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Indian Institute of Space Science and Technology

Certificate Course in **Healthcare Technology (CCHT)**

**Module 1 : Introduction to Health care
Technology and its practical application**



National Digital Health Mission



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National Digital Health Mission

Learning Objectives:

- Understanding of the latest developments in HCT in the country - National Digital Health Mission (NDHM)
- Understanding of key building blocks required to digitize healthcare
- Stakeholders of NDHM
- Integration of all the NDHM building blocks for a comprehensive digital health ecosystem

Overview of Session:

This session will provide an understanding of the National Digital Health Mission (NDHM) launched by the Honorable Prime Minister on 15th August 2020

- The session will give an overview of the
 - Vision
 - Objectives
 - Benefits
 - Guiding Principles
 - Stakeholders
 - Modules in NDHM
 - ☐ Health ID
 - ☐ Digi-Doctor
 - ☐ Health Facility Registry
 - ☐ Personal Health Records
 - ☐ Electronic Medical Records



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Vision

To create a National Digital Health Eco-system that supports Universal Health Coverage in an efficient, accessible, inclusive, affordable, timely and safe manner, through provision of a wide-range of data, information and infrastructure services, duly leveraging open, interoperable, standards-based digital systems, and ensuring the security, confidentiality and privacy of health-related personal information

Objectives

The National Digital Health Mission will implement the digital building blocks required for healthcare and make them accessible as digital public goods for all. To achieve this vision, NDHM will:

- Establish state-of-the-art digital health systems, and ensure secure exchange of core digital health data
- Establish Registries including hospitals, clinical establishments, healthcare professionals, health workers, drugs and pharmacies
- Enforce adoption of open standards by NDHM stakeholders
- Create a system of continuous Health Records, based on international standards, which will be easily accessible to individuals and to healthcare professionals and services providers, based on individual consent
- Promote development of robust health application systems with a special focus on addressing the Sustainable Development Goals related to the health sector
- Adopt the best principles of cooperative federalism while working with the States and Union Territories for the realization of the vision
- Encourage inclusion and participation of healthcare institutions and professionals in the private sector participate actively in the building of the NDHM
- Ensure national portability in the provision of health services
- promote systems to aid health professionals in decision making
- leverage health data analytics and medical research while ensuring complete adherence to privacy and consent rules under NDHM
- Help enhance governance at all levels leading to improvement in the efficiency, effectiveness, and transparency of the overall healthcare service delivery
- Leverage the information systems existing in the health sector, by ensuring that they conform to the defined standards and integrate with the proposed NDHM



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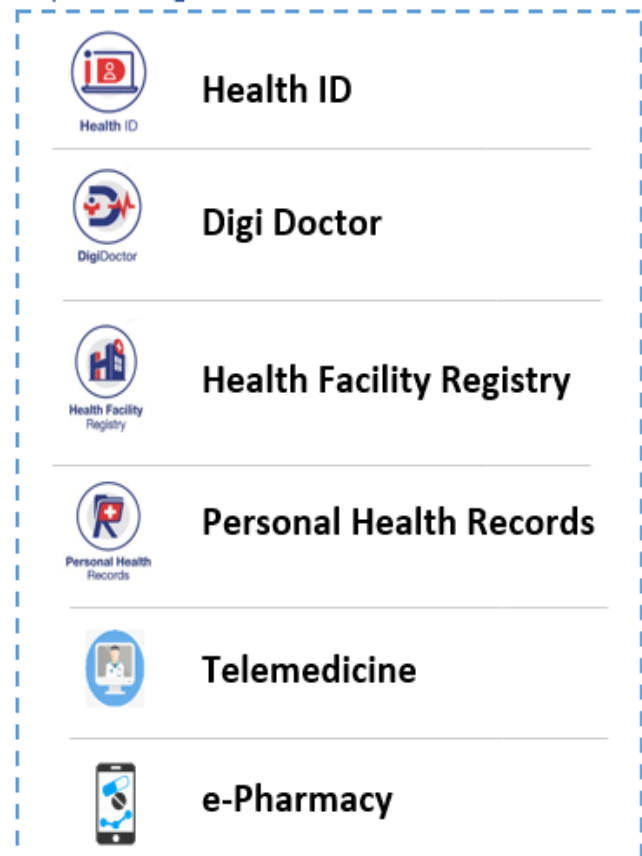
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Guiding Principles

- **Voluntary Participation:** Participation in the digital health ecosystem shall be totally optional for individuals, doctors, hospitals or any other person/institution to be part of the digital health ecosystem. Those persons/institutions who are not part of this system shall be able to access and provide healthcare exactly in the same manner as they can do now.
- **Security and privacy by design:** A National Policy on Security of Health Systems and Privacy of Personal Health Records will be developed. All the building blocks that require handling personal health records were designed to comply with such policy ab-initio.
- **Inclusivity:** Specialized systems has been designed to reach out to the “unconnected”, digitally illiterate, remote, hilly, and tribal areas.
- **Seamless portability across the country:** Personal Health Identifier with its supporting blocks, including adoption of Health Information Standards will play a pivotal role in the national portability.
- **Educate and empower:** Mass awareness and education will be promoted through use of appropriate platforms and a portfolio of Health Apps.
- **Wellness-centric and wellness-driven:** Wellness centres and mobile screening teams will be strengthened through access to real-time Personal Health Records.

Key Building Blocks

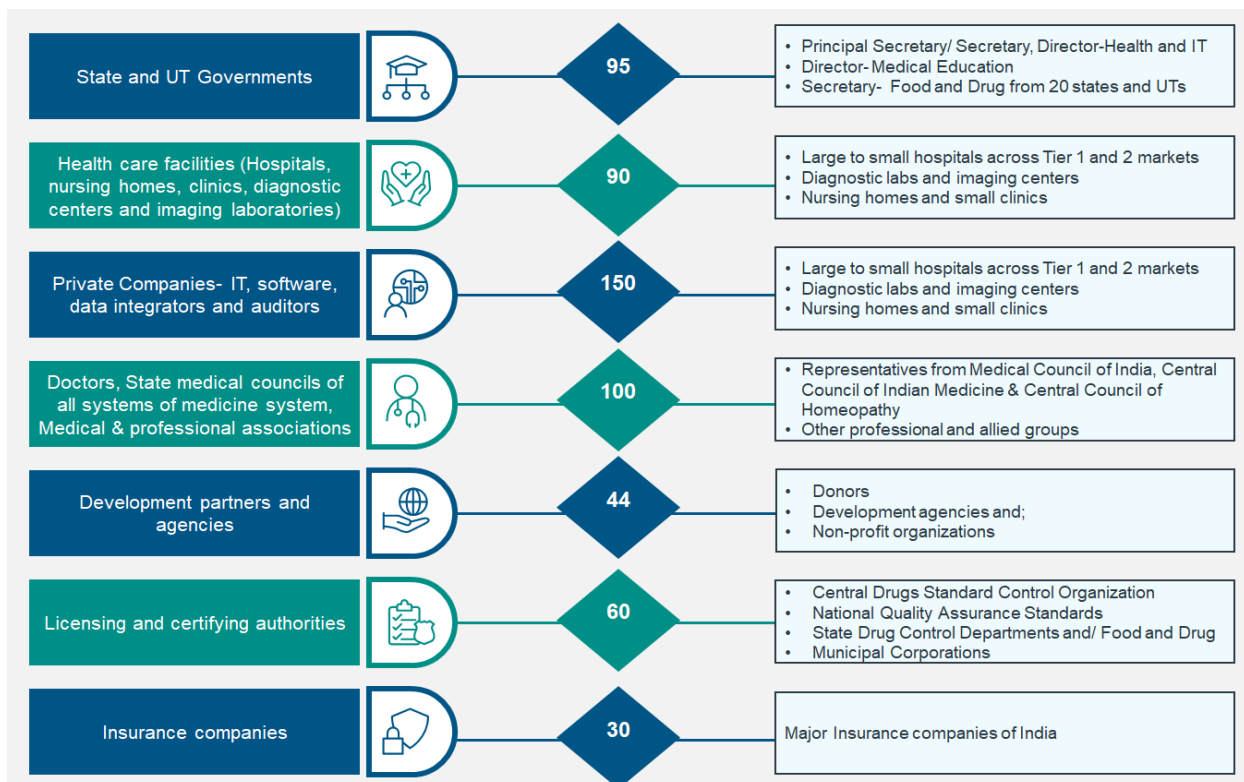
- **Health ID** will be used for the purposes of identifying individuals, authenticating them, and threading their health records (only with the informed consent of the patient) across multiple systems and stakeholders.
- **Digi Doctor** will be a single, updated repository of all doctors enrolled in nation with all the relevant details of the doctors such as name, qualifications, name of the institutions of qualifications, specializations, registration number with State medical councils, years of experience, etc. It will be kept up to date as doctors gain skills via fellowships and map them to the facilities they are associated with.
- **Health Facility Registry** containing all the health facilities in the country. It is centrally maintained, store and facilitate exchange of standardized data of both public and private health facilities in the country. Health facilities can access their profile and update it periodically with specialties and services they offer, as well as provide a secure common platform to the facilities to maintain all essential information.
- **Personal Health Record** - A PHR is an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual.
- **Telemedicine & e-Pharmacy** – to be developed after requisite policies and approvals are in place.



PROGRESS & ACHIEVEMENTS

Stakeholder Consultations

A series of stakeholder workshops were conducted & attended by **500+ participants** with a diverse range of backgrounds across the health system.



KEY HIGHLIGHTS

The Launch

Honourable Prime Minister Sri Narendra Modi had launched NDHM on 15th August 2020 during his Independence Day speech in New Delhi.

Current Status



Three modules are currently live in six Union Territories; Andaman & Nicobar Islands, Chandigarh, Dadra & Nagar Haveli and Daman & Diu, Ladakh, Lakshadweep and Puducherry.

WAY FORWARD

NDHM envisions creation of a National Digital Health Eco-system that supports universal health coverage in an efficient, accessible, inclusive, affordable, timely and safe manner, through provision of a wide-range of data, information and infrastructure services, duly leveraging open, interoperable, standards-based digital systems, and ensuring the security, confidentiality and privacy of health-related personal information.

Currently NDHM is being piloted across six UTs where components of the NDHM are being implemented including the enrolment of individuals, doctors, and healthcare providers, along with the digitization of several components. The core elements will be rolled out and stabilized following which they will be further refined based on the results from the NDHM pilot.

Subsequent phases of the rollout will see an increased implementation in states and greater integration efforts to aid citizens end to end in their digital healthcare journey, from diagnosis to discharge and follow-ups. As the ecosystem evolves, NDHM envisages active participation from all stakeholders and exciting innovations in healthcare sector



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addressing citizen healthcare needs while ensuring that the central tenets of privacy and consent are adhered to.

References & Suggested readings:

1. NDHM Website (<https://ndhm.gov.in/>)
2. National Digital Health Blueprint (<https://ndhm.gov.in/home/ndhb>)
3. NDHM Strategy Paper
(https://ndhm.gov.in/assets/uploads/NDHM_Strategy_Overview.pdf)
4. Key Modules (https://ndhm.gov.in/home/digital_systems)
5. NDHM Guiding Principles (https://ndhm.gov.in/home/guiding_principles)
6. Media & Press Releases
 - https://ndhm.gov.in/media/in_the_news
 - https://ndhm.gov.in/media/press_releases

Food for thought

- Analyze the challenges and barriers in adoption of the NDHM by stakeholders across the country.
- Provide recommendations and key actionable points to ensure that the NDHM is adopted by all stakeholders and is a success.
- The analysis should take into account the present status, roll-out in the UT's, awareness of NDHM, perception amongst the stakeholders. This can be done based on information available in the public domain as well as research.



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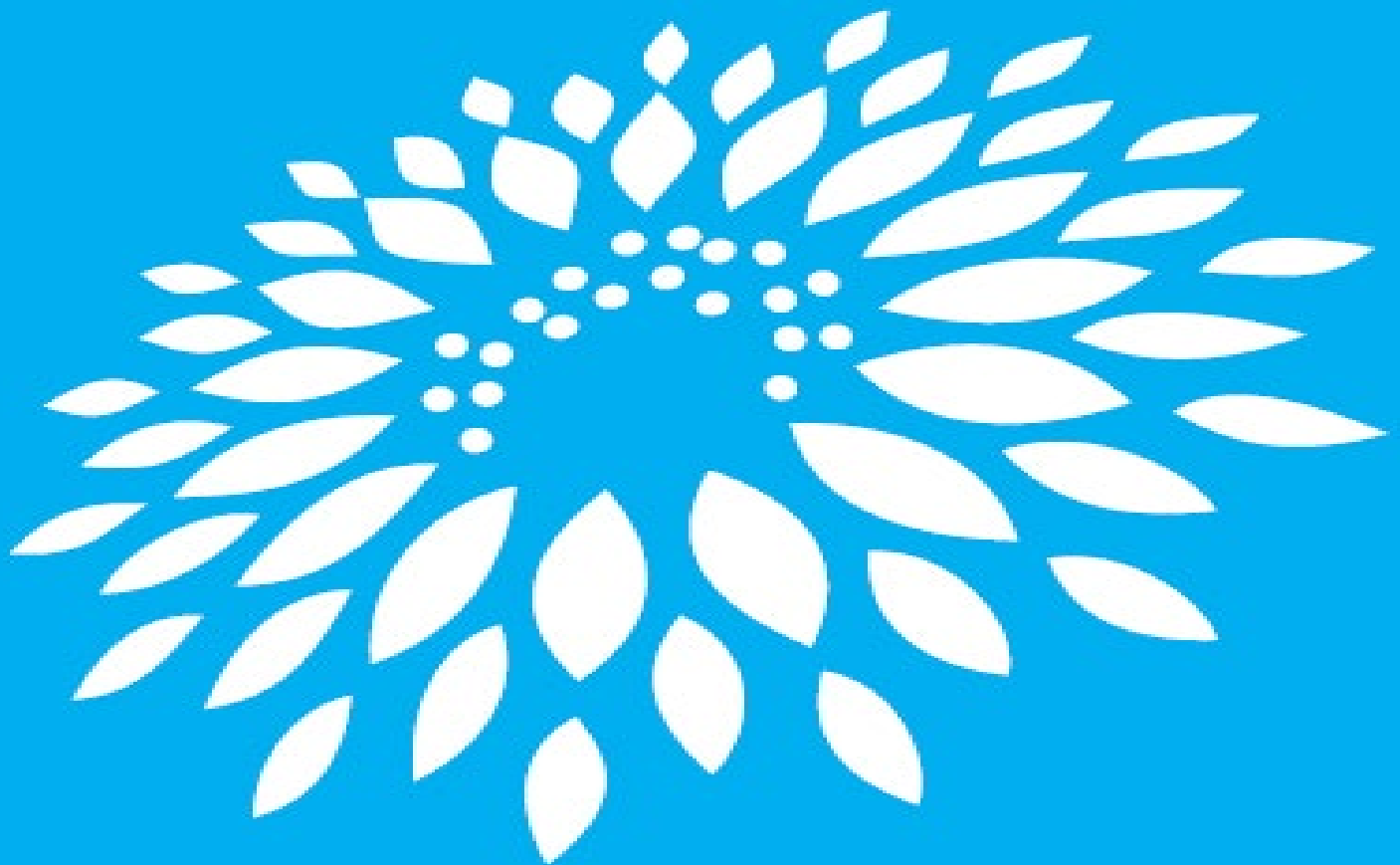


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Presentations





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Topic : National Digital Health Mission



CERTIFICATE COURSE IN
HEALTHCARE TECHNOLOGY



Dr Jitu Lal Meena,

MBBS, MBA – HA, PGQM & AHO, PGDHL, PGDPHM, NABH & NQAS Assessor

Joint director , National Health Authority. Govt. of India



Dr. Meena has wide ranging exposure (e.g. from bottom level Primary Health Centre, India to Top level Johns Hopkins University, USA). His aim is to Provide Quality and affordable Health Care Service to all and improve the Quality Health Care Service in India. He is winner of several prestigious awards (e.g. **High Achiever Award and Young Quality Achiever Award 2017, Man of excellence Award 2020, etc**) and recognitions.

Dr. Meena also plays a key role in Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) in Hospital Empanelment, Health Benefit Package, Quality Assurance & Standards Treatment guideline, etc.

Dr. Meena is Member of NABH Accreditation Committee, Quality Council of India and also a Member of Quality Improvement Programme Expert Group, Health and Family Welfare Department, Govt. of India.

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 - ☐ Electronic Medical Records

Subtopics

1



Health ID

2



DigiDoctor

3



**Health
Facility Registry**



Personal Health Record

(linked to Health ID)



Telemedicine



e-Pharmacy

**Module names may be subject to change; the first 3 modules have been launched on a pilot basis
Telemedicine and e-Pharmacy are planned for launch post regulatory approval*

Vision of NDHM

- To create a national digital health ecosystem that supports universal health coverage in an efficient, accessible, inclusive, affordable, timely and safe manner, that provides a wide-range of data, information and infrastructure services, duly leveraging open, interoperable, standards-based digital systems, and ensures the security, confidentiality and privacy of health-related personal information.



Efficient



Accessible



Inclusive



Affordable



Timely



Safe

Objectives of NDHM

- To establish state-of-the-art digital health systems, to manage the core digital health data, and the infrastructure required for its seamless exchange;
- To establish registries at appropriate level to create single source of truth in respect of clinical establishments, healthcare professionals, health workers, drugs and pharmacies;
- To enforce adoption of open standards by all national digital health stakeholders;
- To create a system of personal health records, based on international standards, easily accessible to individuals and healthcare professionals and services providers, based on individual's informed consent;
- To promote development of enterprise-class health application systems with a special focus on achieving the Sustainable Development Goals for health;
- To adopt the best principles of cooperative federalism while working with the States and Union Territories for the realization of the vision;

Objectives of NDHM contd.

- To ensure that the healthcare institutions and professionals in the private sector participate actively with public health authorities in the building of the NDHM, through a combination of prescription and promotion;
- To ensure national portability in the provision of health services;
- To promote the use of clinical decision support (CDS) systems by health professionals;
- To promote a better management of the health sector leveraging health data analytics and medical research;
- To provide for enhancing the efficiency and effectiveness of governance at all levels;
- To support effective steps being taken for ensuring quality of healthcare; and
- To strengthen existing health information systems, by ensuring their conformity with the defined standards and integration with NDHM

Benefits of NDHM

- The implementation of NDHM is expected to **significantly improve the efficiency, effectiveness, and transparency of health service delivery** overall. Patients will be able to securely store and access their medical records (such as prescriptions, diagnostic reports and discharge summaries), and share them with health care providers to ensure appropriate treatment and follow-up. They will also have access to more accurate information on health facilities and service providers. Further, they will have the option to access health services remotely through tele-consultation and e-pharmacy. NDHM will empower individuals with accurate information to enable informed decision making and increase accountability of healthcare providers
- NDHM will provide choice to **Individuals** to access both public and private health services, facilitate compliance with laid down guidelines and protocols, and ensure transparency in pricing of services and accountability for the health services being rendered.

Benefits of NDHM contd.

- **Health care professionals** across disciplines will have better access to patient's medical history (with the necessary informed consent) for prescribing more appropriate and effective health interventions. The integrated ecosystem will also enable better continuum of care. NDHM will help digitize the claims process and enable faster reimbursement. This will enhance the overall ease of providing services amongst the health care providers
- **Policy makers and programme managers** will have better access to data, enabling more informed decision making by the Government. Better quality of macro and micro-level data will enable advanced analytics, usage of health-biomarkers and better preventive healthcare. It will also enable geography and demography-based monitoring and appropriate decision making to inform design and strengthen implementation of health programmes and policies.
- **Researchers** will greatly benefit from the availability of such aggregated information as they will be able to study and evaluate the effectiveness of various programmes and interventions. NDHM would facilitate a comprehensive feedback loop between researchers, policymakers, and providers.

Guiding Principles of NDHM



Voluntary Participation

Signing-up for digital health accounts and generating digital health records will be voluntary and an option of opt-out after sign-up for Health IDs



Privacy and security by design

All building blocks shall be highly secure and comply with stringent privacy and consent based data sharing guidelines.



Inclusivity

Specialized systems will be designed to reach out to the “unconnected”, marginalized, digitally illiterate, remote, hilly, and tribal populations



Seamless Portability

Adoption of internationally accepted standards such as FHIR will play a pivotal role in the national portability



Educate & Empower

Comprehensive Information, Education and Communication (IEC) strategies shall be deployed through appropriate communication channels to empower the users



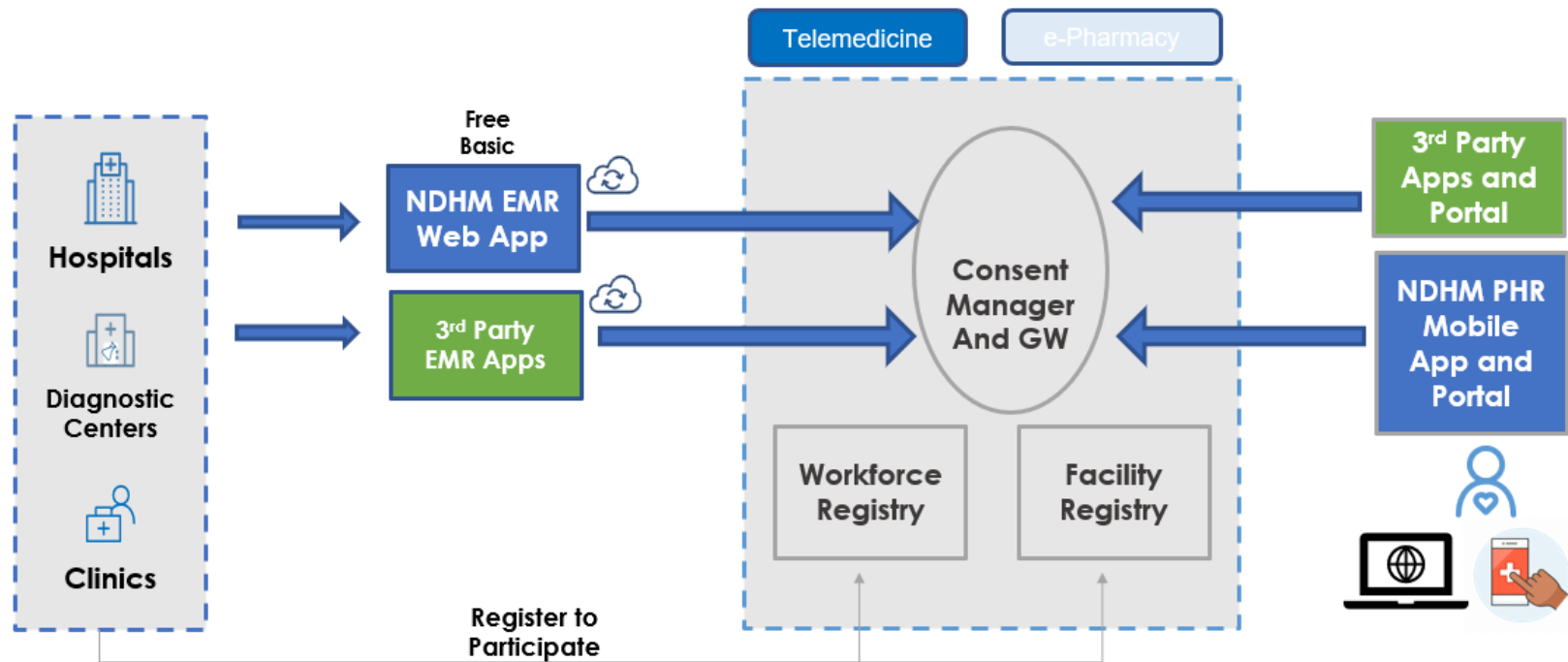
Wellness Centric

Wellness centers and mobile screening teams will be strengthened via access to real-time health records

Key Stakeholders of NDHM



NDHM Ecosystem



Health ID



- It is important to standardize the process of identification of an individual across healthcare providers. This is the only way to ensure that the created medical records are issued to the correct individual or accessed by Health Information User through appropriate consent. In order to issue the Health ID, the system must collect certain basic details including demographic and location, family/relationship, and contact details. Ability to update contact information easily is the key. The Health ID will be used for the purposes of identifying individuals, authenticating them, and threading their health records (only with the informed consent of the individual) across multiple systems and stakeholders

Benefits of Health ID



Digital Health Records

Access your information right from admission to treatment and discharge in a paperless manner



Easy sign up

Create your Health ID using only your basic information alongwith Mobile Number, or Aadhaar



Voluntary Opt-In

Participate at your own free will and choose to create your Health ID voluntarily



Voluntary Opt-Out

You can request erasure of your data anytime



Easy to remember

You can create easy to remember Health IDs and access your records seamlessly



Consent based access

Access to your health data is provided after your clear and informed consent. You have the ability to manage and revoke consent, if needed.

Benefits of Health ID contd.



Access to doctors

Enables access to verified doctors across the country



Secure and Private

Built with robust security and encryption mechanisms and no information is shared without your consent.



Child Health ID

Create a Health ID for your child and thus create digital health records right from birth



Add a nominee

Add nominee to access your Health ID and view or help manage your records



Inclusive access

Available to people with smartphones, feature phones, and even no phones using assisted methods



Reduced misidentification

Health ID ensures medical records created for you are issued correctly to you thus avoiding prescription and clinical errors

Digi-Doctor



- It is a single, updated repository of doctors enrolled in the country with all the relevant details of the doctors such as name, qualifications, name of the institutions of qualifications, specializations, registration number with National/Central or State councils, years of experience, etc. This is an essential building block of the digital health infrastructure of the country. The registry needs to be kept up-to-date as doctors gain skills via fellowships and map them to the facilities they are associated with.



Benefits of Digi-Doctor



Digital Health Records

On demand access to electronic medical records for seamless storage, sharing and retrieval



Go Paperless

Access and sign e-prescriptions, diagnostic reports, discharge summaries and e-claims digitally



Develop an online presence

Share your specializations, working hours, and online availability. Connect with your patients at mutually convenient timings.



Telemedicine

Eligible doctor can treat patient remotely through telemedicine and develop their online practice



Other Benefits

Purchase services such as liability insurance online, other government services will also be available digitally



Health Facility Registry

- It is a comprehensive repository of all the health facilities of the country across different systems of medicine. It includes both public and private health facilities including hospitals, clinics, diagnostic laboratories and imaging centers, pharmacies, etc.
- The registry is centrally maintained, stores and facilitates exchange of standardized data of both public and private health facilities in the country. The registry allows health facilities to access their profile and update it periodically with specialties and services they offer, as well as provide a secure common platform to the facilities to maintain all essential information. Facilities would be able to e-sign documents such as patient records, apply for empanelment, have easier claims processing etc.

Benefits of Health Facility Registry



Building Trust and Reputation

Listing on national platform of verified health facilities



Ease of Access for individuals

Automatic listing of health facility on search engines with geolocation.



Go smart with paperless operations.

Provide digital health records to patients.



Ease of doing business

Paperless registration and renewal of licenses Ease in empanelment with insurance agencies, TPAs



Telemedicine readiness

Serve patients from all over the country.

Other NDHM Modules

- **Personal Health Records**
- **Electronic Medical Records**
- **Telemedicine (upcoming)**

Personal Health Records



- A PHR is an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual. The most salient feature of the PHR, and the one that distinguishes it from the EMR and EHR, is that the information it contains is under the control of the individual. The functions that are supported by a Personal Health Record-System (PHR) are those that enable an individual to manage information about his or her healthcare.

Electronic Medical Records



- An EMR is best understood as a digital version of a patient's chart. It contains the patient's medical and treatment history from a SINGLE health facility. EMRs allows clinicians to:
 - Track data over time
 - Easily identify which patients are due for preventive screenings or checkups
 - Check how their patients are doing on certain parameters—such as blood pressure readings or vaccinations
 - Monitor and improve overall quality of care within the practice
- The general approach is to create a web application which operates on a set of standards like the data construct, interoperability standards and standard medical terminologies. The EMR envisages to be the comprehensive view of the patients Health Information at a given facility

References

1. NDHM Website (<https://ndhm.gov.in/>)
2. National Digital Health Blueprint (<https://ndhm.gov.in/home/ndhb>)
3. NDHM Strategy Paper
(https://ndhm.gov.in//assets/uploads/NDHM_Strategy_Overview.pdf)
4. Key Modules (https://ndhm.gov.in/home/digital_systems)
5. NDHM Guiding Principles (https://ndhm.gov.in/home/guiding_principles)
6. Media & Press Releases
 - https://ndhm.gov.in/media/in_the_news
 - https://ndhm.gov.in/media/press_releases

Videos

The 3 videos below demonstrate the process of registration in the key building blocks

- Health ID registration (<https://www.youtube.com/watch?v=VR3J2CvowxQ>)
- Doctors Registry registration (<https://www.youtube.com/watch?v=0O0v8fJIEws>)
- Health Facility Registry registration (<https://www.youtube.com/watch?v=q12ngdm-go0>)

Recap & Take Home Message

NDHM is aimed at Creation of a Citizen-centric Digital Health Ecosystem



Establish **state-of-the-art digital health systems** for managing health data



Improve the **quality of health data collection**, storage and dissemination



Provide a **platform for interoperability** of health care data



Fast track creation of updated and accurate Health Registries for the entire country



Create **provision to measure quality of care**, progress against policy initiatives and Sustainable Development Goals



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Program Secretariat – CCHT

Public Health Foundation of India

Plot No. 47, Sector 44, Institutional Area, Gurgaon -122002, India

Tel: 0124-4781400 (Extn. 4511,4596,4512) Fax: 0124- 4722971

Mobile No.: +91- 9582215659, 9958158787

Web: www.phfi.org, ccht@phfi.org