress but also helps the user to know their stress levels and the ways in which it can be reduced/managed.

## B. Online Registration System (ORS)

Online Registration System (ORS) for public hospitals, launched in July 2015, has been able to bring about a significant change in the patient registration and appointment system and as a result patients now don't need to wait at hospitals for taking appointments. As on date all AIIMS, most of the central government hospitals and many state government hospitals are linked through ORS. ORS is portal for online registration and appointment and for providing patient centric services viz. viewing lab reports, blood availability status etc. The key benefits offered by ORS to citizens include:



- Hassle-free services using online facilities.
- Patients can avoid long queues at the hospital for seeking OPD appointment/registration and can

pay registration fee online.

- User friendly single portal across the country for patient centric services in hospitals across the country. Available to citizens through Web and Mobile App as well in both English & Hindi Language.



## FEATURES

- Ministry is taking a number of efforts to link more number of hospitals with ORS.

## C. e-Hospital

e-Hospital is aimed at implementation of Hospital Management Information System (HMIS) for internal workflow of hospital and data interoperability across hospitals in future.

Purpose to implement e-Hospital:

- To strengthen online patient-centric interface;
- To make available hospitals on cloud through Software as a Service (SaaS) model;
- To reduce the server side ICT & physical infrastructure, application & database management cost for the hospitals.

Targeted impact of e-Hospital implementation include facilitation in hospital work flow management leading to better delivery of services to patients and improvement in efficiency of processes at hospitals. e-Hospital would facilitate in creation of EMR & EHR of citizens and exchange of the same



through the envisaged Integrated Health Information Platform (IHIP). Process for selection of system integrator for IHIP is underway. 6 modules are available on e-Hospital Cloud version.

**Implementation:** Over 30 large hospitals are using e-Hospital and 7 hospitals are using cloud version of e-Hospital. Financial support to States for Hospital Information System through PIP under NHM (9 States).

#### **D. National Health Helpline (Doctor on Call)**

- To bridge the knowledge gap between patients and doctors regarding diseases conditions, health care services and to increase the health posture of the patient and country.
- Harnessing the high number of mobile phones currently being used by almost every household in India to create a TOOL to get free consultation by a qualified doctor on phone.
- Making information available in the regional language increases its penetration and relevance. Focus will also be on giving scientific prescription based on standard treatment guidelines.
- Reduction in expenditure being done today on health care. Common ailments will be treated online by using over the counter generic drugs and only in special case the patient will be referred to PHC and CHC by the central help line, thus reducing the loads on PHCs and CHCs.
- Reduction in travel time by the patient to reach PHC or CHC in order to avail medical services. This will also reduce the consultation time after the ailment or disease will persist, thus controlling the symptoms on time.

The process for selection of operating agency is underway.

#### **E. National Identification Number (NIN) to Health Facilities**

- In view of the challenges faced that health information & patient records with different health IT systems remain trapped in silos (having

virtually no inter-operability) in absence of a common identifier in the different databases, after detailed discussions & consultations, Ministry has generated and assigned unique number i.e. NIN to the health facilities in order to facilitate inter-operability and information exchange between different health IT systems.

- NIN has been assigned to around 2 lakh public facilities and is being used as unique identifier in IT systems. NIN Portal has been started for private facilities as well.

#### **F. Integrated Health Information Platform (IHIP)**

- In order to facilitate interoperability, creation and exchange of electronic medical/health records, citizen services etc., Ministry proposes to set-up an 'Integrated Health Information Platform (IHIP)'.
- IHIP would be established in collaboration with different stakeholders including public and private to achieve a set of outcomes. It would deploy the latest information & communication technologies including Cloud.
- The preparatory work for selection of an agency for design, development & implementation of IHIP is underway.

#### **G. Electronic Health Record (EHR)**

- The EHR Standards were notified by the Ministry in September 2013. Thereafter, India became a country member of International Health Terminology Standards Development Organization (IHTSDO), Denmark, effective from 1st April, 2014, which owns and administers the rights of use for SNOMED-CT i.e. Systematized Nomenclature of Medicine- Clinical Terms, one of the standards notified for EHR.



- EHR Standards notified in 2013 have been revised and soon EHR Standards 2016 would be notified.

## H. National Release Centre(NRC) for SNOMED CT

- To enable free usage of SNOMED CT (a clinical terminology standard) within India (notified in EHR Standards for India), Ministry has obtained country membership from IHTSDO in April 2014 and has renewed the same.
- For promoting usage of SNOMED CT in the country and work as the central point of contact for distribution of related activities, Ministry has nominated Centre for Development of Advanced Computing (C-DAC), Pune as National Release Center (NRC).

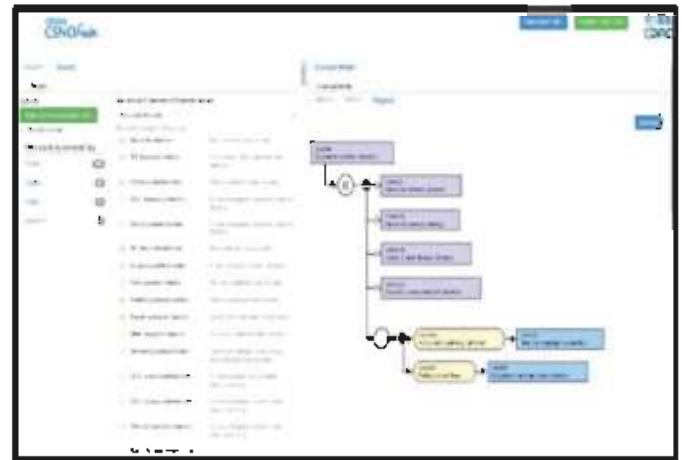


- More than 165 affiliate licenses have been approved for use of SNOMED CT in India.
- Website for National Release Centre, India (<http://snomedctnrc.in>) is a one stop window for all the information related to SNOMED CT in India. It provides information on resources, news and events, updates, licensing, etc.
- A number of workshops and trainings have been conducted across the country including Thiruvananthapuram, Mumbai and Delhi to promote SNOMED CT usage among clinicians, nursing informatics staff and software/hardware vendors.



*SNOMED CT Workshop in progress*

- e-Learning courses are being promoted. Applicants can now self-enroll for the SNOMED CT Foundation Course. SNOMED CT Implementation crash course for system designers and software developers, from India was considered under member country priority list by IHTSDO.
- New version of Toolkit for SNOMED CT has been released and is freely available. The toolkit contains APIs and software tools for simple and rapid integration of SNOMED CT in healthcare applications, APIs for mapping SNOMED CT to ICD-10, refset support, etc. Training and support on the toolkit has been provided to various organizations/vendors as a part of effective implementation of SNOMED CT.



- Implementation support provided to vendors and public and private hospitals include Columbia Asia Hospital, Bengaluru, OHUM Healthcare Solutions, Pune, Mednxt Medical eServices (P) Ltd, Kolkata, AIIMS, New Delhi, NIC Tripura, C-DAC Mohali, C-DAC, Noida, J. K. Technologies, among others.
- SNOMED CT has been integrated and used in the following applications, among others:
  1. e-Death Note, AIIMS, New Delhi;
  2. e-Hospital - Hospital Information Management System (HMIS) deployed at AIIMS, New Delhi;
  3. Megh Sushrut – new edition of HMIS deployed in Telangana and

4. Kerala e-Health Project – HMIS application used in Kerala State under e-Health Project.

- SNOMED CT Refsers have been created and released for Oral Cancer, Cervical Cancer, Childhood Diarrhea, Cataract, Pregnancy related Anemia, Malaria, Tuberculosis and can be downloaded from the Member Licensing and Distribution Service (MLDS) account.

### I. National eHealth Authority (NeHA)

- National eHealth Authority has been envisaged to be set-up as a statutory body for promotion, adoption & regulation of eHealth standards and also to function as nodal national body for strategic initiatives in eHealth. It is proposed to be set up through legislation (Act of Parliament) having the following vision/goals:
  - a) To guide the adoption and regulation of eHealth standards and eHealth solutions at various levels and areas in the country in a manner so that meaningful aggregation of health and governance data and storage/exchange of electronic health records happens at various levels in a cost-effective manner.
  - b) To facilitate integration of multiple health IT systems through health information exchanges.
  - c) To oversee orderly evolution of state-wide and nationwide Electronic Health Record Store/Exchange System that ensures that security, confidentiality and privacy of patient data is maintained and continuity of care is ensured.
- The various regulatory aspects like privacy, security, access, disclosure, exchange etc. would be taken care of by the proposed National eHealth Authority. NeHA would also regulate other specifics viz. what information to be shared, within what timeline the information should be shared etc. National consultation on NeHA has been held. Legislative provision for setting up of NeHA under proposed Electronic Health Data Privacy & Security Act is under drafting. National

Centre for Health Informatics is being set up as a society and would function as secretariat for NeHA.

- A national consultation with stakeholders was organized on 4<sup>th</sup> April 2016.

### J. Electronic Health Data Privacy & Security

- Privacy & Security of information/data is a key issue that has to be addressed in eHealth. To enable health care systems to gain the full benefit of a shareable, accessible & protected EHR, the need for development of appropriate legal frameworks for sharing information is very critical. Salient features are as under:
  - o Comprehensive legal framework to protect 'e-health data' of an 'individual' (owner);
  - o Ownership of 'e-health data' identified;
  - o Enabling platform for leveraging technological innovations in health sector;
  - o Establishment of National eHealth Authority, Health Information Exchanges;
  - o Legal framework for health data standardization (in collection, storage, transmission etc.);
  - o Superseding law (for health data);
  - o Comprehensive remedies (civil and criminal) for data breach;
  - o Creation of society for managing HIE (NCHI) and
  - o The work for drafting the legislation is underway.

### K. Others

**Office automation-** The e-Office product (by NIC), which aims to support governance by ushering in more efficient and transparent inter and intra-Government processes, is being implemented.

The vision of e-Office is to achieve a simplified, responsive, efficient and transparent working of all Government offices. Currently, modules such as Knowledge Management System, Employee Master Details, Payslip, Leave Management System,



Messages, Shared Documents and Upload Important Forms are in use.



Hand holding support for implementation of e-Office is also being provided to the staff of the Ministry of Health and Family Welfare (MoHFW). As on date, training has been provided to staff of MoHFWs as well as many of the Subordinate offices like CGHS, DGHS, NACO etc. Around 300 Digital Signature Certificates have been procured. A work flow hierarchy in e-Leave and e-Tour modules has also been made and all the officials have been directed to apply for tours and leave in electronic format only.

A process of digitization of all the records and implementation of e-office is underway.

#### L. Participation in India International Trade Fair (IITF), 2016

Health Pavilion at IITF was organised by e-Governance Division of the MoHFW. The theme for this year was Digital India.



Health Pavilion IITF 2016

## 20.2 E-HEALTH (TELE-MEDICINE)

### 20.2.1 Evolution of Tele-medicine in India: Brief summary

- A Task force for Tele-medicine was constituted in 2005 and 2006. Planning Commission approved budget for e-Health including Telemedicine in the 11<sup>th</sup> Five Year Plan.
- In 2007, School of Tele-medicine and Bio-informatics at SGPGIMS, Lucknow was made National Resource Centre for Telemedicine & Biomedical Informatics by Deity, Government of India.
- MoHFW, Government of India supported Tele-ophthalmology Project Onco-NET Project in many parts of the country.
- Several States have undertaken various initiatives in Tele-medicine and have been supported under the National Health Mission. States like Odisha, Tripura, Punjab, Rajasthan, and Karnataka have introduced pilot projects in the area of Telemedicine.

Sl. No.	State	Health Centre	Medical College to which connected
1	Andhra Pradesh	PHC- Veda Cheepurupalli, Vishakhapatnam	King George Hospital, Vishakhapatnam
2	Rajasthan	PHC Fatehgarh, Ajmer	JLN Medical College & Hospital, Ajmer
3	Tripura	CHC-Panisagar, North Tripura	G.B. Pant Hospital, Agartala

### 20.2.2 Tele-medicine Initiatives undertaken by MoHFW

#### Establishment of NMCN Project

- MoHFW is in the process of establishing National Medical College Network, wherein 41

Government Medical Colleges are being networked in the first phase riding over NKN (National Knowledge Network – high speed bandwidth connectivity) with the purpose of e-Education and e-Healthcare delivery.

- The scheme amounting to Rs.103.99 Crore was approved in February, 2014 and under Phase I of the scheme a National-cum-Regional Resource Centre (SGPGI, Lucknow), five Regional Resource Centers {AIIMS (New Delhi), PGIMER (Chandigarh), JIPMER (Puducherry) and NEIGRIHMS (Shillong) and KEM (Mumbai)} and 35 other Medical colleges having connectivity provided by National Knowledge Network (NKN) shall be networked for Tele-education, Tele-CME, Tele-specialist consultations, Tele-follow-up and access to Digital Library etc.
- Remaining Medical Colleges shall be taken up in

the next phase as per further financial sanctions.

- Standard Operating Procedures (SOP) for operation of NMCN have been formulated by NRC.
- For implementation of the NMCN, the Technical Evaluation Committees (TEC) has been constituted under the chairmanship of DG, Cert-In, DietY.
- Out of approved proposed 58 Medical colleges, MoHFW has shortlisted 35 Medical colleges based on the nomination by various States and level of IT readiness.
- Based on inputs and outcomes of Pilot projects, National Telemedicine Network shall be scaled-up all over country utilizing NKN, SWAN and NOFN bandwidth Connectivity.