AYUSHMAN BHARAT DIGITAL MISSION INTERACTIVE WEBINAR SERIES

A MARCH 2022 REPORT

FACILITATED BY NATHEALTH® Healthcare Federation of India

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Keynote Address

Dr. Ram Sewak Sharma
CEO, National Health Authority (NHA)

Ayushman Bharat Digital Mission (ABDM) is an ambitious project of the Government of India. We are delighted to witness a positive inclination from the industry and its stakeholders to make it a success. I am hopeful that our intention to accelerate healthcare delivery and its standards in India will reach greater heights with this mission.

As we are aware, there are places in India where healthcare accessibility remains low, while infrastructural and educational variability is high, with language barriers posing as challenges too. In such a scenario, the overall objective of any healthcare system is to offer affordability, accessibility and quality. ABDM is the ideal means to help improve on all three aspects.

1. **Accessibility:** ABDM encourages the usage of information and communication technology to achieve these objectives. Citizens can consult doctors using IT facilities, even in remote areas with the digital mission.
2. **Affordability:** If citizens can digitally consult doctors, traveling expenses are lowered. Further, online confirmation of booking appointments avoids delays and decreases cost of stay when people travel far away to visit hospitals.
3. **Quality:** Digital tools like Artificial Intelligence (AI), Machine Learning will propel the increase in quality of services and the knowledge base.

Keynote Address

A conducive environment

The current framework also presents a conducive ecosystem for ABDM. With the COVID-19 pandemic, countries worldwide have learnt important lessons. The pandemic has accelerated the use of digital technology among people. Further, due to the low data cost in the nation, digital tools and platforms have also permeated rural areas.

One myth that needs to be tackled is that there is a grave digital divide that cannot be overcome in rural areas. India's per capita consumption of data is 12 gigabytes per person per month. There are 1.18 billion phone connections, 700 million internet connections and 600 million smartphone connections in India. This scenario definitely provides fertile ground for the adoption of ABDM.

Another important realization is that ABDM is not comparable to other experiments in different countries. No country in the world has succeeded in creating a digital identity in a manner that India has. The frugal yet very robust digital architecture that India has come to perfect, gives the National Health Authority confidence that India's future of digital healthcare services is bright. With the extremely successful development of CoWIN, among other recent advancements, India can confidently build scalable and interoperable digital architecture.

Major benefits to the population & healthcare providers

The mission will increase the number of people who can access good quality healthcare infrastructure, and improve health seeking behavior in Indians. India has an extremely price sensitive market, so an increase in affordability attracts people with ease. If healthcare providers improve affordability, they will see an increase in the volume of people using their services, leading them to benefit as well. With digital health infrastructure, it is easier for providers to offer affordability.

As we launch the ABDM series, the Government is positive about the knowledge dissemination impact that the webinar series will provide.

Together, we can always do better.

Executive Summary

Ayushman Bharat Digital Mission (ABDM) is an ambitious digital health project of the National Health Authority (NHA) under the aegis of the Government of India. It seeks to transform healthcare delivery in India through digital health tools, while simultaneously building standardized care protocols, integrated data systems, and sector-wide collaborations.

In this summary, a quick rewind of every discussion in the ABDM series is captured for an easy understanding of what the series report holds ahead.

The genesis of ABDM

ABDM, which was earlier known as the National Digital Health Mission (NDHM), was originally started with the National Health Policy of 2017. Subsequently, in the year 2018, the National Health Stack was released with defined components such as the federated Personal Health Record (PHR), and health analytics platform, among others.

Eventually, all these efforts were pinnacled into the launch of NDHM in December 2019. It laid down a detailed framework for India's digital health infrastructure. The initiative finally came to be known as ABDM and was formally launched in 2021 (after the pilot launch in 2020).

Objectives of the ABDM series

- Dispel myths and embrace facts about ABDM
- Provide a better understanding of ABDM's digital health building blocks
- Eliminate obstacles towards the adoption of digital health in India
- Create a dialogue that speeds up a rapid scale-up and adoption of the digital health road map in India

Discussions ranging in all segments

The ABDM webinar series has covered various areas of ABDM like:

- Standards & Interoperability
- Providing assistance to startups
- Creating a coherent digital pathway
- Studying global systems
- Data ownership
- Cyber security issues
- Role of integrators
- Advantages to hospitals/patients/multiple stakeholders
- Role of insurance

Executive Summary

All the discussions around ABDM were targeted towards building a common awareness to collaboratively adopt the digital health roadmap of India.

Alignment of ABDM with Indian legal framework

The Data Protection Bill (currently in the Parliament) seeks to regulate personal data of individuals and its processing. This will also have an impact on the medical data of a person. In context of this act, every hospital holding medical data of patients will be designated as a 'data fiduciary', while the patients will be the 'data principals'.

The Bill clarifies the rights that a hospital or laboratory must offer to those whose data they store, which is, their patients. The sessions covered more details on this with industry experts.

Using PHR Address to create longitudinal records

The webinar series saw consistent questions regarding the storage of patient data. In the ABDM architecture, the records of a patient are either held in the HMIS/LMIS (Health Management Information System/Laboratory Management Information System) software facility or by the user who has a PHR app. The Government has no access to their medical data. The links to where the records are, is held by a building block called the Health Information Exchange and Consent Manager (HIE-CM). When a person uses a PHR app, an account is created on the HIE-CM. When the person is willing to share personal data with someone else, their consent information is recorded at the HIE-CM. This consent can be revoked easily.

There is no central repository of people's data that the Government can access. Also, the HIE-CM is "data blind", which means that it only contains or reads links.

Integrating healthcare institutions under ABDM

Healthcare institutions are the core of healthcare delivery and thus an important piece of the ABDM system. They can be a part of the ABDM infrastructure by procuring an ABDM compliant software, which allows integration. The next step is to identify vendors of current non-compliant software and request them to update their software using the ABDM Sandbox. This is a system that allows vendors to integrate and test their application/s with the ABDM building blocks.

Executive Summary

It is heartening to witness that thousands of vendors are currently applying for compliance on the ABDM Sandbox. Certificates are issued on the sandbox, that recognize vendors whose software are compliant.

Role of the Government under ABDM

The series clarified the role of the Government under ABDM's architecture. It is to build, manage and operate the building blocks of the integrators like the ABHA (Ayushman Bharat Health Account) and HIE-CM. The Government will also manage the Health Facility Registry (HFR) and the Health Professionals Registry (HPR). Only recognized hospitals, clinics and entities registered on the HFR can link health records to a person's PHR address. These registries offer a layer of trust and control to the ecosystem.

Roles of various stakeholders under ABDM

Citizens: Generate their unique 14 digit Ayushman Bharat Health Account (ABHA) number; search, book and avail health services online; create, access and control their longitudinal health records

Doctors/Hospitals: Register on ABDM; use ABDM integrated solutions and provide services

Pharmacies/Diagnostic Labs: Register on ABDM and use integrated solutions; share reports digitally with patients that can be accessed with ease

Start-ups: Develop ABDM compliant solutions and add value to the open network; innovate in health and wellness service delivery

The webinar sessions were interactive with many audience Q&As throughout every session. The report ahead gives a detailed account of the interactions, along with the discussions that industry leaders held with relevant Government and NHA officials.

More information on ABDM can be found here: https://abdm.gov.in/

SESSION 1

Introduction to Ayushman Bharat Digital Mission (ABDM)

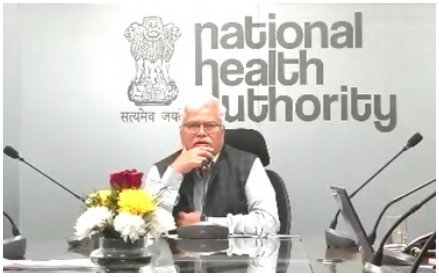
The inaugural webinar of the ABDM series was to dispel the myths around ABDM and digital health in India. The session saw senior leaders from NHA, the healthcare industry, and healthcare associations present. The event formally introduced the concept and shed light on the functioning, stakeholders involved and advantages of ABDM. Success factors, guiding principles and potential challenges were discussed too. The highly-interactive webinar was just the right start that the series needed!

Watch the video

More information on ABDM Series: www.nathealthseries.com

Introduction to Ayushman Bharat Digital Mission (ABDM)

Date: November 18, 2021



Keynote Speaker: Dr. Ram Sewak Sharma, CEO, National Health Authority (NHA)

Session Speaker: Dr. Praveen Gedam, Mission Director, Ayushman Bharat Digital Mission (ABDM) & Addl. CEO, National Health Authority (NHA)

Special Guest: Dr. Harsh Mahajan President, NATHEALTH Founder and Chief Radiologist, Mahajan Imaging

Opening address: The ABDM webinar series

This series brings together public and private stakeholders to discuss widespread adoption and implementation of the Ayushman Bharat Digital Mission (ABDM). Various aspects of ABDM, such as challenges, infrastructure needs, role of start-ups, are the focal point of this series of webinars. The sessions will build common awareness for citizens and other stakeholders to collaboratively adopt the digital health roadmap of India. These webinars will invite the architects of ABDM to help dispel myths around ABDM, and answer all questions that stakeholders across India have.

The inaugural session was attended by various industry associations like AHPI, ASSOCHAM, AHEI, AMC, AoH, APACMED, FICCI, ICC, IMA, PHD Chamber of Commerce, ANEI, Federation of Healthcare Association-Karnataka, MTal, PHANA. All of these private sector associations expressed their keenness to work together and make the Government's digital mission successful.

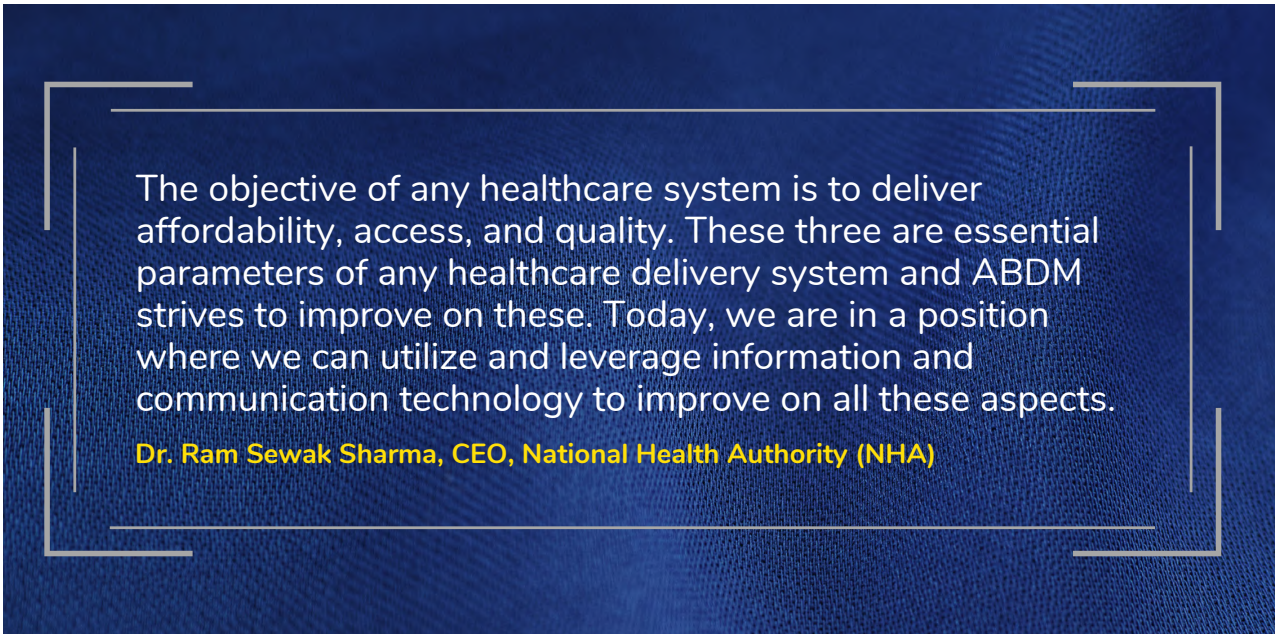
Embracing the ABDM concept - the success factors

The industry welcomed this initiative and shared thoughts on ABDM. Stakeholders believe that the success of ABDM will depend on the ability to onboard a vast number of public and private health providers to adopt digital health solutions and standards to build a digital health ecosystem. A well-thought-out roadmap should be articulated for ABDM to provide technical and financial incentivization to the vast number of small and larger providers. If this is made possible, the mission has the potential to achieve great success.

The overarching objective of ABDM is to accelerate the sector's journey towards access, affordability, and reliability - the three goals that all stakeholders have been pursuing for the last several decades.

Guiding principles of ABDM

- **Single source of truth:** The element of trust is vital in the Indian context. NHA will take responsibility for the core modules and registries, but will allow the industry to innovate in the market.
- **Federated architecture:** There will be no compulsory software system that the Government will force any healthcare entity to adopt. The ABDM will provide only linkages through core modules and health information exchange.
- **Security & privacy:** A federated architecture also takes care of data security and privacy concerns, as it does not allow the building of centralized holistic data.
- **Interoperability & Open API:** All healthcare centers that comply with the standards can integrate with ABDM easily.
- **Standard frameworks:** Currently, many private hospitals have adopted standardization, but this has not percolated to the level of primary health centers or GPs. ABDM will facilitate the building of standardized frameworks.



Key registries of ABDM

Registries form the core of the ABDM ecosystem, which include:

1. **ABHA number -** This entails a strongly verified 14 digit number that is currently being created through Aadhaar or Driving License. In future, linkages with PAN, passport will also be facilitated.
2. **Healthcare Professionals Registry -** This is a healthcare professionals' ID, which is an authenticated 14 digit number. Not only doctors, the registry will also have nurses, paramedics and other healthcare professionals. They will be mandatorily verified by medical councils, therefore, quacks will not be accommodated in the infrastructure. This adds an element of increasing trust in the ecosystem.
3. **Health Facility Registry -** This is a 12 digit number generated for healthcare facilities.

Along with the totally unique 14-digit IDs, ABDM is also providing an option to create an alias in the form of Personal Health Record (PHR) address, which will again be a unique virtual ID similar to an email ID, which cannot be replicated.

Developing the Health Data Exchange layer of ABDM architecture

The current focus is on developing the Health Data Exchange layer of the ABDM architecture. This focuses on developing a common public digital good in terms of digital registries. Application Programming Interface (APIs) have already been published, which can be used by any player in the market for various purposes. The market forces can use APIs to create digital solutions like applications. These innovations have already begun, with more than 600 integrations happening on the ABDM Sandbox.

Similarly, HMIS/LMIS are being used in hospital/labs, which can integrate with ABDM easily. With the ABDM integration, doctors can see the past medical records of a patient (with prior consent). There is no consolidated record where these details of citizens will be stored, making it safer.

The two broad groups within the architecture are:

- Any hospital that is willing to share health records, called a **Health Information Provider (HIP)**. Hospitals and doctors are expected to purchase, use and understand the benefits of ABDM compliant software.
- Any person who wants to access the health records, like doctors and insurance companies, called **Health Information Users (HIUs)**.

The NHA and ABDM will only facilitate both these groups, by providing services like KYC, health registries, and confirming consent of patients.

The principle of open networks

The Unified Health Interface (UHI) layer of ABDM will follow the principle of open networks. An open network is based on open protocols with shared technical standards used by all providers to ensure interoperability. An example of an open network is an e-mail, which can be delivered and read by people using Yahoo, Rediffmail, Gmail etc. even if the sender uses a different account. This same interoperability will be achieved by UHI in the health domain.

Roles of various stakeholders

- **Citizens:**
  - Create their ABHA number
  - Search, book and avail health services online
  - Create, access and control their longitudinal health records
- **Doctors/Hospitals:**
  - Use ABDM integrated solutions and provide services
  - Register on ABDM
- **Pharmacies/Diagnostic Labs:**
  - Share reports digitally with patients, that can be accessed with ease
  - Register on ABDM and use integrated solutions
- **Start-ups:**
  - Develop ABDM compliant solutions and add value to the open network
  - Innovate in health and wellness service delivery

The Inaugural Session saw key healthcare leaders present

(Hony) Brig. Dr. Arvind Lal
Chair-Swasth Bharat Task Force, FICCI
Past President, NATHEALTH
Executive Chairman, Dr. LalPath Labs

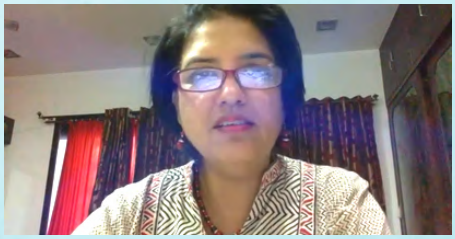
Ms. Ameera Shah
Secretary, NATHEALTH
MD, Metropolis Healthcare

Mr. Daljit Singh
Past President, NATHEALTH
Former President, Fortis Healthcare

Dr. Prassanna H.M.
Chairperson, PHANA

Mr. Prashant Sharma
Chair - National Expert Committee on Healthcare, ICC
MD, Charnock Hospitals Pvt Ltd

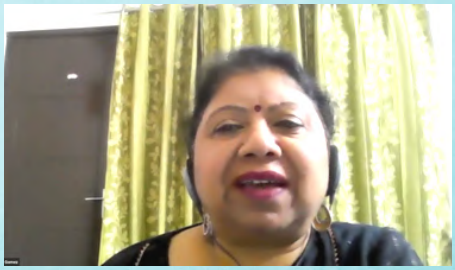
Dr. Girdhar Gyani
Director General, AHPI



Dr. Sushmita Bhatnagar
President, AMC

Dr. Upasana Arora
Co-Chair, Healthcare Council, FICCI
Director, Yashoda Super Speciality Hospitals

Mr. Gautam Khanna
President, AOH
CEO, P.D. Hinduja Hospital & MRC



Ms. Thankam Gomez
President, ANEI

Dr. Sameer Gupta
Co-chair Hospital & Diagnostic Committee, PHD
Director, Umkal Hospital

Anirudh Sen
Country Lead India and Director Regulatory Affairs, APACMED

The Inaugural Session Saw Key Healthcare Leaders Present

Dr. JA Jayalal
National President, IMA

Mr. Sunil Thakur
Treasurer, NATHEALTH

Dr. Nagendra Swamy
Principal Coordinator
Federation of Healthcare Association-Karnataka

Dr. Vidur Mahajan
Chair -Digital Health Task Force (TBC), FICCI

Mr. Sanjay Prasad
Director, AHEI

Mr. Pavan Choudary
Chairman, MTal

Collective feedback & response from Industry Associations

Various healthcare sector associations were part of the inaugural webinar. Below is a snapshot of their collective views on the ABDM architecture and its effect on Indian healthcare

ABDM will be a game-changer for India and can enable India to reach a golden standard in healthcare services in the next 3-4 years.

Incentives could be provided to the hospitals for adopting ABDM, because the success of this program will depend on widespread adoption, especially by private institutions.

Like the finance sector digital innovation in India, the ABDM can make a huge impact for the hospitals and doctors in small tier two and tier cities.

Digitization might come at a cost to the healthcare providers, where the need for computer system services will rise. More IT investment and data costs might be seen.

Digitization is beneficial for both the patients and healthcare providers.

The medical devices and diagnostic industry should be an active part of the ABDM structure, where they can play a role in developing interoperability standards, data privacy standards, privacy standards, and more.

Previously, a digitization initiative in the UK failed due to opposition from doctors themselves. There needs to be a spotlight on doctors' needs with regard to the ABDM to ensure the success of the mission.

There needs to be a clear outline of liabilities that hospitals will need to bear in case of security breaches where patients' data is compromised. Privacy is a relevant concern.

ABDM will improve the quality of care that the patient is getting and it will also help the doctors make more informed decisions.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: Are there any charges for integrating with the ABDM?
A: There are no charges advanced by the ABDM and services are provided free of cost. However, it is up to the developer to decide what they charge from the consumers.

Q: How can a behavioral change be encouraged in various stakeholders to ensure higher acceptability of digital healthcare using ABDM?
A: Change management is one of the prime areas of work for ABDM. However, ABDM does not want to push for rapid change and there is no expectation for patients or hospitals/doctors to go 100% digital from day one. Gradual change will be facilitated and digital pathways will evidently make life easier for everyone involved. HIS/HMIS are beneficial in providing predictive tests as well. ABDM has seamless data integration, which is user and provider friendly. There is no negative dramatic change that will affect professionals across the healthcare industry.

Q: Will hospitals have to invest in their infrastructure to adopt ABDM systems?
A: There is no investment required in hardware or any physical infrastructure. Current IT infrastructure found in all hospitals like registration and billing computers are the minimal tools required to begin integration with ABDM without great costs. Players in the sector have to invest in only the software, like a scalable HIS, for which multiple providers are available in India. NHA is in talks with many players to develop cost-effective solutions that are web-based, cloud-based and can be used by smaller hospitals, clinics and individual doctors. One need not build their own software or even hire extra staff; all of it can be outsourced and within a low budget. High volume, low value is the concept that NHA is pushing for.

Q: What will be the role of the private sector in the ABDM ecosystem?
A: The role of the private sector is critical. A key area where private health players can work is in the development of innovative, easy-to-use, products with good user experience, which can be scaled up easily. While hospitals are needed to fuse their systems with ABDM, doctors are also requested to stay open minded regarding the overall benefits of adopting digital methods. This in turn will percolate to the patient and the masses too.

It is good news that ABDM pilots were conducted in remote areas like Ladakh, Andaman and Lakshadweep, and did not face connectivity issues. ABDM architecture also allows for private players to test their own systems with the ABDM systems in any way that they require: be it region specific or specialty specific, with big or small platforms.

SESSION 2

Design, Architecture & Standards of Ayushman Bharat Digital Mission (ABDM)

To imbibe a new system, it is important to understand its design and architecture. This interactive webinar enabled just that. Right from explaining the vision, history & genesis of ABDM, it went on to deeper areas like the challenges that ABDM intends to address, its four-layered structure, role of intraoperatability, data security and more.

Watch the video

More information on ABDM Series: www.nathealthseries.com

Design, Architecture & Standards of Ayushman Bharat Digital Mission (ABDM)

Date: December 3, 2021

Speaker: Shri Abhishek Kumar, Director IT, National Health Authority (NHA)

Moderator: Dr. Anoop Amarnath, Chairman, Geriatric Medicine and Head - Internal Medicine Department, Manipal Hospitals

Special Guest: (Hony.) Brig. Dr. Arvind Lal, Chairman & MD, Dr. Lal PathLabs

The webinar was about the vision of the project, and its aim to create a National Digital Health Ecosystem that supports universal health coverage in an efficient, accessible, inclusive, affordable, timely, and safe manner.

The guiding principles of the National Digital Health Ecosystem are based on open APIs and interoperability, federated architecture, framework, compliance assessment, voluntary participation, user inclusivity, seamless portability, and more. ABDM is an ambitious project in the healthcare sector that seeks to break silos. There are various distant systems and types of software, which work in silos and their full potential cannot be leveraged, unless the gap between these systems is bridged. ABDM aims to do just that.

Challenges that ABDM intends to address

India’s challenges are that the citizens do not have access to all their medical records nor do they have adequate information about doctors, hospitals or labs. Moreover, most of the patients do not have a choice to consult doctors remotely and they also lack an easy supply of medicines. On the other hand, hospitals or doctors do not have digital/easy access to patients' medical history or the tools to remotely consult patients.

Thus, eventually culminating into hurdles for delivering healthcare. Lastly, even the policymakers do not have sufficient information about subjects like preventable diseases, complete monitoring, and managing public health systematically. ABDM is an initiative that intends to address all these challenges and more.

> ABDM's four-layered structure intends to solve the current challenges of the Indian healthcare delivery system through interoperability. This basically means seamless data exchange to be achieved through registries.
>
> **Shri Abhishek Kumar, Director IT, National Health Authority (NHA)**

How will ABDM's architecture help?

The concept of ABDM is a four-layered structure.
At the bottom, there is JAM and other digital public goods such as Aadhaar, UPI, eVouchers, Digilocker, and more.
The second layer is more domain-specific, which is known as Health Data and includes things like electronic registries, health records, and health claims.
The third layer is Unified Health Interface (UHI), which is about APIs for health services and it covers an entire spectrum of health services like discovering doctors, booking appointments, locating labs, etc.
The final layer is about user applications, which can either be individual applications or health provider applications such as Arogya Setu, e-Sanjeevini, and others.

This layered structure intends to solve the challenges of the Indian healthcare delivery system through interoperability. This means seamless data exchange achieved through registries, to establish common identity in the digital world, and standards, which will result in the formation of a common/relatable speaking language in this digital health ecosystem.

The structure will further include building blocks of ABDM, like core, common, and reference building blocks. The architecture of the ABDM includes a network of Health Information Providers (HIPs), Health Repository Providers (HRPs), and Health Information Users (HIUs). The other components include the NDHM building blocks, public health programs, hospitals, diagnostic centers, health lockers, PHR apps, and more.

The design of ABDM

Digital interventions in healthcare are fragmented; and ABDM design's vision is to bring it all on a single, interactive, easily accessible platform. To ensure that various digital systems talk to one another, two conditions need to be satisfied. First is a common set of identifiers through which various entities like patients, doctors, hospitals, labs are identified in the digital ecosystem. The second is health data standards, which means various systems need to talk to one another in a common language.

Additionally, two individuals can make effective communication only if two conditions are satisfied; first, they need to know each other's identity, and second, they need to talk in one common language, which can be understood by both.

To put it in perspective, the registries are the building blocks of ABDM, which establish common identity in the digital world and standards are the common speaking language in this digital health ecosystem. Therefore, registries and standards can be described as the two basic requirements, which are being taken care of through this project.

ABDM building blocks - enabling an ecosystem

ABDM is not a centralized technology platform exclusively being managed by the Government. ABDM's goal is to enable a system, known as the National Digital Health Ecosystem, which will include all players in the ecosystem, including the Government and private players.

To complete this ecosystem, there are three types of building blocks in ABDM. These are core building blocks, common building blocks, and reference building blocks.

Core building blocks: Will be maintained at a centralized level. They are ABHA (formerly called the Health ID), Health Facility Registry, Healthcare Professional Registry, and/or any other registry. It is important to note that these registries are merely for identification and no centralized data of health records is being maintained. Rather, it is a federated data architecture, for better security.

Common building blocks: This means the building blocks, which can be maintained by both Government and private applications. Examples of these include NDHM/ABDM PHR app and UHI. Key features of the ABDM PHR mobile application are the creation of ABHA number, the discovery of health information, linking of health records with a given ABHA number, viewing of health records and management of consents.

Reference building blocks: This entails Health Locker and Wellness Applications. The Health Locker is a standards-based interoperability specification that can be implemented by multiple players to enable the creation of an Electronic Health Record Ecosystem. Applications across emergency care, healthcare, wellness, medical education, and public health are expected to benefit from the National Digital Health Blueprint.

The data security angle

ABDM will not lead to an increase in data security risk and its systems are fully compliant with safety. Patients and healthcare providers, both can be rest assured that data is being aptly secured. It is a federated architecture, and therefore will have no centralized database of health records, which means data will be scattered and thus not available in one place to be easily hacked or violated. Also, data sharing in the ecosystem will be solely based upon the consent of the patient, and therefore the individual is in complete control of the information and its sharing.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: In emergency situations like ICU admission, how do we handle consent for the previous EHRs?

A: There is a nominee concept in the ABDM system. When a person creates the ABHA number, he/she can add a nominee, which can take decisions or allow their consent in emergency situations. However, this concept is still being worked upon.

Q: Are there any specific areas in which the private sector can partner with the Government? Specifically in ABDM capacity building and skilling.

A: Since ABDM seeks to create a new ecosystem, capacity building will be important. Participation of all stakeholders, including Government and private entities, is crucial for the success of this project. The ABDM team is looking for ways to take care of private sector participation, especially in capacity building and skilling.

Q: Would there be any kind of standardization required so that the Health Information Systems are ABDM compatible?

A: Yes. A hospital will have to go through an integration process and that integration is mainly at the level of software being used in the hospital. So, if a hospital is using a software, that hospital software has to be integrated with ABDM and that facility has to be registered in the health facility registry. This is a fairly simple process of integration through the sandbox. After which, it will become ABDM compliant and people will be able to register at the hospital using ABHA. Their records will also be available on the ABDM mobile application to be shared in the ecosystem.

Q: Are there any specific kind of start-ups that are already working and building things around the ABDM as a part of the sandbox?

A: The ABDM sandbox environment is fully operational and a large number of integrators are actively working. Many of them are already live in the production environment and there are many HMIS/LMIS that have already integrated with ABDM. Also, there are various hospital labs where people can register using ABHA and their records will get linked to their ABHA. So the system is already operational. The ABDM sandbox ecosystem is evolving quite well with many integrators, who have completed their integration and further more are in the process.

SESSION 3

How can doctors and hospitals adopt and use ABDM linked solutions?

Doctors and hospitals are the core of healthcare delivery. It is thus vital to create benefits and ease-of-practice for them. The ABDM system has innovative models, which when implemented, will improve the reach of healthcare delivery, better the quality of health outcomes, and create a more comprehensive doctor/hospital network. All of this will be achieved via simple-to-use digital pathways.

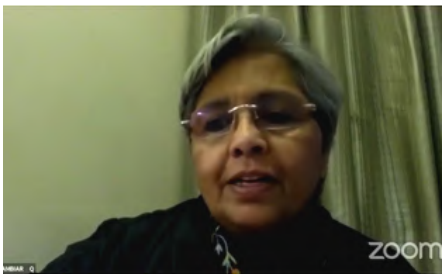
Watch the video

More information on ABDM Series: www.nathealthseries.com

How can doctors and hospitals adopt and use ABDM linked solutions?

Date: December 9, 2021

Speaker: Dr. Ajay Bakshi, Neurosurgeon, Tech Entrepreneur, Digital Public Goods



Moderator: Dr. Uma Nambiar, Chairperson, DHIA; Executive Director, Gimcare Hospital

Special Guest: Dr. Alok Roy, Chairman & Managing Director, Medica Synergie Pvt. Ltd.

The webinar focussed on the benefits to the doctors and hospitals, from the Unified Health Interface (UHI) of ABDM. UHI is the layer of ABDM infrastructure, which enables digital health services. India's progress in expanding Jan Dhan, Aadhaar, mobile and other digital public goods has secured a digital public infrastructure that enables the conception of the country-wide network for digital healthcare. It helps the providers with the assistance of digital registries that secure digital identities for each player in the digital mission, including doctors, nurses, labs, pharmacies, pharmaceutical drugs, citizens and more.

The webinar shed light on how UHI relates to hospitals and doctors.

A case study of how ABDM's UHI can help doctors & hospitals

India has nearly 110 million patients of Chronic Kidney Disease (CKD), approximately 8% of the total population. Nearly half of these patients need timely interventions from nephrologists (kidney specialist doctors), to reduce the progression of their disease. If this disease is not controlled early, there is a high likelihood of progressions into end stage CKD. At this point, the patient would need dialysis, a highly expensive and painful lifetime kidney replacement therapy.

The problem is a dire shortage of specialists. Despite investment in training and education, India has around 2,600 nephrologists in total, with majority of them concentrated in top cities. Considering the number of patients requiring specialized care, each nephrologist would have to manage 18,000 patients a year to create reasonable access - a physical impossibility, given that patients are spread across the country.

The UHI can radically change this structure by creating doctor-patient access digitally. If each nephrologist opts to see CKD patients through the UHI for a consultation period of 5 to 7 minutes per patient, for around 5-6 hours a day, it would cover around 47 million patients in total. While these are stretched assumptions that are unlikely to be met in practice, for the first time there is a roadmap out of India's chronic doctor-patient mismatch. For this to happen, the UHI must offer a smooth technology experience, appropriate compensation for time and effort, as well as improved patient management experience.

Removing delivery bottlenecks & increasing patient base

This case study can be replicated across other chronic diseases, including cardio-vascular, respiratory, neurological diseases, and more. As per data from the 75th NSS Round Survey (2017-2018), nearly 70% of the diseases that Indians suffer from are chronic, whose management requires multiple, frequent checkpoints. This means that for most doctors, repeat follow-up patients constitute more than 80% of their practice and new patients are less than 20%.

Until now, telemedicine efforts have prioritized securing new patients rather than enabling a smoother experience for chronic disease management of older patients. The Unified Health Interface (UHI) will be implemented in two phases, where the first stage is for consulting existing patients and the next stage involves seeing new patients. Many new modalities will make further innovations possible within the UHI, including innovations like group consults, emergency response and care.

There are multiple choke points in the current system, which prevent patients from reaching the right doctors at the right time. Like, late discovery of the disease, geographic and temporal availability of the doctor, transportation, pricing transparency, affordability of care, fragmented health record of patient and treatment compliance.

The UHI will serve as the re-imagined system to overcome many of these choke points, using a technology-enabled platform. The democratization of a doctor's expertise is the central idea of UHI. The repercussions of the COVID-19 pandemic further demonstrated that telemedicine can play an important role in Indian healthcare, with both patient and doctors now more willing to enter the realm of online consultations.

A proposed design for obstacles in digital health

Despite nearly 60 lakh outpatient consultations per day in India (including private and public practitioners), only a small fraction of this volume is currently digital. The reasons for the negligible volume of digital consultations involve concerns of both doctors and patients. One key point being that patients are unsure about the doctor's identity and credentials, while doctors are reluctant to enter endless price negotiations. Apart from this, there are also concerns regarding data privacy with third party platforms. Doctors themselves have been uncomfortable with the concept of telemedicine, until recently.

The UHI is a proposed redesign of the traditional system, that is doctor-centric and seeks to engender trust by design, rather than assuming trust for granted.

In collaboration with inputs from public policy experts, the UHI conceptual model has been designed with the doctor as the gateway to all health services. The UHI aims to provide seamless doctor-patient interaction, where a patient can look for doctors, get an appointment, share their information with doctors in a consensual and controlled manner, and get an e-prescription.

Building doctor-patient trust

The UHI has several unique features to engender trust between doctors and patients. These trust by design features will put health professionals at the core of the interaction, thus making its nationwide adoption a success, like:

1. Only doctors validated by the Government's Health Professional Registry (HPR) will be allowed on UHI, thus eliminating the fear of dealing with unqualified doctors.
2. Open network principles build trust with patients as only patient generated filters (language, distance, seniority etc.) can be used to rank and display order of doctors.
3. Transparent pricing and breakdown of fee components would be displayed to all patients, ensuring no bait and switch practices are carried out.
4. Patients will have to pre-pay in order to book appointments, avoiding 'blank bookings', which are frequent and frustrating phenomena in the current system.
5. Fair and transparent market rules would be implemented, with an in-built multi-party dispute resolution system to further enhance trust of patients and doctors.
6. Data Empowerment and Protection Architecture (DEPA), including federated data storage and consent mechanisms, will place control and usage of data with patients and their appointed trustees, like family members.

Potential implications for doctors

The following implications of UHI are predicted for doctors:

1. **Faster practice ramp-up for younger doctors:** The Health Professional Registry (HPR) would make the search national and frictionless, expanding the pool of patients who can discover a doctor. Further, innovative models like Group Digital Practices will increase opportunities for doctors, and help ramping up practice in their specialization.
2. **Improved quality of care:** Digital HPR makes patient data more complete and easily accessible to doctors, enabling efficient long-term interaction, thereby improving continuity of care. It also facilitates increased collaboration between different doctors caring for the same patient.
3. **Increased innovation:** UHI will result in increased innovation and experimentation, bringing new ideas to fruition through collaboration between healthcare professionals and tech players, through startups, digital virtual practices, and more.
4. **Global impact:** UHI will allow international patients to interact with Indian doctors easily. With UPI and DEPA already exported by India to other countries, UHI could be India's contribution to improving healthcare globally.

Potential implications for hospitals

The following implications of UHI are predicted for hospitals:

1. **National footprint leading to increased catchment area:** While physical delivery of healthcare may remain local, hospitals will be able to project themselves nationally for new patients, while staying connected with existing patients via UHI and its various modalities. Further, it introduces the ability to open 'digital branches' in geographies of interest, through local doctors connected to main hospital doctors via UHI.
2. **Reduced marketing costs:** Increased visibility of a hospital's doctors through UHI will likely increase the digital outpatient footfalls. International, referral and online channels will also benefit from UHI volumes, leading to potentially reduced market expenditures. In the long run, the success of UHI will also ramp up the hospital economy, with returns on investments in a new hospital coming in earlier.
3. **Continuity of care:** Hospitals with patients from far flung areas, like the remote North-East or rural catchments, will be able to stay connected with their patients. Digital connectivity with UHI will enable reminders for medications, investigations etc. to be sent easily. Innovative digital models like Disease Management Programs, digital preventive care models etc. would lead to better care and outcomes.

The Q&A Session

A glimpse of audience interactions during the webinar

Q. How can accountability of hospitals be improved through UHI?
A: Accountability is a complex issue, but certain improvements are brought in by UHI. A specific complaint against Government hospitals has been that doctors do not arrive in a timely manner. While monitoring the arrival and departure times of doctors everyday is impossible in physical consultations in hospitals, the digital interface for consultations allows administrators to see data on arrivals, absences and delays from the doctor's end. This can help them take corrective action, where possible. Digital interface facilitates transparency, which leads to accountability.

Q: Will healthcare data be protected through encrypted transmissions, given the increased sensitivity of information?
A: Healthcare data is a prime target for hackers, for a variety of reasons. Cyber security professionals are confident that UHI is a bulletproof system for transmitting healthcare data, both from the point of view of hacking, surveillance and unwanted access to data. This is because UHI functions on a federated data architecture, without the centralization of data on a single server. The only person who has access to all the data is the citizen himself, and those he has consented to sharing his data with.

Q: How can hospital staff be trained to be ABDM compliant? Are there any training modules available from the Government?
A: The technology stack of UHI is in its early stages. After the pilot testing of the technology, the scale-up of the interface is likely to take place. At that point, the training modules and trainers will come to play.

Q. Will UHI improve patient process efficiencies & quality indicators?
A: The thinking behind UHI is to reduce the hospital's workload. The data organization module within the UHI will help in summarizing patient health records, by using Artificial Intelligence technology, thereby cutting short the medical professional's time. This would lead to a significant improvement in efficiency.

Q. Would practitioners of alternative medicine be able to access UHI?
A: Yes. UHI is based on the Health Professionals Registry (HPR), which includes all accredited medical professionals, including Ayurveda, Unani, homeopathic practitioners, and more. UHI, once ramped up in volume, seeks to integrate the preventative care strength of alternative medicine, with the acute care strength of modern allopathic medicine.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: How can the senior hospital management get IT-based solutions adopted by doctors and nurses, who are generally skeptical and averse to technology?

A: Doctors generally struggle with IT-based solutions, because these technologies are designed for and oriented towards hospitals or insurers, not doctors. The approach of UHI takes a different track towards technology, by prioritizing the doctor and the patient at the center of their solutions, above all other parties. The technology is built for healthcare, rather than healthcare adapting to technology.

Q: Can private doctors use the Ayushman telemedicine platform?

A: Yes, private players can use the platform as it is a digital public good. It is an open protocol, which will also allow any technology player to build a service for any audience.

Q. Is there any consideration for capping the prices of consultation?

A: To facilitate the continued participation of private professionals, who are needed to make the system a success, the market rules of modern economics must be considered. Price capping is not a sustainable way to ensure affordability of care. By removing the friction between doctor and patient discoverability, prices of consultation will automatically come down. The concern is not bringing down fees, but optimizing fees based on seniority, experience, quality of care, etc.

In the future, once UHI has reached a sufficient scale, insurers will enter the market and build OPD products on top of the UHI platform, which will result in reduced prices.

SESSION 4

Role of insurance under Ayushman Bharat Digital Mission (ABDM)

The insurance industry works like a hub that joins all spokes of the healthcare delivery system. The webinar provided insights into how this central piece of health insurance fits into the template of ABDM. Right from the creation of a unique ABHA for the benefit of insurance claims, to the idea of fastening the insurance policy process to enabling operational efficiencies, ABDM will entail all of it.

Watch the video

More information on ABDM Series: www.nathealthseries.com

Role of Insurance under Ayushman Bharat Digital Mission (ABDM)

Date: December 23, 2021

Speaker: Ms. Malti Jaswal,
Senior Consultant, World Bank Group

Moderator: Mr. Amitabh Jain,
Head - Motor & Health Underwriting & Claims, ICICI Lombard

The webinar shed light on how the ABDM would impact the insurance industry, by explaining how the ABHA and EHR (Electronic Health Record) would work for insurers and the insured.

Current challenges faced by insurance stakeholders

In the current system of healthcare, patients lack complete access to medical records, information about doctors, hospitals and labs, knowledge of qualification of doctors and the choice to consult doctors remotely through a standardized, interoperable platform. Healthcare providers lack access to a patient's medical history, ability to ensure follow up after treatment, features to remotely consult patients and ease of doing business. While the insurance policy makers lack sufficient information on anticipated diseases and disease burden that can be prevented and ability to monitor and control in a unified manner.

ABDM aims to tackle these challenges through the system's core building blocks.

Core building blocks of ABDM

The whole structure of ABDM resides on three core blocks:

1. ABHA - This entails a strongly verified 14 digit number that is currently being created through Aadhar or Driving License.

2. Healthcare Professionals Registry - This recognizes healthcare professionals from all streams of medicine (including alternate medicine), that have been authenticated by their respective medical councils. Each professional is given a Healthcare Professionals' ID, which is an authenticated 14 digit number.

3. Health Facility Registry - This is an attempt to create a robust, uniform registry of all health facilities, noting down their capacity, kind of care, specialization etc. Each facility will have a Facility ID, which is a 12 digit number generated for healthcare facilities.

The interaction between the building blocks of ABDM creates a network of information exchange, with the ultimate aim of digitizing the whole process. Standardized data will be exchanged seamlessly between all the entities within the ecosystem, while taking care of all the policies including confidentiality of data and the IT Security Act. Such a system can be a boon for the insurance industry, as it makes available all the right data in a transparent manner, which can be aptly used to create and monitor insurance products.

How can ABDM help the Insurance Industry?

There are many ways in which ABDM can play a transformative role in the insurance industry, especially by optimizing the insurance life cycle at every phase. ABDM's targeted application in the insurance industry can drive specific use cases, which can improve operational efficiencies. The key applications include ABHA and PHR and Health Claims Exchange (HCX). The benefits to the health insurance value chain can be understood as follows:

1. **Underwriting & Risk Assessment:** ABHA gives access to past health records, which means that creating and underwriting risk-assessment scores becomes more accurate and easier for the insurer. Issues like non-disclosure of past conditions can be tackled better by the insurer, who can now strengthen the actuarial modeling and claims forecasting.
2. **Onboarding & Policy Issuance:** The ABHA eliminates KYC and onboarding costs, making onboarding a seamless process. The standardized health records enable quick policy generation. It also facilitates deduping of customers.
3. **Claim Settlement:** Rapid claims settlement with smooth reimbursement is beneficial to both the insurer and the insured. Access to ABHA enables digital verification of treatments rendered, provider credentialing and contracts with instantaneous data transmission. It further enables the use of sophisticated claims adjudication engines, which is not possible in the current manual mode.

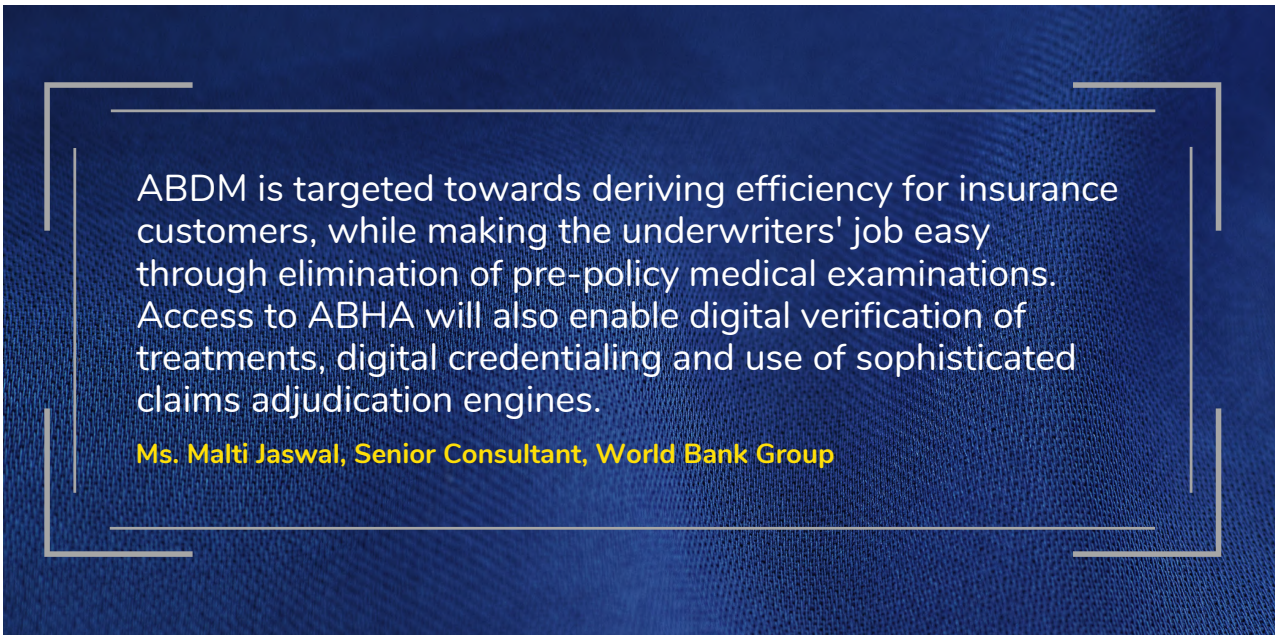
4. **Wellness Management:** ABDM will facilitate the evolution into managed care models. Many insurance companies have invested significantly in wellness programs, aiming to maintain the health of the insured. Access to longitudinal records allows insurers to offer better health and wellness services to members.

The benefits of automation to the insurance companies

In the current system, multiple KYC documents and in-house verification processes are needed to establish the identity of the customer. After which, non-standard health records across care contexts and providers are shared. Finally, premiums and coverage limits are defined as per policy (not tailored).

In the new system, adopting the ABHA as a patient identifier grants a verified digital identity and consent-based access to linked health records. This enables automatic KYC. Further, medical records linked to the ABHA are shared with the user's consent, without needing any further medical tests. Then, rapid and accurate rule based or automated determination of risk ratings and coverage limits happens through digital engines. Finally, thus, the premium and coverage limits can be tailored to individual patients.

In essence, once the ABHA is created while quoting, it is to be utilized in all respects of the insurance process. This actually helps the doctors, hospitals and insurers, as they can keep a track of the customer's progress over time as well.



Benefits for the Insured

The following are the benefits for the insured policyholders:

- **Portability of Policy:** ABDM provides ease in porting policy across companies and products, without additional medical tests.
- **Convenience:** Linkage of ABHA to multiple provider IDs and insurance member IDs will be provided. The patient does not have to remember multiple numbers.
- **Care Continuum:** Longitudinal health record storage enables automatic continuum of care across contexts.
- **Premium Reduction:** It will enable reduction in policy premiums for lower risk or healthier individuals.
- **Wellness:** ABHA will enable customized chronic disease management programs, and health and wellness initiatives.

The role of Health Claims Exchange (HCX)

The HCX is envisioned as a digital public good built and maintained by the NHA, parallel to all registries, to digitally process claims via standard open APIs. It is a clearing house for rules-based adjudication and processing of standardized eClaims. HCX allows insurers to use common digital infrastructure to drive operational efficiencies and use sophisticated claims engines.

It also enables digital contracts between payers and healthcare providers, through seamless verification processes inbuilt into the system. HCX adopts a standard e-facility form, which simplifies health provider empanelment. It also enables high levels of automation and personalization of policies in the future through policy markup language. Lastly, it supports a robust infrastructure based on design principles that ensure the non-repudiability of claim sources, verifiability of decisions, data privacy, consent-based data sharing, and more.

All in all, the ABDM system is a beneficial tool for all the stakeholders of the health insurance industry.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: What kind of coverage will insurance companies be able to provide under ABDM? Is there any automatic free insurance coverage under ABDM?

A: ABDM is a platform for digital transactions relating to healthcare services. Citizens can use this platform to create a unique ABHA, link their various healthcare services and insurance policies and store their complete health records. Therefore, it does not in any way provide any free benefits relating to insurance directly. However, insurance companies and customers can benefit by this platform, as now the insurance companies will be able to onboard any number of customers, for any number of products. There is no restriction on the different types of coverages and policies that can be provided by the insurance company, through this platform. The insurers will build their own backend interface to make use of this platform that the Government is currently developing.

Q: How many insurance companies are already on board with ABDM?

A: The ABDM team had pitched the UHI to the General Insurers Council and the Insurance Regulatory and Development Authority of India (IRDAI) quite recently. Almost all insurance companies have shown interest in this project, even though they are at different stages of integration into the mission. In summary, the insurance industry is keen to associate with ABDM. Ultimately, it hinges on the interest and uptake of ABDM by hospitals and healthcare providers, which is the basis for insurers products.

Q. Would the ABHA be integrated into the specific policies or claim of the insured person?

A: ABHA would help to put in order the data and documentation required for not just one claim or policy, but multiple policies that the insured person might have (basic policy, top up policy, benefit policy, etc). The ABHA will not process the claim - it will merely make the data available in a seamless, standard format. For this, insurers will have to ensure that their systems and web services are interoperable with the main UHI.

Q. Could lack of internet connectivity in rural areas be a hindrance to adoption of ABDM?

A: ABDM team is very conscious of avoiding a digital divide, and envisions an inclusive digital future. In pursuance of this, there are different modalities conceptualized for intermittent internet connectivity and possibility of paper-to-digital conversion of ABHA.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: What role can insurers play to incentivize uptake of ABDM across various stakeholders?

A: There are layered strategies that can be adopted by the insurance companies, to popularize ABHA among their clients. The first step is to spread information and start popularizing the creation of ABHA number at every point of interaction with the customer. The next step is incentivizing to link their policy and claims to the ABHA account by offering discounts on premium, wellness benefits or any other non-monetary experiences etc.

The choice of incentive mechanisms is at the discretion of the individual insurance companies, and what they perceive their business interests to be. Adoption of ABDM by the common man hinges on incentives. Lastly, if the industry is convinced of the importance and utility of the ABHA number, considerations of making ABHA mandatory can be taken up with the IRDAI.

Q: Where does India stand on standardized medical treatment protocols, which will also enable outcome based payments?

A: PM-JAY, along with top medical professionals of specialized fields, has already created standard treatment guidelines and clinical pathways, which are being used for insurance claims. ABDM too, will link its systems to this model of PM-JAY and ensure wider dissemination and compliance with the whole system. However, India is still a bit far from outcome-based payments currently. The next prospective payment reform is the globally utilized Diagnosis Related Group (DRG) Prospective payment system, that factors into complexities and specifics of each case.

Q: How can different stakeholders contribute to ABDM?

A: ABDM is an open community and people can contribute to this in many ways. From the perspective of healthcare providers (doctors, nurses, hospital managements), the first step is understanding the building blocks of ABDM at a conceptual level - including Health Professionals Registry, National Health Facility Registry, payment systems, etc. These are early stages in the construction of ABDM as a digital public good, and this is an invitation to the domain experts in the healthcare ecosystem to contribute in innovation and development of new ideas.

From the technology perspective, tech developers can contribute to building the architecture of the platform. The community of developers on GitHub called Distributed Health Protocols (DHP) enables participation from software developers across the world to contribute to this mission.

SESSION 5

How can citizens use and benefit from the ABDM ecosystem?

Citizens, whether patients or healthy individuals, all have utilization of ABDM. The digital health system has the capacity to improve how health records are maintained and accessed by citizens. Moreover, the data privacy and protection has been given special impetus in ABDM. Making the use of ABDM safe, secure, easy and efficient for citizens. The session covers all this in detail, and more.

Watch the video

More information on ABDM Series: www.nathealthseries.com

How can Citizens Use and Benefit from the ABDM Ecosystem?

Date: January 27, 2022

Speaker: Dr. Ajay Bakshi, Neurosurgeon, Tech Entrepreneur, Digital Public Goods

Moderator: Dr. Pankaj Talreja, Assistant Professor, IIHMR & Health Care Finance Consultant

Ayushman Bharat Digital Mission is a digital public good, aimed at transforming the lives of citizens. The launch of ABDM in 2021 is the start of a collaborative journey with citizens, companies, NGOs and governmental agencies, seeking to leapfrog India into a modern, effective digital healthcare ecosystem. This session clarifies the basic building blocks of ABDM important for citizens, and dispels misconceptions about the same.

Achieving the right of patient consent, tech improvement & efficiency through ABDM

The healthcare ecosystem involves the interplay of three parties: the patient (citizens), the healthcare provider (doctors and hospitals) and the payor (the insurer or the Government). The most integral element binding them together is data. Traditionally, the interactions between these players relied on inefficient paper-based individual transactions. However, in the last few years, the interaction between these players has changed with the possibility of a common platform aggregating all relevant patient data.

This eliminates hassles like the patient needing to carry all their records, to pay in cash, and other similar problems. Efficiency of healthcare delivery is drastically improved when all these players can use data from a single source, with the consent of the patient, which is a prime objective of ABDM.

Another important objective of the ABDM infrastructure is to bring the cost of processing insurance claims in the outpatient department down to say five or ten rupees, through automation and digitization. This allows for deeper penetration of healthcare and insurance services.

Citizens in control of their own data

The experience of Jan Dhan, Aadhar and Mobile (JAM) has created public trust and confidence in digitization of transactions, facilitating the same shift in the healthcare sector. The model of citizen-centric data in India is particularly important here. Unlike the models of data governance followed by the USA, China or Europe, India puts citizens in control of their own data, revolutionizing the payment industry.

In the field of healthcare, the Unified Health Interface (UHI) and ABDM successfully leverage the trust building mechanisms learnt from past experiences of UPI and JAM. On one end of the equation, the citizen can access his/her data through the UHI platform anytime and anywhere. On the other end, there is an automated system of consent management, through which the citizen can authorize a doctor, an insurance company, a hospital, or a pharmacy to see all or some part of that data. As UHI is an open architecture with all data encrypted, surveillance by the Government agencies is not possible. The data stays solely within the control of the citizen, the consent manager and the persons whom the citizen authorizes to see the data.

> Digitization is a cost killer. Patients can avoid a printed MRI scan & get the image digitally, through the ABHA account. Hidden inefficiencies like delays, illegibility, miscommunication, and typing errors that characterize the current paper-based system are also eliminated through digital systems & standardizations.
>
> **Dr. Ajay Bakshi, Neurosurgeon, Tech Entrepreneur, Digital Public Goods**

Transformational benefits for healthier citizens

The citizen is at the base of the UHI pyramid, as the beneficiary of various schemes and services. However, a large number of citizens in India (roughly 800 million people), do not need or want any health benefits. The ABDM ecosystem provides transformational benefits even to these citizens, through a complete digital record of health data.

This data is stored in the Ayushman Bharat Health Account (ABHA) of each citizen, which can be accessed at any point of time, anywhere in the world. The citizen retains the ability to provide consent and withdraw consent, regarding sharing of this sensitive health data.

Understanding the difference between Ayushman Bharat Pradhan Mantri Jan Arogya Yojna (AB-PMJAY) & ABDM

There is a slight yet important distinction between the AB-PMJAY and ABDM. The AB-PMJAY is targeted towards population identified below the poverty line, through socio-economic indicators. Approximately, 500 million such people have been identified and are now eligible for the scheme.

On the other hand, ABDM is not specifically targeted towards a particular group. It is flexibly constructed to serve the needs of groups with varying levels of income, to improve technology access and digital literacy levels, across the country. Even though it is not targeted specifically towards them, it will also help those below the poverty line. Even the poorest citizens have the right to information regarding doctors and laboratories, availability of specific drugs and timely transfer of government insurance coverage. Unfortunately, some of these information linkages are still imperfect or inefficient in the current system, due to supply chain blockages, inefficient funds transfer systems, lack of medical awareness etc.

In the newly conceptualized UHI platform, all these transactions are centralized into a single platform that allows efficient processing. The push driven system of healthcare supply chains is transformed into a system pulled by demand for healthcare services and products. Thus, improving the overall efficiency of India's healthcare system.

Debunking myths about patient data privacy

Many healthcare providers are skeptical of adopting ABDM as they think data privacy issues might cause them to lose their patients and customer base. This poses a challenge to the implementation of ABDM. However, it is important to understand that the data belongs to the citizens, and not to the hospital or healthcare providers. This citizen centric model of data governance is intended in the Personal Data Protection Bill that is currently being deliberated in the Parliament. Only a person himself/herself can consent to share his or her data with anyone.

Moreover, by being a part of an open ecosystem of UHI, the hospitals become more discoverable. Hospitals can now share trusted information through an official National Health Facility Registry, and may not need to spend as much on branding and advertising.

This cuts down marketing costs significantly, which is helpful especially for smaller players. In essence, the value of data grows as more people are able to use it. The unlocking of this value happens when control of data is in the hands of the right actor - the citizen, in this case.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: How soon can citizens use ABDM related benefits?

A: The technology for health identification creation already exists. However, scaling this into a full and larger network by linking patients, healthcare providers and insurers will take two to three years. The start of this journey is to become digitally aware, and cut analog data wherever possible.

Q. Would the UHI create any additional costs to the citizens?

Digitization is a cost killer. Making things digital cuts down the cost for the citizen at several levels. For example, the patient does not have to pay for a printed MRI scan when he or she can get the image digitally, through the ABHA account. This avoids film costs, printing costs and is also environment friendly. The hidden inefficiencies like delays, miscommunication, illegibility and typing errors that characterize the current paper-based system are also eliminated through standardization, which is achieved through the digital interface.

Q. In what other ways does the ABDM benefit the citizen's health?

ABDM also eliminates significant costs to patient's health caused by incomplete information, wrong prescriptions, bad drug interactions and so on. For example, a patient consulting two different doctors might be prescribed different medicines that react with each other, causing adverse effects on his/her health. If a patient has his/her complete reports and records in one place, such mistakes can be avoided, thus reducing the overall costs and preserving the patient's health.

SESSION 6

Unified Health Interface (UHI) under Ayushman Bharat Digital Mission (ABDM)

India currently lacks the standards and infrastructure that enable accelerated adoption of digital health services. While digital tools are being used increasingly, their optimal usage and the digitization of services is slow. There is a need to leverage communication technology, so that services can be provided to the most far flung areas of the nation. Unified Health Interface or UHI is the layer within the ABDM architecture that solves these problems.

Watch the video

More information on ABDM Series: www.nathealthseries.com

Unified Health Interface under Ayushman Bharat Digital Mission (ABDM)

Date: February 23, 2022

Speaker: Mr. Kiran Gopal Vaska
Director (IT), National Health Authority (NHA)

Moderator: Dr. Simardeep Singh Gill
CEO, CK Birla Hospital

Unified Health Interface or UHI is the layer within the ABDM architecture that solves the problem of interoperability, a major issue that the Indian healthcare system currently faces. The webinar covered all possible details regarding the UHI, including the challenges it resolves and the advantages that it holds.

How UHI is resolving Indian healthcare's key challenges

India currently lacks the standards and infrastructure that enable accelerated adoption of digital health services. While digital tools are being used increasingly, their optimal usage and the digitization of services is slow. There is a need to leverage communication technology, so that services can be provided to the most far flung areas of the nation.

The COVID-19 pandemic revealed the need for digital health services in 3 critical areas:

1. **Discovery:** Digital resources that help discover available beds, drugs etc. in hospitals.
2. **Bookings:** Digital tools that help easily book appointments with a range of medical professionals.
3. **Fulfillment:** Tele-consultation with verified medical professionals online.

However, we still face ecosystem challenges, including lack of standardized processes for digital health services, along with lack of digital records for the delivery of healthcare services. While technical challenges include poor engagement between providers and patients on current digital platforms.

UHI aims to create a decentralized and inclusive open network that will help accelerate the adoption of digital health services in India. UHI will act as an enabler. It will resolve the above-listed challenges India faces.

Addressing India's grassroot health issues

ABDM will create a market where players can establish a set-up, and people in remote areas can come and use End User Applications (EUAs) to access medical services that are made available due to UHI. In this situation, patients with Ayushman Bharat Health Account (ABHA) numbers can have remote tele-consultations with multiple specialists, irrespective of where they are located in India. Thus, from a grassroots point of view, tele-medicine will play a critical role for initial medical care.

ABDM also expands on the idea of a citizen-centric view of health records. Currently, most Indians have little knowledge on maintaining their own health records or past medical history. This problem is aggravated in rural areas. Patients with chronic or critical conditions can receive more holistic and dedicated medical services, if their health records are readily available to healthcare providers. With the ABDM, healthcare institutions will be able to access details of people in rural India quicker, and get a comprehensive medical history with a simple ABHA number.

The benefit of UHI's open network

The UHI layer of ABDM will follow the principle of 'open networks', which is based on open protocols with shared technical standards, used by all providers to ensure interoperability. An example of an open network is the e-mail, which can be delivered and read by people using Yahoo, Rediffmail, Gmail etc. even if the sender uses a different account. This same interoperability will be achieved by UHI in the health domain.

Currently, there are only individual platforms in India's health ecosystem. So, an individual has to use the same platform as an e-pharmacy or tele-consultation clinic to avail their services. UHI will bring a transformation, as it will link all participants through open protocols. Meaning, one single platform for all digital health needs.

Stakeholders benefiting from UHI

- **Citizens:** They can use any EUA to send their request to UHI, which acts as a gateway to connect citizens to the health service provider applications (HSPA). Simply put, useful information for informed decisions at their fingertips.
- **Healthcare Service Providers (HSPs):** Upon receiving the requests from citizens, providers can fulfill the service requirements. They can also generate and share health data.
- **Technology Service Providers:** They will build software that is compatible with UHI, for both the citizens and the healthcare service providers.

What will a tele-consultation journey look like by using the UHI

- Patient creates a ABHA number, and logs into his/her EUA.
- Patient can search for professionals as per requirement like specialty, language preference, location, etc.
- Search results are displayed in the EUA with price and availability.
- After this, the patient can book and pay for an appointment.
- They may also give consent through the application, allowing the healthcare provider to see the citizen's previous medical records.
- Consultation and post-consultation processes like prescriptions and discharge summaries are digitally issued on the EUA.

A holistic & interoperable model

The UHI has been made as a platform that brings rights and freedom to all stakeholders involved. For instance, patients can use any app of their choice to find doctors of their liking, book services, make payments and share their previous health records. They can do this, even if the HSPs are using a different application than the patients. This is how the interoperable model of ABDM works.

On the other hand, UHIs will allow HSPs to publish their prices and services. From which, patients can easily discover, access and compare these details before booking any services. UHI can also enable a group consult facility, so that multidisciplinary professionals can collaborate and address all the needs of a patient on a single platform. Such a holistic care delivery model can prove to be a boon for complex medical cases, requiring multidisciplinary consultations.

> Currently, there are only individual platforms in our health ecosystem. So, an individual has to use the same platform as an e-pharmacy or a tele-consultation clinic to avail their services. UHI will bring transformation as it will link all participants through open protocols. The UHI layer of ABDM will follow the principle of 'open networks' and make interoperability a reality in India.
>
> **Mr. Kiran Gopal Vaska, Director (IT), National Health Authority (NHA)**

Community protocols & an open network

The core technology powering the UHI will be built by an open community. The NHA will not impose restrictions on protocols or specifications. It will focus on providing governance support. Community protocols such as those built by the GitHub community may be adopted by NHA. As more people use the interface, specifications will get refined. Apart from the open protocols, the UHI Gateway will be built by the NHA. The UHI Sandbox by the NHA will allow participating EUAs and HSPs to test UHI integrated applications.

Building the UHI network policy

1. **Validation phase**: Protocols will be validated for integrity and security, an industry wide hackathon will be organized. Finally, a UHI network policy will be developed. The policy will define how different players on the network will interact with each other. This will ensure that all interactions on the UHI platform adhere to certain standards.
2. **Scaling up:** Targeted adoption activities involving industry participants will take place to encourage innovation. Refined protocols will be adopted. Grievance mechanisms will also be strengthened.
3. **Service growth & market effects:** As the service grows, there will be a network effect. More and more people will use the services, which will encourage HSPs to add further services. Innovation and better user experience will be another outcome.
4. **Multiple gateways with a self sustaining marketplace:** In the future, the NHA is open to multiple gateways, if other entities wish to provide additional or new encryption models.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: Is there any information about the outcomes from a UHI pilot?

A: There is no UHI pilot running at the moment, and the gateway will be built in the near future. From that point, use cases will be built to test and confirm interoperability. The hackathon will be an excellent platform for NHA to invite tech companies and start-ups to enrich the gateway. The hackathon can be regarded as an upcoming pilot.

Q: Prevention and prediction of diseases is possible using aggregate data. Will this fall under the scope of the ABDM?

A: One of the key principles on which ABDM works is federated architecture. Under this, ABDM will not store any data in a single place that will be accessed by the Government or any entities without a patient's permission. The issue then arises on how to analyze such fragmented and distributed data.

The solution is that ABDM will use anonymized and aggregated data. The medical data that the ABDM will use, will not contain names or any personal information of a patient. Again, the consent of the patient is important and every user will be informed that their anonymized data may be used for research. With this data, policy making, epidemiological studies, drug resistance are some critical areas where enriching information can be generated and used for preventive and curative healthcare.

Q. Can a patient access the entire health ecosystem (including doctors, labs, stem cell banks etc.) using UHI?

A: Yes. UHI will allow access to the entire health ecosystem using information from its registries. There are three registries under ABDM: the ABHA, the health professional registry (HPR), and the health facility registry (HFR). Under the HPR, information of all health professionals will be available. This includes a database of doctors of modern medicine, AYUSH practitioners, paramedical workers, radiologists etc. Under the HFR, all health facilities will be similarly registered. Every small clinic, lab, imaging center, or multispecialty hospital can be part of this registry.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: Will people have to bear costs for using the UHI gateway? Are there any incentives for businesses to be part of the UHI?

A: There are no current plans on putting any charges on use of UHI. Some of the incentives of using UHI are evident. Entrants into the health ecosystem, such as new nursing homes or clinics will gain advertising when their facility is shown to citizens in the EUAs while making a search. This is not possible on other platforms and apps that individual hospitals use. Citizens will be able to rate services of a facility as well, so healthcare institutions that provide proper care will gain immensely in terms of market visibility and ranking. Interoperability will lead to more patients exploring more healthcare institutions that suit their needs.

Q: Is UHI a global first?

A: UHI, as its functioning is envisioned, will be a global first. Since UHI is an open network system, the objective is to make it available to everyone who is interested across India.

Q: Voice technology and artificial intelligence (AI) can help connect millions of people. Will it become a part of UHI?

A: Yes. While NHA is only building the core blocks of UHI, there will be multiple players in the ecosystem, who can introduce new features and use value added services like AI Chatbots, machine learning for diagnostics, etc. End user applications (EUAs) will be enhanced by the players in the market, making technologies like AI systems more accessible to people. UHI will be the bridge connecting citizens who use the UHI gateway to these new technology services.

Q: What about data privacy under UHI?

A: As NHA creates new building blocks, a legal team is kept abreast of the developments. There is a Health Data Management Policy under review right now, which will govern how data can be used. NHA is ensuring that usage of data complies with the Personal Data Protection Bill. Aspects of privacy are an integral part of the UHI policy framework, both at the data management level and the wider network level.

SESSION 7

How can integrators participate & leverage from Ayushman Bharat Digital Mission (ABDM)?

The key idea of the Ayushman Bharat Digital Mission (ABDM) is to create digital building blocks for healthcare. This session sheds light on what these building blocks are and how various entities can integrate with these blocks. Stakeholders that fall under the category of integrators are: hospitals/health providers, organizations providing ABDM compliant software to be used by the hospital/health provider, and any person who wants to access the health records like doctors and insurance companies.

Watch the video

More information on ABDM Series: www.nathealthseries.com

How can integrators leverage Ayushman Bharat Digital Mission (ABDM) and participate?

Date: February 24, 2022

Speaker: Dr. Kiran Anandampillai, Advisor (Technology), National Health Authority (NHA)

Moderator: Mr. Hardik Dedhia, Co-founder, PharmEasy

The key idea of ABDM is to create digital building blocks for healthcare. This session sheds light on what these building blocks are and how various entities can integrate with these blocks.

Terminologies to understand integrators

Following stakeholders fall under the category of integrators:

- Any hospital that is willing to share health records is called a **Health Information Provider (HIP).** Hospitals and doctors are expected to purchase, use and understand the benefits of ABDM compliant software. However, the development and creation of the apps is left to the vendors of the software.
- The organization which provides the ABDM compliant software used by the hospital/clinic, etc. is called a **Health Repository Provider (HRP).**
- Any person who wants to access the health records like doctors and insurance companies are called **Health Information Users (HIUs).**

Role of integrators in overcoming hurdles of the Indian health infrastructure

Healthcare providers are increasingly sharing reports and test results digitally (on lab websites, e-mail etc.). Such soft copies need to be integrated with the long term history of the patient. Patients may lose this digital data, if they do not organize it carefully, as there is a lack of integration.

The current issue is that every healthcare institution is issuing and storing data in different formats. While this may not affect the patient, it is difficult for machines to process the variations, making it hard for analytics and any kind of clinical planning or disease predictions.

Under the ABDM infrastructure:

1. Any data that is shared physically will need to also be shared via a digital copy with the patient, by linking the record with their Personal Health Records (PHR) address.
2. Such data will be in a nationally-standardized FHIR format. Post which, software systems used for clinical analysis will be able to process this data with ease.

Making data standardized for easy integration

The ABDM system works by creating a minimal data set to avoid overproduction of unnecessary data. For instance, for each of the typical types of reports that any healthcare organization generates, a standardized format has been published by the ABDM and National Resource Center for e-Health Standards (NRCES). Most commonly shared reports with patients include diagnostic reports, discharge summaries, OP consultation notes, prescriptions, immunization records.

When data is gathered in a standardized digital format, that already-digital data will start getting integrated first on the network (mostly discharge summaries and diagnostic results, which are generated digitally in most instances). Other data like OP consultation notes and prescriptions are likely to take longer for integration, as they are traditionally handwritten by doctors.

ABHA Address - a tool for digital records

Data integration cannot happen without digital records, as stated above. One of the key elements in this and ABDM's process is the Ayushman Bharat Health Account (ABHA). Creating an ABHA address is a voluntary process for everyone who desires a digital record of their healthcare information. It can be generated by giving simple details like Aadhar card, gender, mobile number, etc. Even after creating an ABHA address, a person can opt-in or opt-out of the digital health ecosystem, whenever they wish to do so. The whole idea is to give the user (patient) full control.

Self registration with ABHA is facilitated by PayTM, Aarogya Setu, Doc Prime, among other applications. The infrastructure also allows for assisted registration, which especially benefits the elderly and those ill-equipped with the internet. In the near future, there will be a class of mobile applications called Personal Health Records (PHR) applications, which will also help ABHA creation and data collection.

How can hospitals integrate their PHR with ABDM

1. **Compliance:** Multiple health facilities generate digital health records. The ABDM does not require major changes at the hospital level in terms of management, but changes in the software used by healthcare institutions are needed to ensure that they are ABDM compliant.
2. **Linking PHR with ABHA:** The ABDM compliant software in a hospital's system will automatically link any new PHR address (also known as ABHA address) created on it with the patient's ABHA number.
3. **Easy access:** Patients get a choice to view their health records on a wide variety of PHR applications, like Aarogya Setu for instance.
4. **Consent management:** Patients can consensually share this data with their healthcare provider, if they want to share their medical history.

As per estimates, by April 2022, many organizations that are creating health records digitally will start sharing data across the ABDM network and link data with PHR addresses of the patients. Consumer choices in using PHR applications are also widening with more players entering the market. ABDM's vision is that in the near future, a person will be able to choose any consumer app and collect one's own health records with ease.

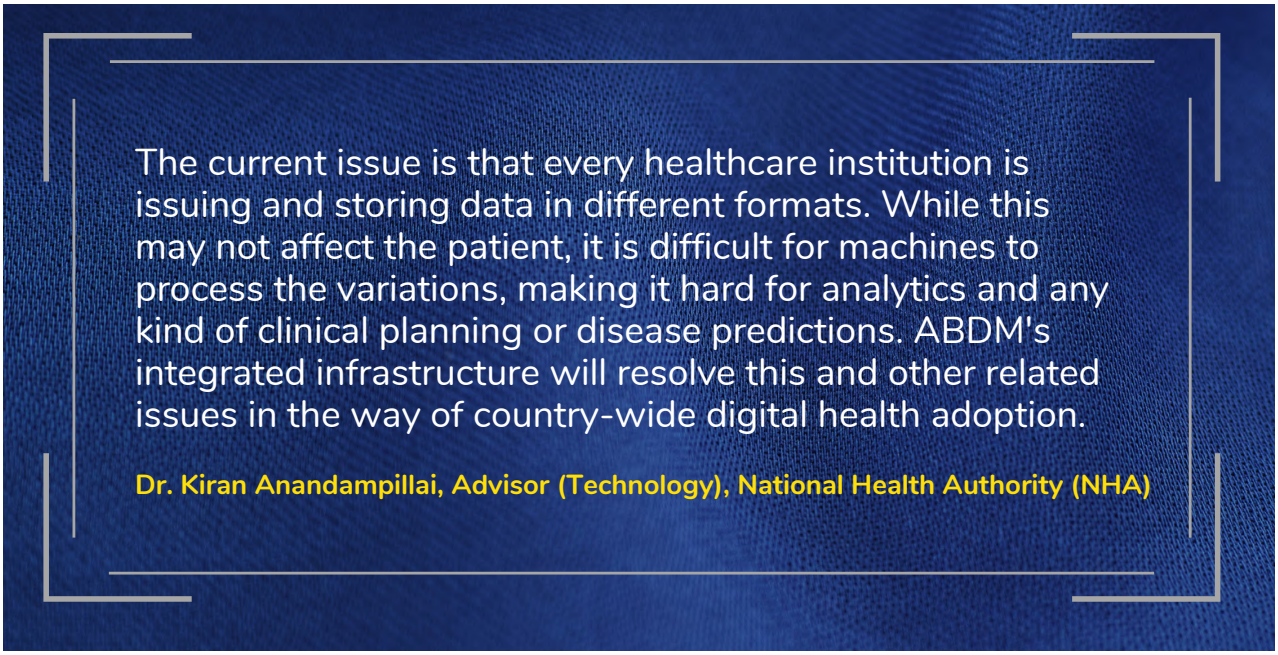
Integration of data & patient rights

Under ABDM, rights are offered through a concept called 'consents'. These consents, provided by the patients themselves, must be recorded by the medical institution with a Consent Manager. Under the sophisticated ABDM architecture, there is creation of a 'health information exchange and consent manager', which enables the collection and management of the consents, while also helping integration of data. The entire infrastructure is overseen by the new Data Protection Authority (DPA).

Moving from unstructured to structured data with integrators

Health data exchange is expected to provide easy and machine-readable data. However, use of aforementioned integrators shows that it is challenging for integrators to make this transition to a standardized format. Indian HMIS/LMIS have been able to achieve limited adoption of global digital health standards like LOINC. Thus, under ABDM, a working group has been set up to analyze this problem.

For the near future, integrators can attach existing formats of data such as PDFs for a limited time, which can be shared with patients in the ABDM ecosystem. After one year, as integrators become more sophisticated, they will be able to share reports in structured data formats alone. This will enable use of data for research, aggregate data reporting and analyzing trends.



ABDM and creation of aggregated & anonymized data

ABDM architecture goes beyond personal data movement. Aggregated data was required during the COVID-19 pandemic, so that COVID tests could be recorded by labs in the nation. Under ABDM, similar data will be generated across the health ecosystem for multiple medical conditions like vector borne diseases, and more. This aggregated and integrated data can lead to more effective epidemic tracking and better healthcare policies in the future.

ABDM is working on 3 major areas that uses integrated data:

1. **Health Data Exchange Layer:** Enabling interoperable exchange of health data using integrators in a way that is compliant with laws.
2. **Unified Health Interface (UHI) Layer:** UHI enables doctors to use any software of their choice for telemedicine and consultations online, outline their fee, availability and other details. The patient on the receiving end need not use the same software as the doctor, as UHI will guarantee interoperability.
3. **JAM & INDeA Stack Layer:** This is a digital framework that will support a multitude of health verticals and their disparate branches, and is capable of integrating future IT solutions for a sector that is poised for rapid, disruptive changes and unforeseen twists. The Health Stack will seamlessly link to support national health electronic registries, a coverage and claims platform, a federated personal health records framework, a national health analytics platform as well as other horizontal components.

The Q&A Session

A glimpse of audience interactions during the webinar

Q: What are the phases of ABDM integration?

A: Typically, the first and the longest phase is that of understanding the envisioned ecosystem. The second phase is prioritization, where a healthcare agency will decide when to start the integration process. For individuals, acquiring a ABHA address is a rapid process requiring only a few key details like gender, mobile number and other voluntary information. Using apps like PayTM or Aarogya Setu, an individual can acquire an ABHA address easily.

Q: Are there any incentives for the private players to integrate with ABDM?

A: ABDM is committing resources to find out the key use cases that will be revenue drivers for large hospitals to integrate quickly. The value is set to emerge once hospitals are able to use the anonymous and aggregate data to make better decisions internally. Additionally, a major incentive at the national level is the value of a better ecosystem that requires low effort and adds good value to the Indian healthcare system. Another incentive is passing of the Data Protection Bill. This will lead to increased demand from healthcare institutions, which need to comply with standards set for the legal storage of people's data.

Q: Is there any plan to integrate data from medical devices (like glucometers) into ABDM?

A: Information from home devices is useful medical data. However, as per the ABDM architecture, only registered healthcare providers can link data to a patient's ABHA address. Home devices cannot be registered in this process. To solve this issue, the ABDM allows a person to themselves add information to their own health record. So, if one feels the need to add their glucose levels, blood pressure and other details onto their record, it will be facilitated. As more PHR apps are released into the market, people will be able to integrate their own data with growing ease. In future, data from machines like MRIs will also become shareable using ABDM integration.

Q. By when can India start the use of aggregate data to analyze trends at the public health level?

A: As increasing providers like labs and hospitals begin creating structured data, production of aggregate data sets will begin shortly. Around 1-2 years of data integration is required to start generating data at a scale that will be of critical help in mapping out testing rates, disease risks and regional variations.

SESSION 8

Learnings from international experiences on ABDM

While India is on its way to create the world's first country-wide digital health landscape, it is wise to also learn from other countries, which have successfully implemented digital systems at various levels. The webinar was focused on designing future health systems for India and talked about the lessons and analysis gained from global digital health projects. It gave an insight into the components of high-value health systems through adoption of digital health standards.

Watch the video

More information on ABDM Series: www.nathealthseries.com

Learnings from international experiences on Ayushman Bharat Digital Mission (ABDM)

Date: March 10, 2022

Speaker: Dr. Dennis Streveler,
Global Digital Health Expert, Professor of Medical Informatics, University of Hawaii

Speaker: Dr. Krishna Udayakumar,
Founding Director, Duke Global Health Innovation Center

The webinar concentrated on the global role of digital health, especially data and the policies around data. Too many of the health systems around the world are often supply driven in terms of their finances, and they often have many fragmented practitioners that are not jointly accountable for the value of the care that they are providing. The current systems are set up in a way that makes innovation more difficult, so the patient tends to be reactive and uncoordinated.

Ayushman Bharat Digital Mission (ABDM) in India is trying to fix such an issue in the Indian healthcare system, with the help of digital health tools and an advanced integrated infrastructure.

Understanding how digital health systems should work in reality

Even globally, the digital systems are more person-driven, based on the needs of the individual and the community that is being served. Such systems need to have strong primary care as the anchor of that system, to really enable integrated access from primary to specialty care. This also factors in access to pharmaceuticals, medical devices and other types of innovations.

Another important aspect is that health is not just about delivery, it is also driven by access to high-quality and affordable social services. Therefore, a digital system at its core should integrate all of these components and make them as friendly to the user as it possibly can.

The role of data here is that of an integrator, and it stands at the core of creating demand-driven systems that ensure that there is alignment across the policies, that the payment systems integrate all of the capabilities and, finally, that it allows for innovation to take hold and scale effectively.

Measuring the progress/success of digital health systems

AEEQ, which stands for Access, Equity, Efficiency, and Quality are four aspects of healthcare delivery, which create a metric to measure progress of digital health systems.

Access: By the population and providers to medical information so that patients can manage their health care and providers can deliver improved care.

Equity: To make sure that the systems are equitable and can reach as many people as possible down the economic ladder, the education ladder, and down the literacy ladder.

Efficiency: How much efficiency is to be added, how many products should be added for this efficiency, and how many middle steps are to be thrown out to make a process more efficient.

Quality: Proxy measures of quality are required and those proxy measures require masses of information, which can be done through digital health. A nation cannot expect to improve quality, unless it improves the information that flows in. Currently, it is fragmented, lacking in timeliness, and also lacking accuracy. In many cases, they also can be politically maneuvered and altered.

> Some of the global lessons that we, at Duke Global Health Innovation Center, have learnt came from our network of more than 100 innovators, many of them working in India along with operating in more than 90 other countries. These innovators are involved in everything from developing next-generation digital health tools to developing new business models for delivering those tools, to the people who need them the most. These are valuable lessons for a pan-India ABDM approach.
>
> **Dr. Krishna Udayakumar, Founding Director, Duke Global Health Innovation Center**

To further understand the success factors in digital health, India can look at many nations worldwide for collecting global evidence at either a micro or macro level of population health, and through the provision of high-value health. The observations range from low-income, middle-income and high-income countries.

For example, one learning can be from the US, where leading health systems and their application of future-looking innovations have policies to enable them. Another one can be from Germany, where different providers and policymakers have come together on a regional basis. India can also learn from countries like Rwanda, where public and private partnerships are enabling stronger access to care.

Lessons learned from a global analysis

India's ABDM can definitely learn from some global instances, so that it can become even more robust and a wholesome healthcare system. Lessons range for policymakers to healthcare providers to digital and health data players.

The first lesson: A nation's digital health systems should enable providers to have access to better quality data, because those providers will give care that is high value and accountable. For them to do that efficiently, they should be able to monitor the cost, track their revenues, and make sure that they are enabling the right types of utilization. At the end of the day, all this can tie their work to real health outcomes.

The second lesson: There has to be a pathway for policy making that enables investment and other decision-making from providers. That means providing a step wise predictable approach to implementing different types of payments performance measures and data systems, which emphasize providers to deliver both higher quality and higher value of care.

The third lesson: Just as evidence-based care services are used, also make a stronger commitment to evidence-based policy making. There should be a commitment by policymakers to generate and use data, over time, so that a country keeps strengthening the evidence base for its policies.

The fourth lesson: Providers should bring in stronger investments and collaborate with other stakeholders and the communities. Include investment and clinical leadership to create shared values. Investments are critical to develop the data and technology infrastructure that cannot be made in a silo by an individual provider. Collaboration enables stronger access to interoperability across providers and platforms. It has to also provide access to longitudinal data to identify different patient populations stratified, and address the health and social needs of a country over time.

The fifth lesson: A country should be able to shift its care mechanisms away from facilities like hospitals, and think about multi-disciplinary team approaches that are directed more towards community and home-based care. This is where digital data plays a critical role.

Some of the work done around health policies in East Africa and West Africa, can be a learning for a futuristic system like ABDM. Over the last five years, both East & West Africa have worked as a consortium with collaborators in East Africa's IGAD (Inter-Governmental Authority on Development) and West Africa's ECOWAS (Economic Community of West African States), along with the West African Health Organization, to develop a better understanding of how to improve health outcomes by a stronger use of health data and innovation.

Data Sharing & Protection Principles

This global analysis brings forth six principles for data sharing and data protection policies, which might be valuable in the Indian context. One important point to remember is that such policies are successful only if a country anchors them in partnership with the community and across organizations/stakeholders.

- There has to be legitimacy, consent, and transparency. So those whose data is being captured, have to understand meaningfully what consent means and how it impacts collection, processing, and sharing of health data. There has to be ethics involved and an agreed-upon way that shows a legitimate use for this data.

- There should be clarity around the purpose and the relevance. The data being captured has to feed directly into why it is being used, and how it is going to help the people who are providing this data. This includes having data controllers and processors in place, and making sure that data is used only for the purposes that it is agreed upon.

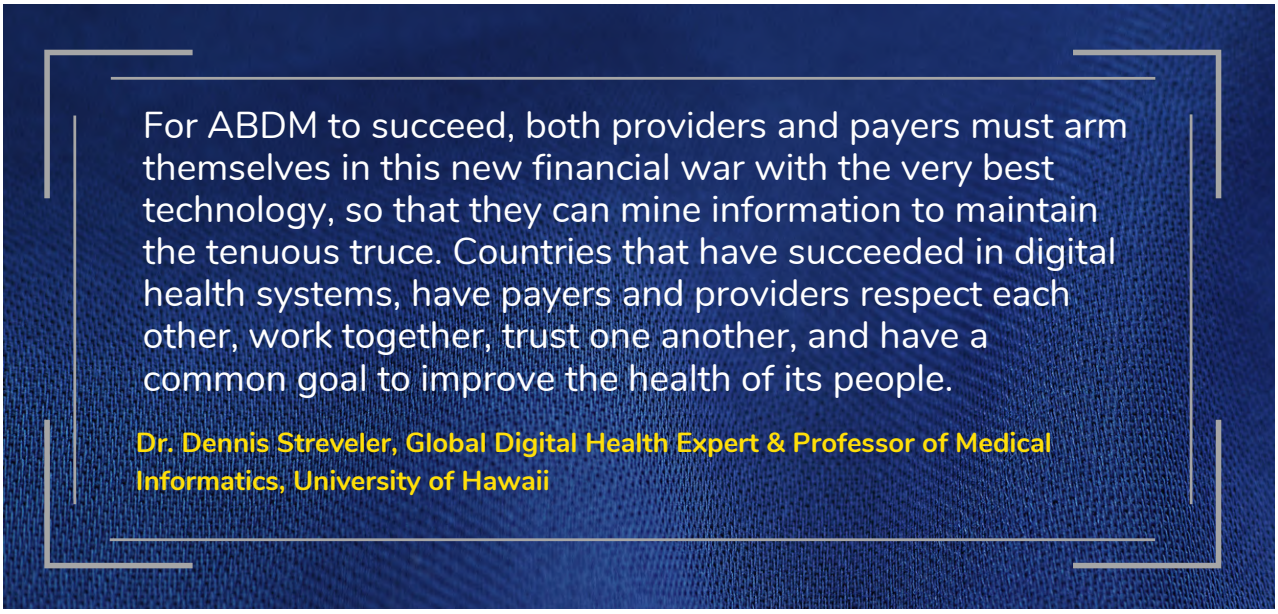
- Importance to be given to data security, confidentiality, and storage; health data has to be stored and protected against unintended use or theft. There has to be appropriate security safeguards and it should not be stored longer than is necessary for its appropriate use.

- Data sharing and transfer principles have to be in place. Data should be transferred in a secure, accessible way and at standardized places in a timely manner.

- Access to data is critically important. Who has access to data and the rationale for data access, should be clearly defined.

- Finally, there has to be high quality in the data being captured and used, to make policy as well as practice decisions. Thus, data collection, processing, and sharing has to be conducted with data quality standards in place and by ensuring that the dimensions of quality include accuracy, completeness, consistency, validity, timeliness, and uniqueness, so as to eliminate redundancy.

From a policy-making perspective, these principles can ensure that the right data policies are unleashing the power of innovation. This can make sure that India improves individual and population health and ABDM can help to inform the future of data, health delivery, and health innovation.



Scaling Health Innovations, Opportunities for Disruption

ABDM can take global lessons in opportunities for disruption, especially using digital solutions. Some of which are as follows:

Vision: Know the vision that ABDM is trying to serve. For example, who is the consumer, and aligning to make sure that ABDM is serving their needs, as opposed to disrupting their needs.

Disruption: Another point to consider is how ABDM can disrupt the delivery model by using digital health technologies. For instance, defining the principles of a futuristic health system, which is built by developing digital solutions and is provided through mobile phone technology to the patients, the family units and the communities that need them. This is how newer models of care like home-based services and community-based services can be developed too. Finally, realizing that building a hospital should be done 'only' when hospitals are needed, and where other models of care perhaps may not deliver care sufficiently.

Manpower & SOPs: ABDM should also think about coupling digital technology with the right workforce by scaling up the manpower. Standardized operating procedures, which will enable a reduction in variation and lead to more consistently higher quality care, should also be developed.

Affordability: Digital health should be looked at as an enabler of asset-light business models. Too often healthcare is linked with expensive buildings, equipment, and expensive people providing care. The digital health disruption can address the cost issues and break the barriers to affordability.

Data power (AI, machine learning): This can improve health delivery and outcomes, especially in a low resource setting. To enable such systems, India needs to unlock the right policies, make sure that payment and financing systems are creating accountability and enlightenment, invest in the right digital and data tools, and allow providers of care and social services to innovate.

The Power of Partnership

Implementation of a digital health system needs the power of partnership. It is the only way that many countries have been successful in digital health. A mixture of co-operation and competition is essential. This financial interplay is vital.

Co-operation between the public and private health sectors is an ideal collaboration. In a nation like India, it is important to understand if ABDM can co-opt those players that are the most powerful, most useful, and find ways to create co-operation. For example, Estonia which is a very small country, found an early path in its small 3 million population, to create a high quality digital health system, which in many ways has not been equaled in the world still.

They also left the private sector to do what it does well, which is a lesson for India too. India has had its roadblocks in consistent higher quality, high tech, advanced tertiary healthcare; which is the forte of private sector. Thus, the private sector should stay focussed in this area. At the same time, the public sector can do what it does best; deliver primary and secondary health care.

However, if a market is stratified this way, it will need a referral system that can link these two, so that good candidates for tertiary care get referred to the private sector. While ongoing monitoring of chronic disease and other NCDs can be done in the public sector. Digital health systems can make it easy for people to move back and forth between these sectors, if they have the right information for decision making. Additionally, there can always be some scope of overlapping healthcare services between private and public sectors.

Balance of Power Between Payer and Providers

In a system like ABDM, it may become hard to maintain the balance of power between the payer (Government) and providers (whether public or private). Especially, as they both come from different financial and other incentive backgrounds. Ultimately, it may affect patient care and outcomes. Thus, maintaining the new synergy between the two sectors is vital.

To strike a balance, good communication should be ensured, which is a joint effort. This balance can come through the use of information and the use of good information systems on both sides. Digital health and its data is what can make it a possibility.

How can India run a successful digital health mission

Ownership: To succeed first, all stakeholders should have exercised ownership in the process. This process of improving health in India through a new regime of payments and contracts needs to be owned by both sides.

Partnership: Stakeholders and hospitals should find every opportunity to partner with other stakeholders and health providers in India. Such a system will do away with as much duplication and redundancy as possible, and create meaningful collaborations. It will save the country, the providers and the patients - money, time and efforts.

Integration: Both public and private sectors must strive to be better integrated into a single healthcare system. From the Indian patients' point of view, one day, perhaps they may not need to care whether they are being treated in the public system or the private system. They go to the public system for the things it does best. They go to the private system with referrals or direct referrals for the things it does best. Thus, it will benefit everyone when the two will exchange information and maintain the continuum of care between these. That is the ideal scenario that India's ABDM should strive for.

Sustainability: The providers and the Government should ensure that the prices are fair and stable. Prices should not fall to an extent that it endangers sustainability. Timely payments should also be made. This is one of the best ways to make sure that providers work more willingly, efficiently and collaboratively.

Quality: Payers also should ensure high quality from their spends. India cannot afford wasted procedures or duplicate lab tests or to wait for a disease to progress to stage four, when it should have been treated at stage one; simply because that only costs more money and more debt. Payers must also fight to improve quality across the spectrum. They can do so through feeds from digital health.

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- Federation of Healthcare Association
- Global Association of Physicians of India Origin (GAPIO)
- Home Healthcare Association
- Indian Chamber of Commerce (ICC)
- Indian Medical Association (IMA)
- Indian Pharmaceutical Alliance (IPA)
- Medical Technology Association of India (MTaI)
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- Organization of Pharmaceutical Producers of India (OPPI)
- Private Hospitals and Nursing Homes Association (PHANA)

Abbreviations

AI - Artificial Intelligence
API - Application Programming Interface
ABHA - Ayushman Bharat Health Account
CKD - Chronic Kidney Disease
DEPA - Data Empowerment and Protection Architecture
DPA - Data Protection Authority
EHR - Electronic Health Record
EUA - End User Applications
HCX - Health Claims Exchange
HIMS - Health Management Information System
HIP - Health Information Provider
HIU - Health Information Users
HPR - Health Professional Registry
HRP - Health Repository Providers
HSP - Healthcare Service Providers
HSPA - Health Service Provider Applications
JAM - Jan Dhan-Aadhaar-Mobile
KYC - Know Your Customer
LIMS - Laboratory Information Management System
NDHM - National Digital Health Mission
NHA - National Health Authority
PHR - Personal Health Record
UHI - Unified Health Interface
UPI - Unified Payments Interface

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