



ISQuaEEA | International Society for Quality in Health Care  
Accredited Organisation 2022-2026



# NABH DIGITAL HEALTH STANDARDS FOR HOSPITALS

**1<sup>st</sup>**  
**EDITION**  
SEPTEMBER 2023





QUALITY : SAFETY : WELLNESS

# **National Accreditation Board For Hospitals and Healthcare Providers (NABH)**

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NABH Digital Health Standards For Hospitals, September 2023

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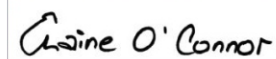
## National Accreditation Board for Hospitals & Healthcare Providers (NABH)

Awarded by ISQua EEA  
following an independent assessment  
against the  
Guidelines and Standards for  
External Evaluation Organisations,  
5th Edition

The period of Accreditation for this Organisation  
June 2022 is from June 2026  
until



Prof Jeffrey Braithwaite, President



Ms Elaine O'Connor, Head of Operations



# FOREWORD

**N**ational Accreditation Board for Hospitals and Healthcare Providers (NABH), is in its 18th year of creating an ecosystem of quality in healthcare in India. NABH standards focus on patient safety and quality of the delivery of services by the organizations in the changing healthcare environment.

Without being prescriptive, the standards have been developed with the intent of providing information and guiding the organization in conducting its operations with a focus on timely and coordinated care, comprehensive and specialized care with an overall intention of patient safety.

Over the years, successive NABH standards have brought about not only paradigm shifts in the hospitals' approach towards delivering the healthcare services to the patients but have equally sensitized the healthcare workers and patients toward their rights and responsibilities.

It is my great pleasure and pride to introduce the innovative NABH Digital Health Accreditation Program, tailored exclusively for hospitals in India. As we stand at the precipice of a new era in healthcare, the fusion of technology and medicine has the power to unlock boundless possibilities for patient care and organizational efficiency. Embracing this digital transformation is no longer an option but an imperative for the hospitals of today and tomorrow.

This guidebook to the 1st Edition of Digital Health Accreditation Program of NABH includes digital standards along with Key Performance Indicators which has been made available free of charge as a downloadable document on NABH website. The guidebook edition is unique in its approach and has been tastefully presented based on a coded approach.

Like the 5th Edition of Hospital Accreditation Standards of NABH, the Objective Elements have been designed to be assessed as Core, Commitment, Achievement and Excellence. However, the number of Chapters have been reduced to eight, consisting of three clinical and five non-clinical chapters. Similarly, the Objective Elements have been trimmed to a total of 181 out of which 17 are in Core category which will be mandatorily assessed during each assessment, 67 are in Commitment category, 46 are in Achievement category and 51 are in Excellence category.

This objective methodology will aid any hospital in a stepwise progression to mature quality system covering the full accreditation cycle. Another significant change has been in the award of Digital Health Accreditation. Hospitals can now apply for their digital maturity between Silver, Gold, and Platinum categories. The digital health maturity was arrived at after several rounds of deliberations and discussions across three levels in order to provide a choice to the hospitals to apply for the digital maturity that they feel they are currently at. Also, segregation across three levels would provide a motivation to the hospitals to aim for higher maturity levels.

With great enthusiasm, I invite all hospitals in India to embrace this opportunity, join the digital health revolution, and become the architects of a brighter and healthier future.

I wish every success to the hospitals adopting these standards for implementation and congratulate them on the spirit of quality and patient safety. NABH has the mandate and remains committed to ensuring healthy lives and promote wellbeing for all at all ages (SDG-3-Target 2030), creating a culture and an ecosystem of quality in healthcare taking Quality, Safety and Wellness to the last in the line.

**Jai Hind**

**Dr. Atul Mohan Kochhar**  
CEO, NABH



# ACKNOWLEDGEMENTS

I would like to express our sincere appreciation and gratitude to all the individuals and organizations who have contributed their time, knowledge, and expertise in preparing this 1st edition of NABH Digital Health standards for Hospitals.

I would place my heartfelt thanks and deepest gratitude to Shri Jaxay Shah, Chairman QCI, for his vision to take quality to the grassroots and permeate the idea of quality in the DNA of each and every citizen in every part of India.

Prof. (Dr.) Mahesh Verma, Chairman NABH, has been the guiding light throughout the development of this first Edition of NABH Digital Health standards for Hospitals. I thank him for his active participation, support, and invaluable suggestions despite of his busy schedule.

I sincerely thank Dr. Ravi P. Singh, Secretary General of Quality Council of India for his guidance and continuous support by making adequate resources available for this process.

My deepest gratitude to Mr. Rizwan Koita, Founder, Koita Foundation for his patient support and for carving the path in the past one year to arrive to this edition of standards.

I thank all the board members of NABH in giving significant suggestions for betterment of the standards and the respective guidebooks.

The Technical Committee of NABH worked relentlessly and meticulously to accommodate the best practices in digital health space, referred to innumerable academic references and incorporated suggestions made by all the stakeholders in bringing these standards to reality.

I thank PwC team for their commitment and contribution in developing these standards.

I thank all our diligent assessors, management of the hospitals, CIOs, IT teams of the hospitals, clinicians, and nurses who gave us extensive feedback to improve upon the standards and their exhaustive interpretation.

I thank the officers at NABH Secretariat for working round the clock, to complete the work within time.

It is entirely due to their dedication and collaboration that we could present this guidebook in the current detail and format.



**Dr. Atul Mohan Kochhar**  
CEO, NABH





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# About NABH



National Accreditation Board for Hospitals and Healthcare Providers (NABH) is a constituent board of the Quality Council of India (QCI), set up to establish and operate accreditation programs for healthcare organizations. NABH has been established with the objective of enhancing the health system & promoting continuous quality improvement and patient safety. The board, while being supported by all stakeholders, including industry, consumers, government, has full functional autonomy in its operation. NABH provides accreditation to hospitals in a non-discriminatory manner regardless of their ownership, size, and degree of independence. International Society for Quality in Healthcare (ISQua) has accredited NABH.

**Vision:** To be apex national healthcare accreditation and quality improvement body, functioning at par with global benchmarks.

**Mission:** To operate accreditation and allied programs in collaboration with stakeholders focusing on patient safety and quality of healthcare based upon national/international standards, through process of self and external evaluation.

## Values

**Credibility:** Provide credible and value addition services

**Responsiveness:** Willingness to listen and continuously improving service

**Transparency:** Openness in communication and freedom of information to its stakeholders

**Innovation:** Incorporating change, creativity, continuous learning, and new ideas to improve the services being provided

## NABH ACTIVITIES

### NABH ACCREDITATION PROGRAMMES:

1. Hospitals
2. Small Healthcare Organizations
3. Blood Banks
4. Eye Care hospitals/clinics
5. AYUSH (Ayurveda, Homeopathy, Unani, Siddha and Yoga & Naturopathy) hospitals
6. Medical Imaging Services (MIS)
7. Dental Healthcare Service Providers
8. Allopathic Clinics
9. Clinical Trials (Ethics Committees)
10. Panchakarma Clinics

#### **NABH CERTIFICATION PROGRAMMES:**

1. Entry Level Hospital
2. Entry Level SHCO
3. Entry Level Ayush Hospital
4. Entry Level Ayush Centre
5. Nursing Excellence
6. Medical Laboratory Programme
7. Emergency Department
8. Entry Level Certification for Dental Clinics

#### **NABH EMPANELMENT PROGRAMMES:**

1. CGHS Empanelment
2. ECHS Empanelment
3. MVTF Empanelment

#### **NABH PROJECTS:**

1. Certification of AHWs and integrated Hospitals under NAM
2. Inspection of Homeopathy medical colleges
3. Smile Train Centers
4. Third party assessments of FOGSI partner hospitals

#### **NABH NEW STANDARDS:**

1. Entry level certification of dental clinics
2. Accreditation of Care Homes
3. Certification of Stroke Centers

**NABH International:** NABH has started its operations overseas under NABH International (NABH I). It offers all accreditation programs as being offered in India. The program is unique as in addition to the accreditation standards it requires compliance with local regulatory requirements.

**Training & Education:** NABH conducts Education/Interactive Workshops, Awareness Programmes, and Programme on Implementation (POI).

**Way Forward:** Scaling up Quality in 1,00,000+ hospitals and other medical establishments

# NABH - Creating an ecosystem of quality in healthcare

National Accreditation Board for Hospitals & Healthcare Providers which is commonly abbreviated as NABH is a constituent board of the Quality Council of India which has been setup in 2005 to establish and operate accreditation programmes for hospitals and health care organizations with the objective of enhancing health system & promoting continuous quality improvement and patient safety. NABH is in its 18th year of creating an ecosystem of quality in healthcare and has built itself as a national accreditation body over the years. NABH is structured to cater to the needs of the consumers and sets standards and benchmark for the progress of the Indian Health Industry and provide a boost to the Medical Tourism. NABH stands for its values: credibility, responsiveness, transparency, and innovation in healthcare industry of the country and hence NABH accreditation is used as an empaneling criteria by various government organizations. NABH has given the country national standards or '**Desh ka Standard**' and are in line with '**Atma Nirbhar Bharat**'. These standards help to build a quality culture at all levels and across all the function of hospital.

NABH provides accreditation to hospitals in a non-discriminatory manner regardless of their ownership, legal status, size, and degree of independence. NABH, as an organization and NABH standards for hospitals are internationally recognized and benchmarked. The accreditation of NABH standard for hospitals authenticates that NABH standards are in consonance with the global benchmarks set by ISQua and thus hospitals accredited by NABH will have international recognition. Currently, NABH is offering around 25 accreditation, certification and empanelment programs for various types and maturity level of healthcare providers. NABH is the only accreditation body that has an accreditation system for Traditional Medicine worldwide. It has independent standards for Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy. The standards are designed to facilitate ease of understanding and implementation. The healthcare industry has endorsed and adopted NABH in a big way. Today NABH is the largest healthcare provider accreditation body in our country with **more than 17,000** healthcare organizations partnering with NABH under various accreditation, certification, and empanelment programs.

The reach of NABH in terms of number of accredited hospitals is far more than other national and international private accreditation bodies which has only around 50 to 60 hospitals empaneled under them in India. Also, the cost of investment for accreditation through these bodies is much higher and difficult for the healthcare providers at large in India. NABH is the only organization which conducts surveillance and surprise assessments after the healthcare organization is accredited in order to maintain and ensure the continuity and sustainability of quality system. NABH conducts surveillance assessment after 2 years of accreditation and surprise assessment as and when required followed by the renewal after 4 years.

NABH is working very closely and developing MoUs and partnerships with national governmental bodies like Ministry of Health, AYUSH, National Health Authority, National Commission for Homeopathy, other governmental, non-governmental, corporate and NGOs. NABH is also actively contributing to the works and initiatives that our Honorable Prime Minister has announced. NABH is closely working on the government initiative under the Ministry of Health and Family Welfare for Heal in India, Heal by India project. NABH is an active member and part of the G-20 Health working group.

NABH is broadcasting the Quality Connect Podcast series on YouTube and other social media platforms and is also working further to reach to the very grassroot level. In the coming months, NABH has planned extensively to conduct a mega quality campaign for awareness and sensitization among hospitals and public about quality, patient safety, accreditation, and certification processes in 2023. NABH is also conducting regular workshops, trainings, and awareness programmes for the hospitals to spread awareness and train the hospitals for accreditation and certification processes so that they are not misled by external factors, consultancies, and agencies. NABH Programme on Implementation (POI) is one of the very well-known and most pursued courses by the managers and leaders of hospitals, health administration students and other healthcare professionals.

Overall, the dream of a self-reliant Quality health system is only possible when high quality, affordable and accessible health services are being provided to all equitably and NABH is committed to help the Hon'ble Prime minister achieve this vision. There is a growing recognition of the importance of accreditation, as a useful tool for patient safety and more healthcare facilities are expected to seek accreditation in the coming years as patient expectations continue to rise and the healthcare system in India evolves.



# Introduction to Digital Health Accreditation

## INTRODUCTION TO ACCREDITATION

In today's rapidly evolving healthcare landscape, digital technology has become an integral part of delivering efficient, accessible, and quality healthcare services. As healthcare providers and organizations increasingly rely on digital solutions, ensuring the security, reliability, and effectiveness of these technologies has become paramount. This is where Digital Health Accreditation steps in.

In the vast and diverse healthcare landscape of India, the rapid integration of digital technology has the potential to revolutionize healthcare delivery. With a burgeoning population and increasing healthcare demands, the need for reliable and secure digital health solutions has never been more critical. In this context, Digital Health Accreditation plays a pivotal role in ensuring that these technologies meet the unique challenges and requirements of the Indian healthcare system.

Accreditation in the context of healthcare refers to the formal evaluation procedure by means of self-assessment and external peer review process used by health care organizations to accurately assess their level of performance in relation to established standards and to implement ways to improve the health care system continuously. Accreditation is the most important approach to improving the quality of healthcare organizations and serves as a guiding force to drive these organizations to follow standardized procedures in order to ensure patient safety and quality by way of establishing systems, protocols leading to a culture that is safe and patient centric. Accreditation is a systematic approach to do the right things as per the right procedure to the right patient at the right time to have the right outcome.

The primary goal and objective of accreditation is to demonstrate that the healthcare organization's dedication to accreditation standards leads to a higher level of performance and a stronger focus on patient care and to ensure that the healthcare organizations not only perform evidence-based practices but also give importance to access, affordability, efficiency, quality, and effectiveness of healthcare. Accreditation also helps in branding the country internationally as a cost-effective quality healthcare hub for foreign patients and thereby caters to medical tourism to a larger extent making it a favorable destination for healthcare.

## INTRODUCTION TO DIGITAL HEALTH

Digital health represents a transformative evolution in the healthcare industry, driven by the integration of cutting-edge technology and data-driven solutions. In an era where smartphones, wearables, and advanced software have become ubiquitous, digital health is revolutionizing the way we monitor, manage, and deliver healthcare services.

Digital health has the potential to improve access to quality healthcare, streamline processes, enhance the quality of care, and even reduce costs. It's more than just a buzzword; it's a transformative force shaping the future of healthcare. One of the key benefits of digital health is the ability to improve access to healthcare

services, especially in underserved areas or remote locations. Through telemedicine, patients can access medical professionals and receive consultations or treatment without having to travel long distances. This is particularly valuable in developing countries where access to healthcare facilities may be limited.

In addition to improving access, digital health also improves the efficiency of healthcare delivery. Electronic health records, for example, enable healthcare providers to have instant access to patients' medical history, test results, and treatment plans. This streamlines the decision-making process and reduces the chances of medical errors.

It has the potential to enhance patient engagement and empowerment. Mobile health apps and wearable devices enable individuals to monitor their own health, track their fitness goals, and manage chronic conditions more effectively. This self-management approach not only empowers patients but also promotes preventive care and early intervention.

Furthermore, digital health has proven to be instrumental during public health emergencies, such as COVID-19 pandemic. Telemedicine and remote monitoring technologies have played a crucial role in delivering healthcare services and monitoring patients remotely. Digital tools have also facilitated contact tracing, data collection, and public health interventions.

However, the adoption and implementation of digital health face certain challenges. Privacy and security concerns are major considerations, as the digitization of health information raises issues related to data protection and confidentiality. Interoperability between different digital health systems is also important to ensure seamless exchange of information across healthcare settings.

Despite these challenges, the potential of digital health to transform healthcare is immense. It has the ability to revolutionize the way healthcare is delivered, making it more patient-centric, accessible, and efficient. As technology continues to evolve, digital health will continue to play an increasingly significant role in the future of healthcare.

# Deep Diving into Digital Health

## DEFINITION AND SCOPE OF DIGITAL HEALTH

Digital health encompasses a broad spectrum of innovations, including telemedicine, electronic health records (EHRs), mobile health apps, wearable devices, artificial intelligence, and more. These technologies empower individuals to take control of their health, enable healthcare providers to offer more personalized and efficient care, and contribute to better health outcomes on a global scale.

This paradigm shift towards digital health not only enhances the patient experience but also offers opportunities to streamline healthcare operations, reduce costs, and improve medical research and data analysis. It has the potential to democratize healthcare, making it more accessible and inclusive for people of all backgrounds.

Digital health utilizes various digital technologies such as computers, mobile devices, software applications, wearable devices, and the internet to enhance healthcare delivery. It encompasses a wide range of applications, covering preventive care, diagnosis, treatment, monitoring, and disease management.

## DIGITAL HEALTH APPLICATIONS

There are numerous technologies that healthcare practitioners should familiarize themselves with.

### 1. HOSPITAL MANAGEMENT INFORMATION SYSTEM

HMIS, short for Hospital Management Information System, is a software solution designed to support hospital's administrative and financial needs and enhance operational efficiency in hospitals. It offers various features like patient record management, appointment scheduling, billing, and inventory control.

Hospital Information System is a broader system that encompasses all aspects of healthcare delivery in a hospital. Key features of HMIS include:

- a. Patient registration & admissions – centralized record of patients and key demographic information
- b. Patient scheduling
- c. Patient billing & Finance management
- d. Core Pharmacy & Lab management
- e. Administrative functions e.g., inventory management

## 2. ELECTRONIC HEALTH RECORDS

EHR organizes medical records, charts, test results, medications, and more. The main goal of EHRs is to give healthcare professionals quick access to critical patient information, leading to better decision-making, improved coordination of care, and enhanced patient safety.

- a. **Comprehensive Record Management:** EMR enables the centralized and organized management of patient records, including medical history, lab results, medications, and treatments.
- b. **Interoperability and Information Sharing:** EMR facilitates secure exchange of patient information among healthcare systems and providers, fostering collaboration and ensuring continuity of care across different settings.
- c. **Decision Support and Analytics:** EMR incorporates decision support tools and analytics capabilities, providing healthcare professionals with valuable insights and clinical guidelines for informed decision-making and improved patient outcomes.

## 3. TELEMEDICINE

Telemedicine refers to the use of technology to provide remote medical consultations and healthcare services. It leverages digital platforms and communication tools to connect healthcare providers with patients, regardless of their physical location. The main goal of telemedicine is to improve access to healthcare, enhance convenience, and enable efficient delivery of medical services.

**Telemedicine offers several key features that contribute to its effectiveness and convenience:**

- a. **Virtual Consultations:** Telemedicine platforms enable video or audio consultations between healthcare providers and patients, replicating the traditional doctor-patient interaction remotely.
- b. **Follow-up Care and Monitoring:** Telemedicine supports ongoing care through remote follow-up consultations and monitoring of patients' progress. This is particularly beneficial for chronic disease management, post-operative care, mental health support, and preventive care.
- c. **Emergency care -** Telehealth provides a means for individuals to quickly connect with healthcare professionals in emergency situations, allowing them to receive immediate medical guidance and advice before seeking in-person medical attention, potentially saving valuable time, and providing critical care instructions.
- d. **Second option service –** Telemedicine facilitates obtaining second opinions from specialists located in different parts of India or even internationally. Patients can seek expert advice remotely, ensuring they have access to a wider range of medical expertise and perspectives when making important healthcare decisions.
- **Enhanced Patient Monitoring:** Telemedicine enables remote monitoring of patients' health conditions using connected devices and wearables. This technology allows healthcare providers to collect real-time data on vital signs, symptoms, and other relevant information. This continuous monitoring promotes patient well-being and improves health outcomes.

#### 4. PATIENT PORTALS

Recognizing the importance of empowering consumers and patients, there is a global consensus that grants them complete access to their health information. This principle is also the foundation of the Government of India's Ayushman Bharat Digital Mission (ABDM) initiative.

One essential tool that facilitates patient access to health information is the patient portal. It serves as a secure platform that allows patients to conveniently view and manage their health records.

**Taking a closer look at some of the key features of a patient portal:**

- i. **Appointments Scheduling:** Patients can easily schedule appointments with their healthcare providers, eliminating the need for phone calls or in-person visits. This feature enhances convenience and streamlines the appointment booking process.
- ii. **Personal Health Information:** Patients have the ability to access and manage their personal health records securely. This includes information such as lab results, medical reports, and medication history, fostering patient engagement and empowerment.
- iii. **Payments:** The patient portal enables patients to conveniently make payments for the services they have received. This feature simplifies the billing process and provides a transparent means for patients to manage their financial responsibilities.
- iv. **Medical History:** Patients can review and track their medical history through the patient portal. This feature promotes better continuity of care by ensuring that healthcare providers have a comprehensive understanding of the patient's medical background.

Despite these challenges, patient portals will play a crucial role in healthcare delivery, facilitating patient engagement, enabling convenient access to health information, and fostering collaborative relationships between patients and healthcare providers.

## ADVANTAGES OF DIGITAL HEALTH FOR VARIOUS STAKEHOLDERS

Digital health solutions are transforming healthcare experiences for healthcare workers, including doctors and frontline workers, as well as other key players like providers, pharma, payers, and governments.

For doctors and healthcare workers, digital health offers convenience and accessibility. Access to EMR gives complete access to patient records – critical for providing the right clinical recommendations. Use of Laboratory information management system (LMIS) gives you access to latest lab results and track results over time. Likewise, use of pharmacy system enables doctors to fill an E-prescription and put safeguards for dosage and drug-drug interaction. Telemedicine allows you to connect with patients and provide care through video calls saving them a trip to the hospital. Mobile apps and wearable devices empower you to monitor patients' health and manage chronic conditions more effectively. Access to better quality and timely healthcare information and resources helps you make informed decisions and provide the best possible care.

**Health insurance companies** also gain significantly by use of digital tools. For example, electronic claims can be processed faster and more efficiently – significantly reducing cost of claims processing. Also, health insurance companies can start analyzing claims information and provide guidance to patients on managing their health conditions and to hospitals and doctors on how services are being used, leading to better outcomes and efficiencies.

**The pharmaceutical industry** experiences benefit from digital health advancements as well. Use of E-prescriptions increases efficiency of business and reduces pharmacy errors. Digital technologies facilitate faster patient recruitment for clinical trials, accelerating the development of new treatments. This, in turn, reduces costs associated with drug development, ultimately benefiting patients.

**Governments** stand to gain substantially from Digital Health. They aim to provide equitable access to healthcare for all, irrespective of location or background. What that means is that the government wants to reach the remotest corner of the country. Government can use healthcare patient and hospital data to make better decisions e.g., in increasing bed capacity, clinical staff, healthcare supplies etc. It also helps identify trends such as the onset of another pandemic.

These examples illustrate how digital health benefits healthcare workers and other stakeholders in the industry. Embracing technology and innovation opens doors to better healthcare experiences and improved outcomes for everyone involved.

## GLOBAL TRENDS IN DIGITAL HEALTH

Digital health trends are playing a pivotal role in realizing health equity by transforming healthcare accessibility and delivery. However, achieving health equity is not without its challenges, including addressing social determinants of health that influence the collection and sharing of health information. It requires collaborative efforts from governments and stakeholders at all levels.

Listed below are some prominent trends that were emerging:

- a) Telemedicine Expansion:** The COVID-19 pandemic accelerated the adoption of telemedicine worldwide. This trend was expected to continue, with increased use of video consultations and remote monitoring.
- b) Wearable Health Tech:** The popularity of wearable devices like smartwatches and fitness trackers continued to rise. These devices were not only used for fitness tracking but also for monitoring vital signs and health conditions.
- c) AI and Machine Learning:** Artificial intelligence and machine learning were increasingly integrated into healthcare for tasks like diagnosis, predictive analytics, and personalized treatment recommendations.
- d) Remote Patient Monitoring:** With the growth of IoT (Internet of Things), remote monitoring of patients with chronic conditions became more common, allowing for better management and reduced hospitalizations.
- e) Digital Therapeutics:** The development and adoption of digital therapeutics - software or apps that treat medical conditions - were on the rise. They could complement or replace traditional pharmaceuticals.
- f) Blockchain for Health Data:** Blockchain technology was explored for its potential to secure and share health data, ensuring data privacy and integrity.
- g) Healthcare Data Interoperability:** Efforts were being made to improve the interoperability of healthcare data systems, allowing for smoother data exchange between healthcare providers, payers, and patients.
- h) Mental Health Tech:** There was a growing focus on digital mental health solutions, including mental health apps, telepsychiatry services, and chatbots designed to provide emotional support.
- i) Personalized Medicine:** Advances in genomics and data analytics allowed for more personalized and targeted treatments, considering an individual's genetic makeup and lifestyle.
- j) Digital Health Regulation:** Governments and regulatory bodies were working on adapting regulations to accommodate digital health technologies, ensuring their safety and efficacy.
- k) Patient Empowerment:** Patients were increasingly empowered with access to their health data, allowing them to make more informed decisions about their healthcare.
- l) Data Security and Privacy:** With the increasing digitization of healthcare, data security and privacy remained critical concerns, leading to advancements in cybersecurity measures.
- m) AI in Drug Discovery:** AI was being used to expedite drug discovery and development processes, potentially leading to more efficient and cost-effective pharmaceutical research.

These trends reflected the ongoing digital transformation of healthcare systems globally, with an emphasis on improving patient outcomes, reducing costs, and enhancing the overall healthcare experience.



## NATIONAL-LEVEL E-GOVERNANCE INITIATIVES IN HEALTHCARE

### 1. AYUSHMAN BHARAT DIGITAL MISSION – ABDM

Just as the government built the UPI interface for Digital Payments such that we can now send money to even the vegetable vendor or the autorickshaw driver, similarly the Government is now building an interface whereby we will all be able to share our health records with various stakeholders. For example, by creating a health ID, an individual can go to a diagnostic centre and get a report and link it to the ID. Then he or she can visit a doctor and show this report. The doctor can write an E-prescription which can then be digitally sent to a Pharmacy to buy medicines. The medical records can also be sent to another doctor for a second opinion. All this will be possible due to building of a Unified Health Interface under the Ayushman Bharat Digital Mission launch by the Government.

#### **ABDM consists of several building blocks-**

- **ABHA number** - Just like an Aadhar number, ABHA is a unique health ID. Every citizen of India can choose to create one
- **Healthcare Professionals Registry (HPR)** – This is a repository of all healthcare professionals involved in delivery of healthcare services across both modern and traditional systems of medicine
- **Health Facility Registry (HFR)** – This is a repository of health facilities of the nation across different systems of medicine.

### 2. E-HOSPITAL

The e-Hospital application is an application for Hospital Management Information System. This helps with the digitization of internal workflows and processes of hospitals. The e-Hospital system is a one-stop solution which helps in connecting patients, hospitals, and doctors on a single digital platform. National Informatics Centre (NIC) has developed E-Hospitals to improve the delivery of healthcare services to the citizens across the country and is integrated with ABDM.

As of 2023, e-Hospital is deployed in over thousands of hospitals across India.

### 3. E-SANJEEVANI

E-Sanjeevani is the National Telemedicine Service of India, implemented by the Ministry of Health and Family Welfare. It is the world's largest telemedicine initiative in primary healthcare, serving lakhs of patients through Health & Wellness Centres and online OPDs. It enables remote consultations between patients and healthcare providers, bridging the gap in healthcare access, especially in rural areas. e-Sanjeevani has expanded its services to include teleradiology for rapid diagnosis and decision-making

### 4. E-SUSHRUT

E-Sushrut is another example of a Hospital Management Information System (HMIS). E-Sushrut is deployed in over multiple thousands of hospitals across India including all AIIMS hospitals across the country. E-sushrut is fully web-based application and has many strong digital capabilities including lab, pharmacy, blood bank and core administrative capabilities. It also integrates with ABDM.

## 5. NIKSHAY

While the world has set a target to eliminate TB by 2030, India has set an ambitious target to eliminate the same by 2025. This is possible only if the Government can track every case in the country, NIKSHAY is the web enabled patient management system for TB control under the National Tuberculosis Elimination Programme (NTEP). It is developed and maintained by the Central TB Division (CTD), Ministry of Health and Family Welfare, Government of India, in collaboration with the National Informatics Centre (NIC), and the World Health Organization Country office for India.

Nikshay is used by health functionaries at various levels across the country both in the public and private sector, to register cases under their care, order various types of tests from Labs across the country, record treatment details, monitor treatment adherence and to transfer cases between care providers. It also functions as the National TB Surveillance System and enables reporting of various surveillance data to the Government of India.

**6. PERSONAL DIGITAL DATA PROTECTION ACT, 2023** – The primary objective of the Act is to establish a comprehensive framework for the Protection and Processing of Personal Data (as defined below). An Act to provide for the processing of digital personal data in a manner that recognizes both the right of individuals to protect their personal data and the need to process such personal data for lawful purposes and for matters connected therewith or incidental thereto.

The DPDP Act governs the processing of digital personal data within India in two scenarios: (i) when such data is collected from data principals in digital format; or (ii) when initially collected in non-digital form and subsequently digitized. Thus, the DPDP Act shall not apply to processing of personal data in non-digitized form. It is clearer and narrower than the 2022 Bill, which did not apply to 'non-automated' processing and 'offline' data.

Moreover, the scope of the law has been extended. It now has an extra-territorial application, to encompass the processing of digital personal data beyond India's borders if it pertains to the provision of goods or services to data principals located within India. Notably, the DPDP Act does not explicitly address whether its provisions are applicable to the processing of personal data belonging to data principals situated outside India.

## FUTURE APPLICATIONS OF DIGITAL HEALTH

The future applications of digital health in India are promising and diverse. Some potential areas of growth and development include:

**Telemedicine:** Expanding access to healthcare services through teleconsultations and remote monitoring, especially in rural and underserved areas.

**Health Records Management:** Widespread adoption of electronic health records (EHRs) to improve patient data management, reduce paperwork, and enhance data security.

**Mobile Health (mHealth):** Mobile apps and wearable devices for health monitoring, fitness tracking, and chronic disease management.

**AI and Machine Learning:** Implementing AI algorithms for disease diagnosis, predictive analytics, and personalized treatment recommendations.

**Remote Patient Monitoring:** Continuous monitoring of patients with chronic conditions through IoT devices to prevent hospital readmissions.

**E-Pharmacies:** Expanding online pharmacies for convenient medication delivery and adherence tracking.

**Health Insurance Digitization:** Streamlining health insurance processes through digital platforms, including claims processing and policy management.

**Health Education:** Providing online health education and awareness campaigns to promote healthy lifestyles and disease prevention.

**Data Analytics for Public Health:** Using data analytics to track disease outbreaks, assess healthcare infrastructure, and optimize resource allocation.

**Telepsychiatry and Mental Health Support:** Increasing access to mental health services through virtual consultations and digital mental health apps.

**Wearable Health Tech:** Advancements in smart wearables for real-time health monitoring, including smartwatches, fitness bands, and smart clothing.

**Blockchain for Healthcare:** Enhancing the security and integrity of health records and supply chain management through blockchain technology.

**AI-driven Drug Discovery:** Accelerating drug discovery and development processes using AI algorithms and big data analytics.

**Health Chatbots and Virtual Assistants:** Offering 24/7 medical advice and information through AI-powered chatbots and virtual assistants.

**Digital Vaccination Records:** Implementing digital vaccination passports or certificates for easy verification of vaccination status during pandemics.

**Preventive Healthcare:** Promoting preventive healthcare through personalized digital health plans and reminders for screenings and vaccinations.

These applications have the potential to significantly improve healthcare accessibility, quality, and efficiency in India, benefiting both urban and rural populations. However, they also raise important considerations related to data privacy, regulatory frameworks, and equitable access, which need to be addressed for their successful implementation.

## **ROLE OF DIGITAL TECHNOLOGY IN IMPROVING HEALTHCARE DELIVERY AND CLINICAL CARE**

In recent years, the healthcare industry has undergone a digital revolution, with technology reshaping how hospitals operate and deliver care. The integration of digital health solutions in hospitals has brought about significant advancements in patient care, data management, and operational efficiency. This has a direct transformative impact on the eventual quality of clinical care being delivered in a hospital.

Digital health technologies have revolutionized patient care, enabling hospitals to offer more personalized and efficient services. Telemedicine, for instance, allows healthcare providers to conduct remote consultations with patients, extending medical access to individuals in remote areas and reducing the burden on in-person visits. Furthermore, wearable devices and health apps enable patients to monitor their health continuously, promoting proactive self-care and early detection of potential health issues.

Digital health solutions have streamlined hospital workflows and administrative tasks. Electronic Health Records (EHRs) are beginning to replace traditional paper-based systems, making patient information easily accessible to authorized healthcare professionals. This efficient data management improves collaboration among care teams, enhances communication, and reduces the likelihood of medical errors.

Digital Health Accreditation by NABH is designed to be a rigorous and comprehensive process that evaluates and certifies the digital tools, systems, and platforms used in healthcare. It serves as a vital assurance mechanism, instilling confidence among patients, providers, and stakeholders in the digital health ecosystem. Accreditation ensures that these technologies meet stringent standards, adhere to regulatory requirements, and prioritize the protection of sensitive patient data.

# System Documentation For Digital Health Accreditation

## INTRODUCTION

Documentation for digital systems is complicated and best left to specialists in this line, is a perception that is wrongly carried by even the organizations which have well established, functioning, and externally assessed quality systems. It is a notion that is far removed from the truth. An attempt is made here to clear the concepts of documentation and make it simple enough to be carried out by the staff who is responsible for executing various tasks in the organization without depending on anyone else. This will keep the documentation closer to reality and flexible in the hands of the organization and will also reduce the dependence on external sources for creating documents that are many times far removed from reality.

## WHY DO WE NEED DOCUMENTATION?

The fundamental purpose of documentation is the standardization of actions across various departments and functional units in the organization. Documentation is required for clarity on actions, continuity of systems, and information on the established system that is common to all levels of staff. Therefore, the documentation has various components:

- **Operation System Documentation:** It defines the procedures and processes that are required to be carried out in a standardized manner.
- **Quality system documentation:** The actions that are specifically required for activities that are related to the quality system and are not covered under operation system documentation.
- **Specialized documents:** Safety System Documentation, business continuity documentation.

## TYPES OF DOCUMENTS

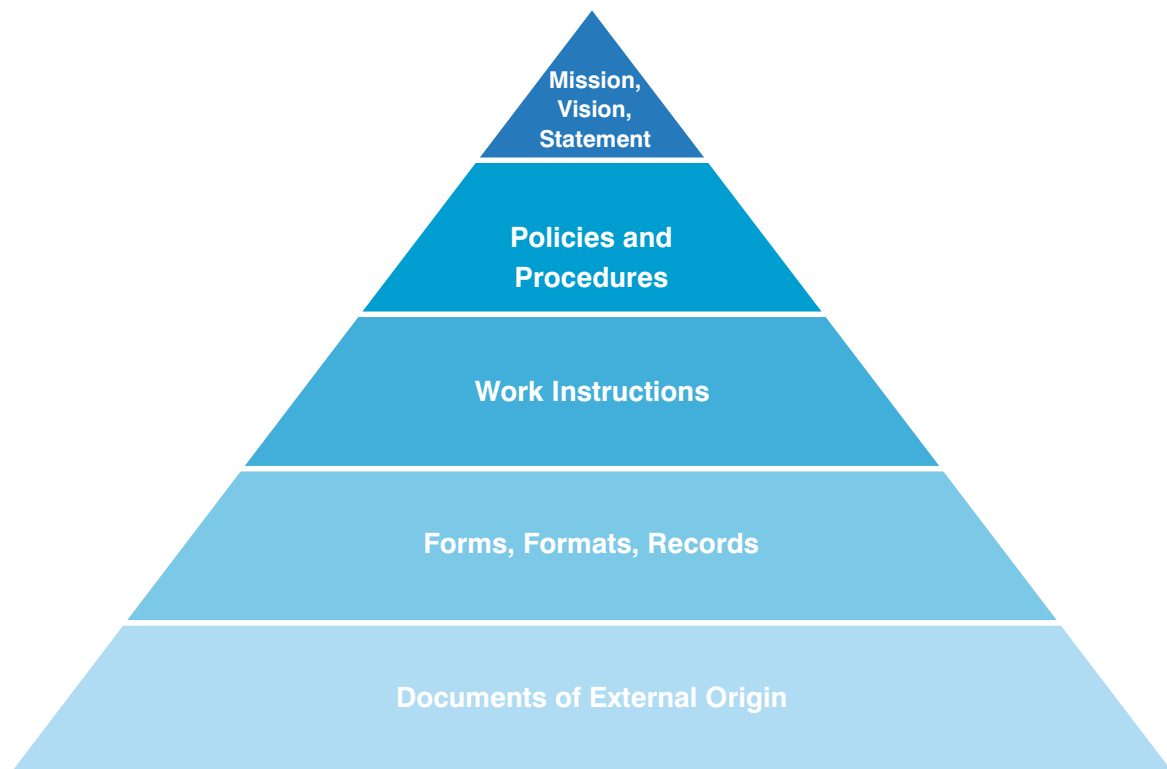
From the top level of planning to the level of maintaining records of activities, the documentation follows a general principle as below:

1. **Policy Documents:** Mission Statement, Vision Statement, Strategic plans, Policies which transcend time and act as guidance in the changing scenarios of the operational, legal, technologically changing environment in which the organization conducts its activities. They are the principles on which planning is based while adapting to the changes.
2. **System Documentation:** Operational and quality system documentation to carry out the activities in conformance with the mission and vision statement. This includes what is commonly known as Standard Operating Procedures or SOPs.
3. **Work Instructions:** These are instructions in a detailed manner for executing tasks, including the physical steps to be carried out.

4. **Forms and Formats:** These are various forms and formats to capture information as a record of the execution of various activities. The records are filled forms. The forms, formats, and records can be in a physical or electronic form. These can be entries as numerical, text, image, sound, etc.

Many organisations add a fifth category to this as Externally Acquired documents such as licenses, statutory clearances, Legal contracts, and Memoranda of Understanding, etc.

**The documentation structure, if visualized as a pyramid, appears as below:**



**Vision Statement:** Vision statement defines the direction that the organization wants to chart.

**Mission Statement:** Mission statement defines the purpose of the existence of the organization.

**Policies:** These are statements that transcend time to decide on the way the activities of the organization will be executed. These statements connect mission and vision statements with the processes and procedures of the organization. These may change over a relatively moderate time frame of a few years. Whenever these are developed or altered, the focus of this activity will always be guided by the mission and value statements forming a link between the mission and value statements and the actions on the ground which are documented through the Standard Operating Procedures.

**Standard Operating Procedures:** These documents define the steps that will be carried out to complete tasks or parts of tasks. These are also known as Operations Documentation or Operations Manual. These can be multiple manuals specific to departments, a group of related tasks and will have documentation for the processes and procedures related to the concerned department, a section or activity. The term standard refers to its being standardized for the time being and does not mean that it cannot be altered. Most of the organizations with actively followed systems will address review of these documents for correctness and

adaptation at least once a year and sometimes even twice a year. It is essential that these documents are kept relevant to the requirements of alteration to processes and procedures that are necessary from time to time due to the improvements, change in technology, and changes to statutory norms, etc. The term standard, therefore, refers to its current relevance rather than its permanent nature and everlasting non-alterability. This is important to understand because many organizations have the reluctance to alter these documentations mistaking the word standard for unalterable, sometimes even after the processes have changed.

**Forms and formats:** For the capture of information in a complete and relevant manner, this must be done in a standardized manner. This is achieved through various forms and formats to maintain the records of activities. The forms can be a single page, multipage or a register in which the entries are made. The purposes can be from just capturing whether an activity was carried out, to a very elaborate capture of values related to many parameters related to the activity. Example of the former being tick marking when some action was carried out and the example of the latter being an elaborate record of the initial assessment of the patient on arrival to the wards. Records are filled forms and formats. Forms and formats can be altered through the set alteration process, but records cannot be altered. Forms, formats, and registers are also a part of the system of controlled documents and must have their identity. It is not always necessary to number each form, and this will depend on whether the organization wants to assign a separate identity to each filled form. Such is rarely required.

**Documents of External Origin:** For the sake of making the documentation system inclusive, some organization include documents of external origin. These are licenses, statutory documents, Memoranda of Understanding with various organizations, etc. These are not alterable.

**Temporary Documents:** Many notes, documents, records in an informal manner get created during the execution of processes. These help in reducing errors or are intermediaries to further calculations. These are not necessarily maintained in a set format and can be rough entries on notepads, diaries, etc. They need not be preserved if the information content does not have lasting importance and the final entry is anyway going to be made in a set format. Such documents do not form a part of the formal documentation system.

### **Documentation related to processes and procedures**

The documentation related to processes and procedures deals with operating procedures, quality system procedures, safety procedures, etc. This is the documentation that is commonly known as Standard Operating procedures or SOPs. This can be documented as steps which are numbered or bulleted or in the format of flow charts. Flowcharts use a method of commonly recognized symbols, such as a circle or ellipse for start or end of the process, rectangle for activity, diamond for decision making step, picture of rolled partially document for the steps where documentation is necessary, etc. Most word processing software applications have these symbols inbuilt for use.

### **Which processes should be documented?**

The organizations sometimes fall into a dilemma about the extent of documentation that should be followed. There are some guidelines which can help. Though the list is not exhaustive, the following processes and procedures require documentation:

- Procedures which are required to be followed uniformly at various locations across the organization
- Procedures which are required to be followed uniformly across time
- Procedures which, if not followed uniformly and correctly will increase the risk to patients, staff or visitors
- Procedures which, if not followed uniformly, can lead to serious consequences concerning the loss of material, time, physical damage, equipment, etc.



- Procedures which are complicated leading to either missing of some steps or risk of variation in their execution
- Procedures which are required to be followed uniformly despite of high turnover of human resources
- Procedures which are specific to the organization as against procedures which are universally accepted or that are part of standard curricula of those professionals who carry out these procedures.

### **HOW TO DEVELOP DOCUMENTATION THAT IS EASY TO FOLLOW?**

The following steps can help in developing documentation that is easy to follow:

- Providing a clear plan of documentation architecture. This can be as a print map or in electronic form
- Using the uniform format for the visual appearance of the documents to cover their appearance, fonts, symbols, page layout, etc.
- Adding color codes, font changes for different documents
- Participation of the staff that is involved in carrying out the activities in the development process for documentation
- Using the same language and form of the structure of language as per the users
- Using a direct form of speech (active) than the indirect form (passive)
- Providing Chapter Index or Index of words
- Sequencing activities as per their actual sequence of execution in time
- If necessary, replicate the documentation related to specific processes and procedures within all relevant documentation with a clear reference to the original document
- Making relevant documents available at the location of use
- Keeping relevant documents available all days of the year and all times of day and night as per the requirements of execution of the activities.
- Removing obsolete documents from all locations, other than those retained for archiving

### **CONTROLLED DOCUMENTS**

As mentioned before, the documents bring uniformity and clarity for the execution of activities in the organization. It is, therefore, imperative that they are not altered without the knowledge of the creator or the staff who is specifically authorized for this. Such documents are known as Controlled Documents. All types of documents described above come under this category, except for the temporary document.

#### **CHARACTERISTICS OF CONTROLLED DOCUMENTS:**

- Each document is named
- The purpose of the document is defined
- There is a date of creation of the document
- There is a date of approval of the document
- There is a date of review of the document
- There may be a date of expiry of the document
- Signatory for creation is defined.
- Signatory for approval is defined.
- The signatory for alterations is defined. This may be the same or different from the creator.
- Each page is numbered.

- The document may have a number assigned to it.

This information about the identity of the document may be contained in the form of a box at the top of the document. If put in this way, such a box is known as Control Box. It may be put at the top of the document without any box format. It is just that this form is an integral part of each Controlled Document. The staff designation signing the document with the corresponding signature is maintained at the bottom of the page. The dates related to the document may be mentioned at the beginning page of the document and may not be there on each page, though most organizations put it on each page. The alphanumeric identity, if assigned to such document must form a system that may include department, a section of the department, purpose or activity referred in the document, version number of the document, page number. The purpose of this exercise is to create a unique identity for each page of the controlled document. It is not mandatory to have an expiry date for the document.

An example of the control box is given below:

Name of Organization	Document Code	Date of Issue	Date of next revision / validity

A similar box appears at the bottom of the page for the signatory, an example of which is given below:

Authorized by: Designation	Issue No./Version No./	Issued by: Designation
Signature		Signature

### Body of document

There are many formats for the documentation of the contents. One of them is given below:

Name of Organization	Document Code	Date of Issue	Date of next revision / validity
Dept. Name/Process			

Name of the Document:

Purpose of the Process that is documented

Start point

End Point

Procedure:

Step 1: XXXXXXXXXXXXXXXX

Step 2: XXXXXXXXXXXXXXXX

Step 3: XXXXXXXXXXXXXXXX

Step n: XXXXXXXXXXXXXXXX

Related Records

Related documents Authorized by: Designation	Issue No./Version No./	Issued by: Designation
Signature		Signature

## MANUALS

One category of controlled documents is manuals. Manuals are documents that are used by various departments as against the SOPs which pertain to a particular department. Some of the examples of manuals are which deal with various specific functions such as infection control, safety, quality, etc. If the departmental SOPs are vertical and restricted to a particular department, then the manuals are horizontal and are used across many departments. The format of the manual is similar to the SOPs but has reference or duplication of departmental SOPs that have relevance to the subject of the manual and are required to be duplicated for coherence and completeness.

# How to read the standard?

The standard focuses on the key points required for providing patient-centred, safe, high-quality care. The interests of various stakeholders have been incorporated into the standard. They provide a framework for quality assurance and quality improvement. The focus is on patient safety and quality of patient care. It sets forth the basic standards that organizations must achieve to improve the quality of care.

## The eight chapters are

1. Access, Assessment and Continuity of Care (AAC)
2. Care of Patients (COP)
3. Management of Medication (MOM)
4. Digital Infrastructure (DIS)
5. Digital Operations Management (DOM)
6. Finance and Procurement Management (FPM)
7. Human Resource Management (HRM)
8. Information Management System (IMS)

Every chapter begins with an 'intent'. The intent states the broad requirements of what the organization needs to put in place and implement to improve the quality of care. This is followed by the 'summary of standards' which lists all the standards of that chapter. The standards and objective elements are explained after the summary.

## WHAT IS A STANDARD?

A standard is a statement of expectation that defines the structures and processes that must be substantially in place in an organization to enhance the quality of care. The standards are numbered serially, and a uniform system is followed for numbering. The first three letters reflect the name of the chapter and the number following this reflects the order of the standard in the chapter. For example, AAC.1, would mean that it is the first standard of the chapter titled Access, Assessment and Care of patient.

## WHAT IS AN OBJECTIVE ELEMENT?

It is that component of standard which can be measured objectively on a rating scale. Acceptable compliance with objective elements determines the overall compliance with a standard. The objective element is scored during assessments to arrive at the compliance. The objective element is numbered alphabetically in a serial order. For example, AAPC. 1.c. would mean that it is the third objective element of the first standard of the chapter titled Access, Assessment, and Care of patient.

## WHAT IS AN INTERPRETATION?

The interpretation provides guidance on what the organization needs to do to ensure that the requirement(s) of the object element is met. Where applicable, it provides references and suggests a specific methodology that the organization needs to adhere to. The word 'shall /should' or 'will/would' is used to reflect a mandatory requirement. The interpretation also lists out desirable aspects for the organization to implement, and the word 'can/could' is used to reflect this. During scoring, the desirable aspects are not considered, and they are only used to reflect on the overall achievement of the standard, which is reflected in the assessment report. At places, the interpretation would not be specific and would have used the words like "adequate/appropriate. This has been done keeping in mind the diverse nature of healthcare delivery and adhering to the intent of this standard which is to improve the quality of healthcare and at the same time, be feasible. The expectation is that whenever such a phrase has been used in the interpretation/objective element, the organization shall base its practice on evidence-based best practice. In some places, the interpretation has listed out examples. The examples are only illustrative in nature, and the organization has the liberty to decide what how to implement. However, the requirement of the objective element would have to be adhered.

# Overview of NABH Digital Health Standards

NABH digital health standards are divided into different chapters based on different clinical and non – clinical touchpoints. Further, these standards contain 181 objective elements, which are in-turn divided as core, commitment, achievement, and excellence, to assess maturity at different levels.

These objective elements are universally applicable to all kinds of hospitals and are agnostic of their size (or bed capacity), location, ownership (Public, Private, PPP, Others) or even the service profile of the hospital (single – specialty or multi – specialty).

Sr. No.	Standards	Standards Total count	Objective total count	Core	Commitment	Achievement	Excellence
1	Access Assessment and Continuity of Care (AAC)	8	40	3	18	13	6
2	Care of Patients (COP)	9	41	0	15	15	11
3	Management of Medication (MOM)	4	13	3	6	2	2
4	Digital Infrastructure (DIS)	2	14	2	3	4	5
5	Digital Operations Management (DOM)	6	24	6	4	7	7
6	Finance and Procurement Management (FPM)	3	17	3	9	1	4
7	Human Resource Management (HRM)	4	14	0	3	3	8
8	Information Management System (IMS)	2	18	0	9	1	8
<b>TOTAL</b>		<b>38</b>	<b>181</b>	<b>17</b>	<b>67</b>	<b>46</b>	<b>51</b>

## TECHNICAL STANDARDS AND OBJECTIVE ELEMENTS

The proposed standards have been divided into 181 different objective elements.

Combining these objective elements, the following minimum compliance grid, is proposed to be used to define the digital maturity of a hospital

Table 1				
(At the time of first accreditation)	Core	Commitment	Achievement	Excellence
Silver Level	100%	60%	NA	NA
Gold Level	100%	60%	60%	NA
Platinum Level	100%	60%	60%	60%

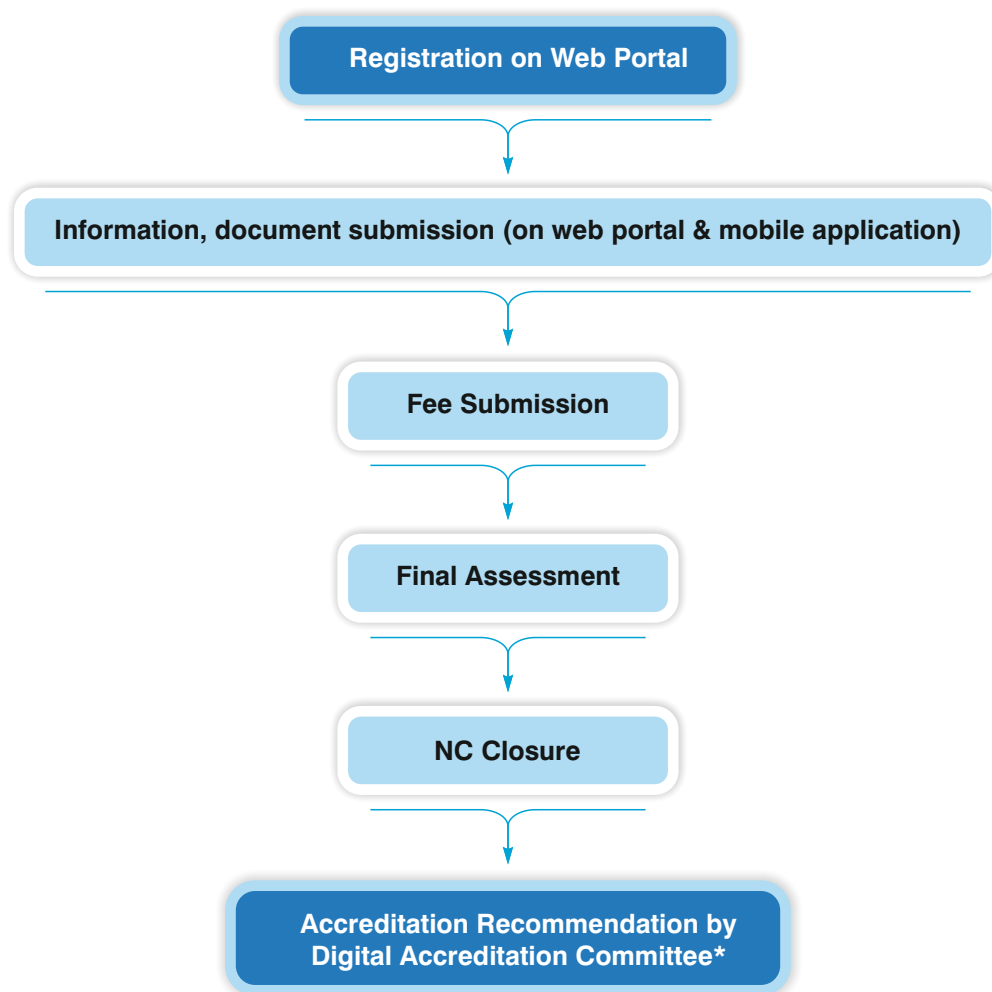
Table 2				
Surveillance (After 24 months of first accreditation)	Core	Commitment	Achievement	Excellence
Silver Level	100%	80%	NA	NA
Gold Level	100%	80%	80%	NA
Platinum Level	100%	80%	80%	80%

### Notes:

- A Hospital can apply for any level of accreditation depending on its internal consideration and self-assessment. Only those objective elements which are applicable for the level applied, will be considered for evaluation.
- The scoring method for each objective element will be 0 (not met), 5 (Partially Met) and 10 (Fully Met). Objective elements pertaining to any service, which are not provided by a hospital (for example Blood Centre in a small hospital) will be marked as Not Applicable and will not be considered for final scoring.
- The final scoring will be defined as (sum of score obtained across all applicable objective elements) / (Highest Potential possible score). This scoring should meet the compliance levels, as defined individually for core/commitment/achievement and excellence objective elements separately, as defined in the grid.
- For the first assessment, minimum compliance levels as defined in Table 1 shall be considered.
- The period for accreditation will be 4 years. A mid period assessment, after 24 months, will be conducted in co-terminus with full accreditation (surveillance assessment), in which the Hospital will be expected to have improved their initial maturity levels and meet the minimum compliance levels as defined in Table 2.
- During both the assessments, (first and surveillance) a period of 90 days will be given to comply with any Non-Compliance as may be noted.
- After the period of 4 years from initial grant of accreditation, the Hospital is expected to apply for full accreditation again. Further, while not mandatory, the hospital will be encouraged to apply for the next level of digital maturity as applicable



# Overview of NABH Digital Health Accreditation Process



## Steps in the Application form

1. GAP Analysis
2. Preparation of Policies and Manuals
3. Completion of self-assessment tool kit

The assessment of Digital health standards will be done along with Final assessment of 5th edition standards. Digital assessor would be co-opted along with the main assessment. The grant of accreditation would be co terminus with the accreditation cycle of the 5th edition. Surveillance assessment will also happen.

# Chapter 1

## Access, Assessment and Continuity of Care (AAC)

### 1.1 Intent of the Chapter

Patients are informed of the services provided by the hospital using digital technology providing updated and easily accessible information about various hospital facilities (For example, digital displays for patients in waiting area). Hospital provides seamless services to patients by using simple patient registration system. Patient's appointments are optimized through digital interventions; patients are empowered to block treating medical practitioner's calendar as per their convenience.

The admissions process is integrated into hospital functions, and technology plays a vital role in managing patients' inflow and outflow.

The hospital ensures smooth patient admissions by leveraging the digital tools to assist them in patient counselling. Patients are well informed about their package inclusions and exclusions. Both OPD and IPD facilities are backed with automated billing to reduce fears and doubts about patient care journey. All the patient referrals through emergency, OPD or directly by the physician mode are managed digitally.

The hospital has digitized their laboratory operation to enhance quality control, automate workflows and process efficiency. Similarly, technology adoption in radiology operations enables management of digital imaging and multimedia content in a systematic, practical, and efficient manner.

Treating medical practitioners use digital tools to analyze patient progress, plan discharge or transfer. The entire patient journey is well integrated and digital notifications are used as a medium to collaborate and keep each stakeholder, including patients, informed.

Patient education via the digital mode ensures that all the health-related information is easily understood and remembered. This results in improved decision-making by patient and/family members and their perception of care at the hospital.

### SUMMARY OF STANDARDS

<b>AAC.1.</b>	The hospital uses a digital system to educate and disseminate information to the public and patients.
<b>AAC.2.</b>	The hospital uses a digital system for patient registration and referral process.
<b>AAC.3.</b>	The hospital uses a digital system to manage patient's appointments and the treating medical practitioners' schedules.
<b>AAC.4.</b>	The hospital uses a digital system to manage laboratory test orders and samples.
<b>AAC.5.</b>	The hospital uses a digital system to manage radiology tests orders and images.
<b>AAC.6.</b>	The hospital uses a digital system to manage patients' admissions.
<b>AAC.7.</b>	The hospital uses a digital system to manage patient discharge and transfer process.
<b>AAC.8.</b>	The hospital uses a digital system to capture the patient's feedback and complaints.

## 1.2 Digital Health Standards and Objective Elements

### Digital Health Standard

AAC.1.

The hospital uses a digital system to educate and disseminate information to the public and patients.

### Digital Health Objective Elements

- Commitment a. The hospital uses a digital system to display general information and share educational or informative material with public and patients.**

**Interpretation:** Digital system (for example, hospital website or mobile app) shall be leveraged by the hospital to disseminate important information to patients and public in general. This includes information like hospital's operating hours, contact details, treating medical practitioners' profile and availability, location, clinical and non-clinical services available, patient education material etc. by deploying digital means such as website, mobile app, listing with other healthcare agencies (like aggregators etc.)

The digital mechanisms deployed should have updated information as reviewed periodically. A digital display of such an information can help reduce information asymmetry and positively influence patient's treatment seeking behaviors. Further, such an information can be displayed in local language.

Other examples of such digital information can include information on child / adult vaccination, healthy lifestyle, periodic health check-ups etc.

- Commitment b. The hospital uses a digital system to display their accreditations.**

**Interpretation:** The hospital shall display its affiliations and accreditations through digital systems. Examples of such affiliations/accreditations include the like of NABH, NABL, ISO, etc. A digital display, either through hospital's website or mobile app, of such accreditations empowers patient to take a conscious choice about a hospital.

Hospital quality accreditation assures patients that the hospital is committed to providing high-quality care. Accreditation involves a rigorous review process that evaluates a hospital's performance in areas such as patient safety, clinical outcomes, and infection control. Hospitals that are accredited have demonstrated that they meet or exceed nationally recognized standards for quality and safety, which gives patients peace of mind knowing that they are receiving the best possible care. Overall, healthcare organization quality accreditation is essential for ensuring that patients receive safe, effective, and compassionate care.

**Excellence**

**c. The hospital uses a digital means to send informative notifications to its patients.**

**Interpretation:** The hospital shall use digital systems for communication with patients. Digital manner includes channels like WhatsApp, SMS, E-Mails etc.

These notifications can include appointment reminders, medication alerts, test results, and more. Informative notifications can also include details such as hospital's dedicated camps for cancer, immunization programs (for adults and pediatrics), special schemes and services etc.

Patient notifications play a crucial role in healthcare as they help keep patients informed about their healthcare journey. By providing patients with timely and relevant notifications, they can take an active role in their care, leading to better health outcomes. Additionally, effective communication through patient notifications can improve patient satisfaction and trust in their healthcare provider. The information sent to patient must have a foot note saying that it should not be used for purpose of self-medication and the care /treatment must be chosen with the help of a qualified clinical person.

**Achievement**

**d. The hospital uses digital displays to assist patients inside the healthcare facility.**

**Interpretation:** The hospital shall use digital displays in patient assistance by providing clear and concise information to patients. Examples of such digital displays include consultant availability, room number, token number, etc. They can offer real-time updates on medical conditions, treatments, and medication instructions. Digital displays also help patients navigate hospitals and clinics by providing directions and information on available services. Additionally, digital displays can be used to educate patients on healthier lifestyles and preventative care, which can improve overall health outcomes. By providing patients with accurate and relevant information, digital displays can enhance patient experience, improve patient satisfaction, and promote better health outcomes. Examples of such digital displays include consultant availability, room no, token no, etc.

## Digital Health Standard

### AAC.2.

The hospital uses a digital system for patient registration and referral process.

## Digital Health Objective Elements

### Commitment a. The hospital uses at least one digital system for patient registration.

**Interpretation:** The hospital shall use at least one digital system for patient registration. Some of the mechanisms of digital patient registration / pre-registration include kiosks, website, mobile app, QR code etc. “Scan and share” feature of ABDM (Ayushman Bharat Digital Mission) can also be used by the hospital as a digital means of patient registration.

Digital patient registration is becoming increasingly important in the healthcare industry for several reasons. One of the main benefits of digital patient registration is that it streamlines the registration process and eliminates the need for patients to fill out paper forms. This can save both patients and healthcare providers time and effort.

Digital patient registration can also improve the accuracy of patient data by reducing the likelihood of errors or illegible handwriting. This can lead to better patient outcomes and more efficient care delivery.

In addition, digital patient registration can enhance data security and privacy by implementing secure electronic storage of patient information. This can help reduce the risk of lost or stolen patient data and ensure that sensitive information remains confidential.

Overall, digital patient registration can improve the patient experience, increase the efficiency of healthcare providers, and enhance the quality and security of patient data.

### CORE

### b. The hospital uses a digital system to generate a unique hospital identification for every new patient (this can be done with or without Ayushman Bharat Health Account).

**Interpretation:** The hospital shall assign each new patient a unique patient ID to ensure that patients receive accurate and continuous care.

By assigning a unique identifier to each patient, medical professionals can quickly and easily access their medical records, treatment history, and other important information. This ensures that the right treatment is given to the right patient at the right time, which is essential for providing quality healthcare services. Additionally, unique patient IDs also help in preventing medical errors that can occur when patients are misidentified, which can have serious consequences for patient safety and outcomes.

Some of the options that the hospital can use in isolation or in combination to create the unique patient identifier for internal record purposes are as bellow:

- a. UIDAI Aadhaar number
- b. Local identifier - For example, mobile number
- c. Any central or state government issued photo identity card number - For example, ration card, PAN card. electricity bill etc.
- d. ABHA
- e. Demographic details such as name, age, gender, date of birth etc.

**Achievement c. The hospital uses a digital system that has the capability to generate and capture ABHA of the patient and link it to the unique patient identifier.**

**Interpretation:** The hospital's digital system shall generate and capture ABHA, (Aadhaar - based Health ID), which is a unique health identifier that has been introduced by the government of India. It is aimed at creating a centralized digital health infrastructure that will enable easy access to health services and medical records for all citizens across the country. The ABHA will serve as a secure and portable digital health identity for every individual, allowing them to access their medical records and services from any part of India. With ABHA, citizens will be able to link their health records, insurance policies, and other health-related information to a single digital platform, making it easier for healthcare providers to deliver personalized care.

There are multiple ways of creating ABHA account including usage of a ABDM compliant HIMS by the hospital.

The hospital supports ABHA account creation to enroll patients without phones and enable them to access healthcare through the same. Further the hospital supports capture of ABHA, address from users, and linking it to their unique patient identifier.

**Commitment d. The hospital uses a digital system that can identify duplicate patient entries and alert users on such duplicate values.**

**Interpretation:** The hospital's digital system shall be able to identify duplicate patient entries. The digital system can include some unique identifier for example, any unique identification, name, date of birth and/or mobile number to suggest duplicate values.

Identifying duplicate patient entries helps hospital to ensure that patient records are accurate and up to date, which can help to improve patient safety and the quality of care that patients receive.

Identifying duplicate patient registrations is also important to reduce healthcare costs. Duplicate records can lead to unnecessary tests and procedures, which

can be costly and time-consuming. By identifying and eliminating duplicate records, healthcare providers can improve efficiency and reduce expenses.

Identifying duplicate patient registrations can also help to improve data analytics and reporting. Accurate patient data is essential for hospital to make informed decisions about patient care, resource allocation and preventing errors. Duplicates can skew data and make it difficult to obtain accurate insights.

- 
- Commitment e. The hospital uses a digital system that supports creation of patient's records in an offline mode when the digital system is not working online. Such records are later synchronized when the digital system is online.**

**Interpretation:** The hospital's digital systems shall ensure capturing of data in the offline mode digitally and its subsequent synchronisation.

Considering the essential nature of medical services, it is imperative that patient care is not hindered if the digital system is rendered unavailable temporarily because of system downtime due to electricity failure, network issues, system breakdown or during maintenance phases. Under such circumstances the hospital system should allow creation of offline digital records which are synchronised with the main HIMS/EMR as soon as the underlying issue is resolved.

- 
- Commitment f. The hospital uses a digital system that has the capability to create a different transaction number for every repeat patient visit, which is linked to the unique patient identifier to ensure continuity of care.**

**Interpretation:** The hospital's digital system shall create a unique transaction number for every patient visit linked to their unique ID.

Firstly, it helps in keeping accurate records of patient visits over time and ensures continuity of care. This information can be used to track a patient's health progress, identify patterns, and make better-informed medical decisions.

Secondly, it helps in avoiding confusion and errors in billing and insurance claims. By assigning unique transaction numbers to each visit, it becomes easier to match the correct services rendered with the correct patient and ensure that all charges are accurate and accounted for.

Lastly, it enhances patient privacy and security. By associating each transaction with a unique patient ID, healthcare providers can ensure that patient data is kept confidential and secure, protecting against identity, theft, and other types of fraud.

**CORE**

- g. The hospital uses a digital system that has the capability to link all patient medical records (generated at any patient touch point within the hospital or during any of the visits) to their unique patient identification.**

**Interpretation:** The hospital shall ensure that all kinds of patient's records, which could be generated at either pharmacy, laboratory, radiology, etc. are linked to the unique ID of the respective patient, to ensure that all their details can be fetched using the same unique ID.

Linking all patient records improves care coordination, allowing healthcare providers at different touch points to easily access up-to-date information about a patient's health status and treatment plan. This can lead to more efficient and effective care, ultimately resulting in better health outcomes for the patient.

**Excellence**

- h. The hospital uses a digital system that has the capability to provide access of their patient's medical records to other hospital entities/facilities/ or affiliates.**

**Interpretation:** The hospital's digital systems shall ensure access to patient's medical records across its facilities/affiliates to facilitate continuity of care. This can be enabled via a master patient index (MPI) system.

Facilities refer to specialized units for example blood bank, pharmacy, or diagnostic chain which are setup outside the main unit but is a part of the same legal entity. (e.g., corporates may have different may have different branches in different locations). Here also the same digital system may be used to manage records.

Affiliates refer to other healthcare entities which the main organization has a close business working relationship. This may include other hospitals acquired through mergers and acquisitions, strategic partners, or other business affiliates. They may also use the same digital system for business purposes Having access to a patient's medical history, including things like previous diagnoses, surgeries, allergies, and medications, can help hospitals make more informed decisions about the patient's care

Affiliates and/or other healthcare facilities within the network refers to different hospitals of a chain (For example, organizations may have different entities catering to different patients' requirements such as surgery, pharmacy etc. or they may have different branches in different locations). Patient health records are important for multiple hospitals to have access to. Having access to a patient's medical history, including aspects like previous diagnoses, surgeries, allergies, and medications, can help healthcare providers make more informed decisions about the patient's care.

In cases where a patient is transferred between different hospitals or healthcare providers, having their health records available can help ensure continuity of care and prevent medical errors.

Additionally, having access to a patient's health records can also help hospitals and healthcare providers identify patterns and trends in patient health, which can lead to improved treatment and care delivery.



- Commitment i. The hospital uses a digital system for managing patient referrals for second opinion across different specialties.**

**Interpretation:** A digital system for patient referral is a software platform that allows treating medical practitioners to electronically refer their patients to other specialists or other hospitals, without the need for paper-based referrals.

The digital system can help improve the efficiency and accuracy of the referral process, reduce wait times for patients, and streamline communication between medical practitioners.

The digital system should highlight the urgency of treatment / consultation needed.

## Digital Health Standard

**AAC.3.**

**The hospital uses a digital system to manage patient's appointments and the treating medical practitioners' schedules.**

## Digital Health Objective Elements

- Commitment a. The hospital uses a digital system for booking an appointment by the patients.**

**Interpretation:** The hospital shall ensure use of digital system for booking or cancellation of patient's appointment. Digital patient appointment systems shall help be used by the hospital to deliver better care by streamlining administrative processes and enhancing patient satisfaction. Some of the examples by which patients can book their appointments include website, mobile app, kiosks, registration desk etc.

Digital patient appointment systems are becoming increasingly important in healthcare because they offer many benefits over traditional appointment booking methods. Here are some of the key advantages:

- i. **Convenience:** Patients can easily schedule appointments from anywhere, anytime, using their smartphones or computers. This saves time and effort compared to calling or visiting the clinic/hospital.
- ii. **Efficiency:** Digital systems automate many tasks, such as scheduling, reminders, and cancellations. This reduces the workload of staff and avoids human errors.
- iii. **Accessibility:** Patients can access their appointment information and medical records online, making it easier to manage their own healthcare.

- iv. **Cost-effectiveness:** Digital systems can reduce costs associated with paper-based systems, such as printing, storage, and administrative labor costs.
- v. **Improved patient experience:** Patients appreciate the convenience and speed of digital systems, which can improve their overall experience with healthcare providers.

#### Excellence

- b. **The hospital uses a digital system that is interoperable with external digital systems to capture and manage online patient appointments using UHI.**

**Interpretation:** In Indian context, there are technology players (For example, aggregators) which offer appointment booking services for a hospital. Any patient booking generated via such a technology player should seamlessly integrate with the hospital's own HMS/EMR.

Unified Health Interface (UHI) is a software system designed to integrate various health information systems into one unified platform.

Integrating a patient appointment system with external systems can provide many benefits. It can improve the efficiency and accuracy of scheduling appointments, reduce the workload of staff members, and enhance the overall patient experience.

Additionally, integration can provide patients with greater control over their own healthcare, as they can view and manage their appointments, receive reminders, and access relevant information through a single, unified platform. This can help to improve patient satisfaction, engagement, and outcomes.

Overall, integrating a patient appointment system with external systems is a smart and valuable investment for healthcare providers who want to streamline operations, improve efficiency, and enhance the patient experience.

#### Achievement

- c. **The hospital uses a digital system for patients and/or hospital staff to view the treating medical practitioner's profile while booking an appointment.**

**Interpretation:** The hospital's digital system shall ensure that patients are able to view a doctor's profile while booking an appointment. By digitally viewing a doctor's profile, patients can make informed decisions about their healthcare and feel more confident in their treatment plan. Reviewing a doctor's profile can help patients ensure that they are receiving care from a qualified professional who meets their specific healthcare needs.

For example, reviewing a doctor's credentials, educational background, and specializations can help patients determine whether the doctor has the necessary training and expertise to address their health concerns. Patients can also view their doctor's reviews and ratings from other patients, which can provide valuable insights into their communication style, bedside manner, and overall quality of care.

**Achievement d. The hospital uses a digital system for patients to book an appointment for a specific medical practitioner.**

**Interpretation:** Booking a digital appointment with a specific medical practitioner is important for several reasons. First, it allows patients to visit a doctor who specializes in the area they need help with and has the necessary skills and expertise to diagnose and treat for a specific health issue. Secondly, it ensures continuity of a patient's care and are s/he consult the same doctor for follow-up visits, which can be important for ongoing treatment and monitoring of his/her health.

**Achievement e. The hospital uses a digital system for treating medical practitioners and/or healthcare professional to view their appointment schedules.**

**Interpretation:** The hospital's digital system shall ensure that consultants to view their appointments. The necessary information can be shared with treating medical practitioner or healthcare professionals by any of the following digital channel - message, e-mail, app alert.

Medical practitioners and healthcare professionals need to view their appointment schedules for several reasons. Firstly, it helps them to plan their day and ensure that they are available to attend to patients at the scheduled time. This is essential in ensuring that patients receive the care they need in a timely and efficient manner.

Secondly, viewing appointment schedules can help healthcare professionals to prepare for specific procedures or treatments that patients may require during their appointment. This can include gathering the necessary equipment, medications, or medical records needed for the patient's visit.

Finally, being able to view appointment schedules allows healthcare professionals to manage their time effectively and avoid overbooking or double-booking patients. This can help to prevent delays in care, reduce patient wait times, and improve overall patient satisfaction.

**Commitment f. The hospital uses a digital mechanism to inform and notify patients about their upcoming / follow-up appointments.**

**Interpretation:** The hospital shall deploy digital mechanisms like auto generated SMS, WhatsApp, emails etc. to notify the patients of their upcoming/follow-up appointments. Keeping track of upcoming and follow-up appointments digitally ensures that patients do not forget about important appointments or events, which can be easily overlooked with a busy schedule. Further, it saves time and effort by allowing patients to easily reschedule appointments.

## Digital Health Standard

AAC.4.

The hospital uses a digital system to manage laboratory test orders and samples.

### Digital Health Objective Elements

**CORE**

- a. The hospital uses a digital system to generate a unique sample identification for every sample collected / received which is traceable to the patient identification.

**Interpretation:** Unique sample identification is required to link each sample to its parent id. Digital system could include bar-code scanner and software or label printing etc.

Digital unique sample identification is crucial for laboratory testing because it ensures accuracy, traceability, and accountability in the testing process. With a unique identifier assigned to each sample, lab technicians can easily track and manage the sample, reducing the risk of mix-ups or errors. It also enables easy access to patient data and medical history, allowing for more accurate diagnoses and treatment plans. In addition, digital identification helps reduce the likelihood of fraudulent activity or contamination of samples. Overall, the use of digital unique sample identification helps improve the efficiency and quality of laboratory testing, which is essential for providing high-quality healthcare services.

- Achievement** b. The hospital uses a digital system to track the movement of laboratory samples.

**Interpretation:** The location of a sample from collection, transfer to receiving at the laboratory shall be traceable via a digital system. The digital system should be able to track the turnaround time for a sample.

Digital systems are important for tracking the movement of laboratory samples because they are able to provide reliable and accurate information in real-time. With a digital system in place, laboratory staff can easily monitor the location and condition of samples as they move through the testing process. This ensures that samples are properly stored and handled, reducing the risk of errors or contamination. Moreover, digital systems help to streamline the workflow process, as they allow laboratory staff to quickly identify and prioritize samples that require urgent testing. Ultimately, digital systems improve the efficiency and accuracy of laboratory operations, which benefits both laboratory staff and patients.

**Excellence**      **c. The hospital uses a digital system to auto populate lab results by integrating laboratory analyzers with LMIS.**

**Interpretation:** The laboratory shall ensure automatic linking of laboratory analyzers with the Laboratory Management Information System (LMIS) to improve the efficiency and accuracy of laboratory reporting processes.

By integrating laboratory analyzers with the LMIS, test results can be automatically uploaded and recorded in the system, reducing the need for manual data entry. This can save time and reduce errors caused by human input.

Moreover, this integration allows for real-time tracking of test results, which can improve turnaround times for test results. Medical professionals can make faster and more informed decisions based on the test data, leading to better patient care.

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**Commitment**      **d. The hospital uses a digital system for patients to access their laboratory reports.**

**Interpretation:** The hospital shall have any of the multiple digital systems (For example, a website or a mobile app) to share laboratory reports with patients. Further, an intimation can be sent to the patient, whenever, his/her report is ready.

Patients having digital access to their laboratory reports allows patients to have easy and immediate access to their test results, which can be crucial in monitoring and managing their health. This also empowers patients to take a more active role in their healthcare decisions.

Digital access to their laboratory reports can improve patient safety by reducing the potential for errors in manual communication and record-keeping. It also ensures that patients receive accurate and up-to-date information about their health status.

Further, digital access to laboratory reports can facilitate communication between patients and healthcare providers. Patients can easily share their results with their treating medical practitioners and ask questions about their health, which can lead to more informed discussions and treatment decisions.

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**Achievement**      **e. The hospital uses a digital system to maintain records of all the outsourced laboratory tests along with the results received.**

**Interpretation:** The laboratory shall maintain digital records of tests sent to external laboratory and their results to ensure accuracy and completeness of medical records. These tests should be clearly identifiable and sample collection material clearly labelled. With a digital record, healthcare providers can quickly access patient test results from outside laboratories, which helps in making informed treatment decisions.

Additionally, a digital record of external laboratory tests can also improve the efficiency and convenience of healthcare delivery.

With a digital record, patients can access their test results easily and securely, without having to physically collect paper copies. This can save time and effort for both patients and healthcare providers.

A digital record of external laboratory tests provides a platform for collaboration and communication between hospitals. It allows for easy sharing of information and test results between different hospitals involved in a patient's care, which can improve coordination and outcomes.

**Excellence**      **f. The hospital uses a digital system to link patients' lab reports to their ABHA account as a part of their longitudinal health records.**

**Interpretation:** The hospital's digital system shall ensure linking of a patient's reports to his/her ABHA account. Linking a patient's lab reports to their ABHA can help healthcare providers to have a complete and accurate picture of a patient's health status, allowing them to make more informed decisions about diagnosis, treatment, and care planning. Having access to lab reports enables healthcare providers to track changes in a patient's health over time, identify trends, and adjust their care plan as needed.

Further, by linking lab reports to ABHA can improve communication and collaboration among healthcare providers. By having access to the same information, providers can work together more effectively to coordinate care, share information, and ensure that patients receive the best possible care.

## Digital Health Standard

**AAC.5.**

**The hospital uses a digital system to manage radiology tests orders and images.**

## Digital Health Objective Elements

**Commitment**      **a. The hospital uses a digital system to generate a unique identification for every radiological test or procedure, which is linked to the unique patient's identification.**

**Interpretation:** A digital unique identification for every radiological test or procedure shall be linked to the patient's unique identification to ensure that the right patient is receiving the right test or procedure. Finally, having a digital unique identification system can help improve data accuracy and reduce errors. By automating the process of capturing and tracking patient data, it is less likely that errors will be introduced due to human error or miscommunication.

**Commitment    b.    The hospital uses a digital system for their radiology department to create, finalize and issue reports.**

**Interpretation:** The hospital shall have a RIS (Radiology information system)/ PACS (Picture archiving and communication system) which helps to manage and store medical images, such as X-rays, CT scans, and MRIs, as well as patient data. This technology is crucial for healthcare providers as it improves the accuracy and efficiency of diagnoses, leading to better patient outcomes. It also helps to reduce the time it takes to process medical images, which can be vital in emergency situations and can save lives. Furthermore, RIS / PACS facilitates collaboration between healthcare providers, enabling them to share medical imaging and patient data more easily. Overall, RIS PACS plays a vital role in providing high-quality, efficient, and safe healthcare services, making it an indispensable tool in the healthcare industry.

**Achievement    c.    The hospital uses a digital system for patients to have access to their radiology reports.**

**Interpretation:** The hospital shall deploy any of the different digital systems to share radiology reports with patients and/or family members. Patients may need to create/use their credentials to log and access such reports.

One way is to use a patient portal or online platform where patients can securely lodging radiology reports, without the need for physical copies or trips to the treating medical practitioner's office.

Another way is to provide patients with a digital copy of their report via email or secure messaging. This can be a convenient way to share information quickly with patients who may not have access to a patient portal or other online platforms.

**Excellence    d.    The hospital uses a digital system to link patient's radiology report and the full image to their ABHA address. Such a patient's health data is shared with them in an interoperable format.**

**Interpretation:** The hospital's digital systems ensure linking of patients' radiology reports and images to their ABHA. This can help medical professionals can easily access patients' medical information, including radiology reports and images, from anywhere at any time. This quick and easy access can help medical professionals make more informed decisions in diagnosing and treating patients.

Moreover, linking patients' radiology reports and images to their ABHA improves the accuracy of medical records and reduces the chances of errors in diagnosis and treatment. This can help to improve patient outcomes and enhance the overall quality of care provided.



- Achievement e. The hospital uses a digital system to maintain records of all the outsourced radiology tests along with the results received.**

**Interpretation:** The radiology center shall maintain digital records of reports sent to external center and their results to ensure accuracy and completeness of medical records. With a digital record, healthcare providers can quickly access patient scans results from outside centers, which helps in making informed treatment decisions. Additionally, a digital record of external radiology center can also improve the efficiency and convenience of healthcare delivery. With a digital record, patients can access their test results easily and securely, without having to physically collect paper copies. This can save time and effort for both patients and healthcare providers. A digital record of external scan provides a platform for collaboration and communication between hospitals. It allows for easy sharing of information and test results between different hospitals involved in a patient's care, which can improve coordination and outcomes.

## Digital Health Standard

**AAC.6.**

**The hospital uses a digital system to manage patients' admissions.**

## Digital Health Objective Elements

- Commitment a. The hospital uses a digital admission form that includes all admission related information for the patient.**

**Interpretation:** The hospital's digital system shall capture admission related information which should preferably include patient demographics, preliminary diagnosis, medical history, care plan, date of admission, expected date of discharge, package details, payor details etc.

Digitized admission forms for patients are becoming increasingly important due to the numerous advantages they offer. Here are a few reasons why digitized admission forms are vital:

- i. Timesaving:** Digitized admission forms reduce the amount of time spent on paperwork and manual data entry. This means medical staff can spend more time on patient care and treatment.
- ii. Improved accuracy:** Electronic forms reduce the risk of errors and inaccuracies since patient data is automatically captured and stored digitally.
- iii. Enhanced patient experience:** Electronic forms save patients from the hassle of filling out lengthy paper forms. It also enables them to complete the forms from the comfort of their own home, making the experience more convenient.



- iv. **Better data management:** Digitized forms enable healthcare providers to store and access patient data in a secure and organized manner. This helps improve the overall efficiency of the healthcare system.

**Commitment b. The hospital uses a digital system to assign patients to ward / bed and track their ward / bed information.**

**Interpretation:** The hospital shall use digital systems for assigning patients to wards and tracking their ward and bed information. These systems can help hospitals improve patient care, streamline operations, and reduce costs.

Firstly, digital systems can automate the patient admission process, making it faster and more efficient. This can help reduce wait times for patients and ensure that they are assigned to the appropriate ward and bed based on their medical needs.

Secondly, digital systems can help healthcare providers track patient movements within the hospital, ensuring that they always receive the appropriate care. This can help improve patient safety and reduce the risk of errors or delays.

Finally, digital systems can help hospitals optimize their use of resources by providing real-time information on bed availability. This can help hospitals manage their bed capacity more effectively, reducing the likelihood of overcrowding, and improving patient outcomes.

## Digital Health Standard

**AAC.7.**

**The hospital uses a digital system to manage patient discharge and transfer process.**

## Digital Health Objective Elements

**Commitment a. The hospital uses a digital system through which the primary treating medical practitioner can request and update their patient's discharge information.**

**Interpretation:** The hospital shall use digital system to generate discharge summary of the patient. Upon completion of the inpatient treatment, the primary treating physician shall be able to request and update a patient's discharge information digitally. This can be done via an electronic health record (EHR)

system or HMIS system, which allows hospitals to securely access and share patient information in real-time. The primary treating medical practitioner can use the EHR system to submit a request for the patient's discharge information, and then receive updates and notifications as the information is updated and finalized by other hospital staff members like Billing, Food and Beverage, Nursing etc. They can also use secure messaging systems, which allow healthcare providers to communicate and share information in a secure and encrypted way.

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**Commitment    b.    The hospital uses a digital notification to communicate patient details, when due for discharge, with other internal departments.**

**Interpretation:** The hospital shall include communicating with concerned hospital departments (For example, admission, ward nurses, lab, pharmacy, billing etc.) and digitally sharing patient details such as patient name, date of discharge etc. This system can ensure that everyone involved in the patient's care has access to the necessary information, making the transition from hospital to home smoother and more efficient.

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**Commitment    c.    The hospital uses a digital system for their billing department to give clearance for patient discharge.**

**Interpretation:** The hospital shall have a digital system in the billing department that can provide clearance for patient discharge helps to streamline and automate the discharge process, making it faster and more efficient. Patients can be discharged quicker, freeing up hospital beds and staff time to deal with other patients. Further, a digital system can reduce errors and improve accuracy in the billing department. By automating the process, there is less chance of human error, which can lead to incorrect billing and potential legal issues. Also, a digital system can help to reduce costs by cutting down on the need for paper-based systems and physical storage space. This can save time, money, and resources that can be redirected towards patient care.

Among various department such as pathology, radiology, and medicine can integrate with HMIS system so that patient record can be easily fetched using patient identifier at the time of report generation or medicine bill creation and all records will be fetched at the time of bill creation in hospital or as per requirement.

**Achievement d. The hospital uses a digital system through which the treating medical practitioner is able to generate patient's discharge summary.**

**Interpretation:** A digital patient discharge summary is an electronic document that is created by healthcare providers and given to patients upon their release from the hospital. The digital discharge summary shall outline important information about the patient's hospital stay, including their diagnosis, treatment plan, medication instructions and follow-up care recommendations.

The system should allow the creation of a structured discharge summary, wherein a clinician is able to pick and choose sections from various modules / applications. Digital discharge summary could be sent to patients via secure email or uploaded to a patient portal, making it easier for patients to access and share their health information with other healthcare providers.

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**Achievement e. The patient's discharge summary is linked to their ABHA address and part of their longitudinal health record.**

**Interpretation:** The patient's discharge summary shall be linked to their ABHA for ensuring the continuity of care. By doing so, healthcare providers can access a comprehensive overview of the patient's medical history, including any mental health issues they may have experienced in the past. This information allows providers to make better-informed decisions about the patient's ongoing care, which can lead to better outcomes for the patient.

Additionally, linking these records can help to ensure that any medications or treatments prescribed are appropriate for the patient's entire health profile. This can help to prevent potentially harmful side effects or interactions between medications.

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**Achievement f. The hospital uses a digital system to manage inter-departmental patient transfers in the hospital.**

**Interpretation:** The hospital's digital system shall ensure usage of an HMIS / EMR software to help facilitate patient transfers by notifying the receiving healthcare team of patient's condition, medical history, and current treatment plan among other things. This information is vital in ensuring that the patient receives the appropriate care during the transfer. Such patient transfer information can include, the handover documentations, expected time of handover, other patient demographical and medical details etc.

This will apply when the patient needs to be physically transferred across two different departments (for example, from an OT to post-operative recovery, and then from a post-recovery room to ward/room, or from emergency to wards). This may also be applicable wherein there is a need for change in primary care physician (for example, If a patient is referred to a specialist for management of a primary pathology, or to a secondary specialty to manage a complication).

## Digital Health Standard

AAC.8.

The hospital uses a digital system to capture the patient's feedback and complaints.

## Digital Health Objective Elements

- Commitment** a. **The hospital uses a digital system to collect patient and/or family member's feedback.**

**Interpretation:** The hospital shall deploy digital systems to collect patient feedback in one of the several ways possible. Collecting patient's feedback is important for hospital to continuously improve their service conditions and patient satisfactions. One way is by using online surveys that patients can fill out after their visit or hospital stay. Another way is by implementing a digital suggestion box where patients can provide feedback and suggestions for improving the hospital's services. Hospitals can also use social media platforms and online review sites to gather feedback from patients and respond to any concerns or complaints they may have. Additionally, chatbots and automated messaging systems can be used to collect patient feedback in real-time, allowing for quick responses and resolutions to any issues.

Such feedback can be solicited via. a dedicated feedback module which allows capture of a feedback through website, e-mail, SMS, mobile app, kiosk, QR code, voice-based feedback etc.

- Achievement** b. **The hospital uses a digital mechanism to segregate and analyze patient feedback as per various patient touch points.**

**Interpretation:** Digital mechanisms shall be used for collecting and segregating patient feedback can help healthcare providers to gather data on patient experiences and satisfaction levels across various touchpoints, such as appointments, hospital stays, and post-treatment follow-ups.

This data can be used to identify areas where improvements can be made, as well as to track progress over time. For example, if a hospital notices that patients consistently report long wait times during their appointments, they may use this feedback to improve scheduling processes and reduce wait times in the future.

Digital mechanisms for collecting and segregating patient feedback can also help healthcare providers tailor their services to individual patients. By gathering data on patient preferences, such as communication styles or treatment methods, providers can create more personalized care plans.

# Chapter 2

## Care of Patients (COP)

The organization provides uniform care to all patients in various settings. The settings include care provided in outpatient units, day-care facilities, in-patient units including critical care units, procedure rooms and operation theatre. When similar care is provided in these different settings, care delivery is uniform.

The hospital uses digital technology to manage illnesses and promotes wellness. This digital adoption is available across hospital facilities such as in outpatient departments, day care facilities, in-patient departments etc. Patients are provided with uniform care across all the nursing stations where digital tools are used to speed-up the pre-patient assessment.

Digital systems are used to connect nursing stations with consultation services, where the patient's digital records are available for enhanced care. Medical practitioners can fetch patient records (after patient's consent), raise electronic laboratory, radiology, and pharmacy orders. The hospital uses software, tools etc. to fulfil patients' urgent medical needs such as scheduling surgeries, ordering blood etc.

An established system to track and monitor nutritional therapy and infection related events which are addressed to provide comprehensive health care. The standards aim to guide and encourage patient safety as the overarching principle for providing care to the patients.

### SUMMARY OF STANDARDS

<b>COP.1.</b>	The hospital uses a digital system to manage OPD and IPD consultation services.
<b>COP.2.</b>	The hospital uses a digital system to manage nursing care.
<b>COP.3.</b>	The hospital uses a digital system to manage blood transfusion services.
<b>COP.4.</b>	The hospital uses a digital system to manage emergency and medico-legal cases.
<b>COP.5.</b>	The hospital uses a digital system to manage surgeries and related activities.
<b>COP.6.</b>	The hospital uses a digital system to record dietary consultation and any specific nutritional therapy provided to the patient.
<b>COP.7.</b>	The hospital uses a digital system to track and monitor all infection related incidents and sentinel events.
<b>COP.8.</b>	The hospital uses a digital system to provide patient services in non-hospital environment.
<b>COP.9.</b>	The hospital uses a digital system to record assessment and re-assessment of patients availing rehabilitation services.

## 2.2 Digital Health Standards and Objective Elements

### Digital Health Standard

**COP.1.**

**The hospital uses a digital system to manage OPD and IPD consultation services.**

### Digital Health Objective Elements

**Excellence**

- a. The OPD initial assessment and patient progress is recorded on a digital system by the nurses**

**Interpretation:** Digital OPD nursing records allow for the efficient and accurate documentation of patient care and shall include basic vital parameters such as blood pressure, height, weight, and temperature. It forms an important tool for ensuring patient safety and quality of care. Additionally, digital records can help nurses track patient progress, identify trends in patient data, and make informed decisions about patient care.

Such records can be created using electronic health record (EHR) system that allows nurses to document patient care in real-time. Other options include mobile applications designed specifically for nursing notes or even voice recognition software that can transcribe notes on-the-go. Digital technologies which allow automatic capture of readings from thermometer or weighing scales or Blood Pressure Apparatus directly into HMIS / EMR can also be considered

**Commitment**

- b. The hospital uses a digital system for treating medical practitioner to create OPD prescriptions and consultation notes.**

**Interpretation:** Digital OPD prescriptions shall be created by using various software or mobile applications that are specifically designed for the purpose. These programs allow treating medical practitioners to create, store, and manage patient records and prescriptions electronically, simplifying the entire process. Digital OPD prescriptions are becoming increasingly important as they offer several benefits to both patients and medical professionals. They are more accessible and easier to manage than traditional paper prescriptions. Digital OPD prescriptions can be accessed from anywhere, anytime, making them more convenient for patients who need to access their prescriptions on the go. Additionally, they reduce the chances of errors due to illegible handwriting or misplaced papers, ensuring that patients receive accurate prescriptions.

Further, these systems can be combined easily with other applications like Clinical Decision Support Services which can improve the quality of patient care.

**Achievement c. The hospital uses a digital system to capture digital signatures of treating medical practitioners.**

**Interpretation:** The hospital shall capture digital signature (pasting of signature will not qualify) of medical practitioner on patient's records such as prescription, laboratory and radiology reports, patient discharge summary etc.

Capturing digital signatures of treating medical practitioners adds an extra layer of security and accountability to medical records. Digital signatures ensure that the information has not been tampered with or altered in any way. They also help to verify the identity of the practitioner who made the entry, making it easier to track who has accessed the patient's medical information. Additionally, digital signatures make it easier to store and share medical records electronically, which can improve patient care and reduce administrative costs.

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**Commitment d. The hospital uses a digital system for treating medical practitioners to create computerized provider order entry (CPOE) for laboratory tests and procedures.**

**Interpretation:** The hospital's digital system shall have provision for Computerized Provider Order Entry (CPOE) for laboratory tests. CPOE through the digital system is a process in which healthcare providers electronically order laboratory tests for patients through a computer system. This system helps to reduce errors and improve patient safety by eliminating the need for handwritten orders and ensuring that the correct test is ordered for the right patient. Additionally, CPOE can increase efficiency and speed up the ordering process as well as streamline the processing of test results. By using this digital system, healthcare providers can access patient records and order laboratory tests at any time and from any location, making the process more convenient and efficient. In digitally mature systems, a patient prescription, if it contains laboratory tests, is automatically forwarded to the labs to enable easy care to follow up and patient management.

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**Commitment e. The hospital uses a digital system for treating medical practitioners to create computerized provider order entry (CPOE) for radiology tests and procedures.**

**Interpretation:** Computerized provider order entry (CPOE) is a system in which medical providers can order radiology tests through a digital platform, rather than using traditional paper-based methods. This technology allows for faster and more accurate ordering and processing of radiology tests, which ultimately leads to better patient outcomes. With CPOE, radiology orders can be sent directly to the appropriate department, reducing the likelihood of errors, and streamlining the overall process.



**Commitment f. The hospital uses a digital system for treating medical practitioners to create computerized provider order entry (CPOE) for medicines.**

**Interpretation:** CPOE is an essential component of digitizing healthcare systems. It allows healthcare providers to electronically enter medication orders and transmit them directly to the pharmacy or other departments involved in medication management, reducing errors, and improving patient safety.

CPOE can help reduce medication errors and adverse drug events, improve prescribing accuracy, and support clinical decision-making. It also helps to promote efficient communication between healthcare providers, reduces the risk of misinterpretation or illegibility, and helps with tracking orders and monitoring patient progress.

**Achievement g. The hospital uses a digital mechanism to notify treating medical practitioners, while placing a new request for their patients, on duplicate laboratory / radiology / pharmacy requests/other diagnostics procedures.**

**Interpretation:** The hospital's digital system notifies consultants about duplicate entries. This can be deployed using specifically designed care pathways in Hospital HMIS / EMR system and by integrating CDDS with them. Notifying medical practitioners about duplicate laboratory/radiology/pharmacy/other diagnostics procedures requests is important for multiple reasons.

- i Duplicate requests can be time-consuming and costly, especially if the tests or procedures are not necessary. It can also result in unnecessary exposure to radiation or medication, which can have harmful side effects.
- ii Duplicate requests can lead to confusion and misinterpretation of results, which can ultimately harm patient care. This is particularly important in cases where medications or procedures are prescribed based on test results.
- iii Notifying medical practitioners about duplicate requests can help to streamline the healthcare process, reducing wait times and improving overall efficiency.

Ultimately, by notifying medical practitioners about duplicate requests, it is ensured that patients receive the best possible care, while minimizing unnecessary costs and risks.

**Achievement h. The hospital uses a digital system for patients to access their prescriptions.**

**Interpretation:** Patients shall be given digital access to their prescriptions through any of the following: electronic health record (EHR) system (where healthcare providers can upload and share prescription information with patients), online pharmacy services (where patients can view and manage their prescriptions online) and via dedicated patient portals where patients can access their prescription information.

Allowing patients digital access to their prescriptions is becoming increasingly important in modern healthcare. Digital access to prescriptions can help patients to manage their medications more effectively, ensuring that they take them as



prescribed. This can lead to better health outcomes, reduced hospital admissions, and overall improved quality of life. Digital access to prescriptions also offers patients a greater degree of convenience and flexibility, allowing them to access their prescriptions from wherever they are and at any time. This can be particularly beneficial for patients who have mobility issues or who live in remote areas, as it can reduce the need for them to travel to a physical location to pick up their prescriptions. In addition, digital access to prescriptions can help to reduce the risk of errors, as patients can easily check that their prescription details are correct, reducing the risk of confusion or misunderstanding.

Finally, digital access to prescriptions can help to improve patient engagement, as patients are more likely to take an active role in managing their health when they have access to accurate and timely information about their prescriptions.

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**Commitment i. The hospital uses a digital system to notify the treating medical practitioners of any critical values obtained in laboratory reports.**

**Interpretation:** The hospital's digital system shall flag any abnormal results and notify the healthcare provider responsible for the patient's care. Notifications can be sent via email, SMS, or through a secure messaging system. This ensures that healthcare providers are alerted promptly if a critical lab value is detected, allowing them to take necessary action to safeguard the patient's health. Digital systems can help notify critical lab value alerts by integrating with electronic medical records (EMRs) and using algorithms to monitor lab results in real-time.

Notifying patients and physicians of critical lab value alerts is extremely important because it helps ensure timely medical intervention and treatment.

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**Commitment j. The hospital uses a digital system to notify the treating medical practitioners of any critical imaging alert obtained in radiology reports.**

**Interpretation:** Notifying patients and treating medical practitioners of critical imaging alerts is extremely important because it helps ensure timely medical intervention and treatment. By receiving these alerts, patients and treating medical practitioners can work together to develop a treatment plan that addresses the issue quickly, potentially saving the patient's life or preventing serious complications. In addition, timely notification of critical radiology value alerts can help improve patient satisfaction and trust in the healthcare system, as it demonstrates a commitment to patient safety and well-being.

Digital systems can help notify critical radiology value alerts by integrating with electronic medical records (EMRs) and using algorithms to monitor radiology results in real-time. The system can flag any abnormal results and notify the healthcare organization responsible for the patient's care. Notifications can be sent via email, SMS, or through a secure messaging system. This ensures that hospitals are alerted promptly if a critical lab value is detected, allowing them to take necessary action to safeguard the patient's health.

**Achievement k. The hospital uses a digital system for treating medical practitioners to access patient medical records within the hospital.**

**Interpretation:** Having access to medical records (For example, past medical history, drug history, surgical history, vaccination records etc.) is crucial for treating medical practitioners to provide the best possible care for their patients. By reviewing a patient's medical history, treating medical practitioners can better understand their current health status, assess any potential risks, and make informed decisions about treatment plans. Additionally, having access to past medical records allows medical practitioners to track changes in a patient's condition over time, which can be helpful in identifying patterns or trends that may inform future care decisions.

These digitally accessible patient records can be retrieved by the medical practitioners through key identifiers (e.g., patient name, mobile number, UHID, ABHA etc.)

**Excellence l. The hospital uses a digital system to links patient's records to his / her ABHA account, which can then be accessed by the patient or by other healthcare institutions.**

**Interpretation:** An ABDM compliant hospital shall regularly link patients' medical records to his/her ABHA account (Ayushman Bharat Health Account).

ABHA Account is a secure and reliable platform that enables hospitals to access patients' past medical records with ease. To access a patient's past medical records using ABHA Account, hospital can log in to the desired HMIS platform and enter the patient's unique identifier. Once a consent is obtained from the patient, treating physician can easily access their past medical records, including lab results, imaging studies, and clinical notes, among others.

With ABHA account, hospitals can streamline their patient care workflows, reduce duplicative testing, and improve patient outcomes through more informed medical decision-making.

**Excellence m. The hospital uses a digital system to access patients' past medical records as generated in other Healthcare Institutions, via. his/her ABHA account. The access is based on patient's consent.**

**Interpretation:** If the hospital is ABDM compliant, it shall be able to access patients past medical records through their ABHA account.

ABHA Account is a secure and reliable platform that enables hospitals to access patients' past medical records with ease. To access a patient's past medical records using ABHA Account, hospital can log in to the desired HMIS platform and enter the patient's unique identifier. Once a consent is obtained from the patient, treating physician can easily access their past medical records, including lab results, imaging studies, and clinical notes, among others.

With ABHA account, hospitals can streamline their patient care workflows, reduce duplicative testing, and improve patient outcomes through more informed medical decision-making.

**Excellence**

**n. The hospital uses a digital system for clinical risk assessment for identifying and managing patients who are at a high risk of morbidity and mortality.**

**Interpretation:** Digital systems shall help the hospital to identify patients who may be at risk of different types of injuries within a hospital. By utilizing data analysis techniques digital systems can monitor patient data in near real-time to identify potential risk factors and quickly alert healthcare providers to take necessary action. These systems can also help hospitals to automate patient assessments, identify patterns of injury, and improve overall patient outcomes.

The hospital's digital system shall identify early warning signs of change or deterioration in clinical conditions for initiating prompt intervention the staff shall use defined physiological parameters to identify clinical deterioration. These may include assessment of vital parameters, airway, circulation, neurological status, and any other concerns felt by the staff or patient /patient family. The parameters may be tailored to suit the needs of the speciality and the age-group. The hospital's digital system has a mechanism whereby this information is made available to appropriate medical personnel to initiate prompt and appropriate actions.

The hospital's digital systems shall facilitate the identification of patients who are at a higher risk of fall. A validated tool shall be used for the assessment of the risk of fall.

The organisation identifies and manages patients who are at risk of developing / worsening of pressure ulcers through digital systems. A validated tool shall be used for the assessment of the risk of pressure sores. For example, the Braden scale, the European and US National pressure ulcer advisory panels (EPUAP and NPUAP) staging systems to look for worsening of pressure ulcers. Patients found at risk of pressure ulcers shall be managed accordingly.

The hospital shall identify and manage patients who are at risk of developing / worsening of developing deep vein thrombosis using digital means. A validated tool shall be used for the assessment of the risk of development of deep vein thrombosis. Patients found at a risk of deep vein thrombosis shall be managed according to written guidance.

The hospital's digital system shall help to identify care outcomes in critical care units by identifying patients who are at a higher risk of mortality through risk adjusted standardised mortality rate etc. Validated tools like APACHE scoring or PRISM scoring shall be used.

## Digital Health Standard

**COP.2.**

**The hospital uses a digital system to manage nursing care.**

### Digital Health Objective Elements

- Commitment a. The hospital uses a digital system for nurses to create Inpatient nursing notes.**

**Interpretation:** The hospital shall use digital systems for nursing records to ensure that nursing care is aligned and integrated with overall patient care.

Digital nursing notes can be created via use of electronic health record (EHR) software that has built-in note-taking capabilities, or a standalone note-taking application that can be integrated with other healthcare software or other digital IPD nursing notes applications.

A nurse's note is a form of charting that describes the nurse's decision-making process regarding the nursing care provided. The Nursing notes shall be created in the application in every shift.

Digital IPD nursing notes have several benefits over traditional paper-based methods.

- i They are easily accessible and shareable among healthcare providers which can improve collaboration and communication between healthcare teams.
- ii They are more secure and can be protected with encryption and password protection.
- iii Digital notes can be easily organized and searched, making it easier to find specific information quickly. Being digital in nature, these notes can also be used to data analysis, KPI reporting and Monitoring purposes.

- Achievement b. The hospital uses a digital system to manage and record nursing care plans for IPD patients.**

**Interpretation:** Digital systems are crucial in managing and recording nursing care plans because they provide a more efficient and accurate way of organizing patient information. With digital systems, nurses can easily access patient records and update care plans in real-time, which helps to reduce errors and improve patient outcomes.

Digital systems also offer a centralized platform where nurses can collaborate and share patient information with other members of the healthcare team. This promotes a more coordinated approach to patient care, which can lead to better outcomes and increased patient satisfaction.

In addition, digital systems can help to automate some of the more repetitive tasks associated with nursing care plans, such as medication administration and vital sign monitoring. This can help to free up nurses' time, allowing them to focus on more complex and critical aspects of patient care.

## Digital Health Standard

COP.3.

**The hospital uses a digital system to manage blood transfusion services.**

### Digital Health Objective Elements

**Commitment a. The hospital uses a digital system to register and screen prospective donors.**

**Interpretation:** Blood centers shall use digital systems to register and screen donors by creating an online database that stores donor information and medical history. This database can be easily accessed by medical professionals when screening potential donors for eligibility. The data base can include information like history of blood donation, compatibility. screening, grouping, blood component analysis etc. Digital systems can also automate the screening process by using algorithms to identify high-risk donors based on certain criteria, such as previous travel history or health conditions. This can help to improve the accuracy and efficiency of the screening process, ensuring that only eligible donors are accepted and minimizing the risk of transfusion-transmitted infections. The use of digital systems can help blood banks to improve the safety and availability of blood products, ultimately saving lives and improving health outcomes for patients in need.

The digital system allows for capture of past records on blood collection, compatibility screening, grouping, blood component analysis, and NACO guidelines for counselling.

**Commitment b. The hospital uses a digital system to register and manage the blood and blood components stock.**

**Interpretation:** The hospital shall use a digital system to:

- i. Ensure hospital has a good supply or inventory of blood units
- ii. Monitor availability of blood units at any given time
- iii. Verify the requisition in time and dispatch time.

This can be done by using a blood transfusion management software which allows blood banks to manage their inventory, track blood donations and

transfusions, and generate reports. In addition, by using digital systems, blood banks can track the availability of blood products in real-time and manage inventory levels more effectively. This can help to ensure that hospitals and healthcare facilities have access to the blood products they need when they need them.

The hospital can track blood and blood products via. bar coding or other mechanisms. Hospital can re-call any blood product issued.

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**Commitment**    **c. The hospital uses a digital system to capture blood transfusion related incidents to prepare for future corrective and preventive actions.**

**Interpretation:** Hospitals shall maintain digital records of blood transfusion related incidents (For example, error in blood transfusion) including the errors in transfusion. This can be done using electronic health records (EHRs), which can record and track patient information, including blood transfusion details. Incident reporting systems for hemovigilance can also be deployed to document any transfusion-related issues, which can be analyzed to identify areas for improvement.

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**Excellence**    **d. The hospital uses a digital system for the blood bank to shares stock information using Unified Health Interface.**

**Interpretation:** UHI is a software system designed to integrate various health information systems into one unified platform. Amongst sharing other details, it can help hospitals to share blood bank stock information by connecting the blood bank information system with the UHI system. By integrating the blood bank information system with UHI, hospitals can share blood bank stock information in real time with other hospitals or healthcare providers within the network. This allows hospitals to quickly identify available blood supplies in other facilities, helping to save lives in emergency situations. UHI also allows hospitals to keep track of their own blood supplies, monitor expiration dates, and manage inventory levels more efficiently. With this information, hospitals can make better decisions about how to allocate blood supplies, reducing waste and improving patient care.

## Digital Health Standard

**COP.4.**

**The hospital uses a digital system to manage emergency and medico-legal cases.**

### Digital Health Objective Elements

**Achievement a. The hospital uses a digital system for patients in an emergency department.**

**Interpretation:** The hospital shall use digital system to register patients in emergency. In case a patient is in a critical condition and could not be registered immediately, then the registration process can be done and synced as soon as possible with appropriate remarks from authorized healthcare professionals, along with the reasons of delay in registration.

The use of a digital emergency registration system for a hospital can enable the hospital staff to register and retrieve patient information during an emergency quickly and accurately.

Moreover, it can help streamline the admission process and reduce the administrative workload of the hospital staff. The system can also facilitate communication between different departments within the hospital and help ensure a coordinated response during an emergency.

**Achievement b. The hospital uses a digital mechanism to qualify/label a case as a medico-legal case (MLC).**

**Interpretation:** The hospital shall ensure that all necessary information is collected and recorded accurately and efficiently by using a digital checklist. This can help ensure that the case is properly documented, and that all relevant data is stored in the hospital's electronic medical record system.

**Excellence c. The hospital uses a digital system to monitor and transmit the patient's vital status and/or results from tests performed in the hospital ambulances, to the hospital's emergency department.**

**Interpretation:** The hospital ambulances are equipped with digital systems to record and monitor patients' vitals and transmit them to the hospital digitally.

This can be enabled by using smart ambulances and has usage in the inter hospital transfer and road traffic accident cases.



- Commitment d. The hospital uses a digital system to capture emergency codes and staff response.**

**Interpretation:** The emergency codes refer to Code Red, Yellow, Blue, Grey etc. which are typically deployed in a hospital to manage patient care. The digital system can include displays, announcements, SMSs, WhatsApp messages etc. for activation of emergency codes.

In emergency situations, time is of essence, and having a digital system in place can help ensure that the staff responds quickly and effectively. Digital systems, including CCTV footage can also help track response times and actions, which can be invaluable for analysing and improving emergency procedures in the future.

## Digital Health Standard

**COP5.**

**The hospital uses a digital system to manage surgeries and related activities.**

## Digital Health Objective Elements

- Achievement a. The hospital uses a digital surgical safety checklist in operating rooms.**

**Interpretation:** A digital surgical safety checklist is a tool that helps surgical teams improve patient safety by systematically verifying critical steps throughout the surgical process. It is an electronic version of the traditional paper-based surgical safety checklist and is designed to be used on a computer or mobile device. The digital checklist ensures that all necessary steps are taken to reduce the risk of surgical errors, such as wrong-site surgery, unexpected bleeding, or infection. It also provides real-time communication among team members, enhancing collaboration and coordination.

- Achievement b. The hospital uses a digital system to capture pre-operative assessment of the patient which includes physician clearance, consent received, blood arranged etc.**

**Interpretation:** Digital systems can be very helpful in capturing pre-operative assessment and preparation of patients for surgeries. Electronic medical records (EMRs) can centralize patient data and make it easily accessible to healthcare providers. This can include information about the patient's medical history, lab results, imaging studies, and any other relevant data.



Further, digital systems shall incorporate pre-operative checklists and protocols and ensure that all necessary steps are taken before a patient undergoes a procedure. This can include ensuring the patient has fasted for the appropriate amount of time, confirming that all necessary imaging studies have been performed, and ensuring that the patient has been appropriately prepared for anaesthesia. The system can also help identify co-morbidities that may lead to patient complications during the anaesthetic, surgical, or post-operative period.

Further, they can include nutritional consideration via patient forms or questionnaires, dietary and medication instruction.

Digitally managing pre-anesthetic checkups is crucial for ensuring patient safety and optimizing hospitals workflows. By using a digital system, hospitals can streamline the pre-anesthetic evaluation process, reduce the risk of errors and omissions, and improve communication between healthcare professionals.

Digital pre-anesthetic checkup forms can be customized to meet the unique needs of each patient and ensure that all relevant information is collected and recorded accurately. This can include medical history, allergies, medications, and any other relevant information.

With digital pre-anesthetic checkups, treating medical practitioners can also flag potential risks and alert the anesthesia team to take additional measures to ensure patient safety during the procedure. This helps to reduce the likelihood of adverse events and improve patient outcomes.

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**Commitment c. The hospital uses a digital system to manage pre-anesthetic checkups for patients scheduled for interventional procedures / surgeries.**

**Interpretation:** Digitally managing pre-anesthetic checkups is crucial for ensuring patient safety and optimizing hospitals workflows. By using a digital system, hospitals can streamline the pre-anesthetic evaluation process, reduce the risk of errors and omissions, and improve communication between healthcare professionals.

Digital pre-anesthetic checkup forms can be customized to meet the unique needs of each patient and ensure that all relevant information is collected and recorded accurately. This can include medical history, allergies, medications, and any other relevant information.

With digital pre-anesthetic checkups, treating medical practitioners can also flag potential risks and alert the anesthesia team to take additional measures to ensure patient safety during the procedure. This helps to reduce the likelihood of adverse events and improve patient outcomes.

**Achievement d. The hospital uses a digital system to schedule, re-schedule, or cancel interventional procedures / surgeries.**

**Interpretation:** The hospital shall have an electronic schedule management of interventional procedure to improve collaboration between hospital departments. Among other things, this electronic management can be done via OT Booking Management System which can efficiently manage the scheduling and booking of surgeries and procedures. With an effective booking system, healthcare providers can ensure that patients are scheduled for procedures in a timely manner, and that all necessary staff, equipment, and supplies are available when needed. This improves the overall quality of care and patient outcomes. Additionally, an operation theatre booking management system can also help reduce the risk of errors and miscommunications related to surgery scheduling, which can have serious consequences. By streamlining the booking process, healthcare providers can save time, reduce costs, and improve patient satisfaction.

The digital system shall enable a notification being sent to the patient about any modification done in schedule.

**Achievement e. The hospital uses a digital system to record planned operation start and end time.**

**Interpretation:** Depending upon the Hospital's policy, the start and end time shall be defined. The operation start time refers to the time at which a surgery or operation starts on a patient, and the operation end time refers to when the surgery or operation is completed.

It helps in maintaining an accurate record of the entire surgery process, including the duration of the operation. This information is useful for future reference and analysis, as it can provide insights into how long specific procedures take, and how to optimize the process for greater efficiency.

This is also necessary for billing and administrative purposes. Accurate documentation of the time spent in surgery enables the hospital to bill patients accurately and helps in the management of hospital resources.

Recording operation start and end times is also essential for quality control and compliance purposes. It enables the hospital to monitor and evaluate the performance of its staff and ensure that they are adhering to hospital policies and procedures

- Commitment f. The hospital uses a digital system to record surgical procedures / interventions undertaken.**

**Interpretation:** The hospital shall maintain digital records of surgical procedures/ interventions. Having digital records (For example, information on the limb operated upon, surgical technique followed, type of anaesthesia given, team who performed surgery, different resources used in surgery, any specimen collected during surgery etc.) of surgical procedures / interventions can be an extremely important activity for a hospital. Further, digital records help with tracking patient progress and monitoring post-surgery complications. By having access to a digital record, healthcare professionals can quickly identify any complications or issues that arise after surgery, ensuring prompt and effective treatment.

## Digital Health Standard

**COP.6.**

**The hospital uses a digital system to record dietary consultation and any specific nutritional therapy provided to the patient.**

## Digital Health Objective Elements

- Achievement a. The hospital uses a digital system to record dietary consultation services provided to a patient.**

**Interpretation:** A digital system shall be used to prescribe specific diets to patients. The system could incorporate different types of diets including special diets. The system could be integrated with the electronic medical record and the kitchen for accurate and efficient record-keeping and ensuring that all consultations and recommendations are recorded and accessed easily by concerned staff. The system also allows for seamless communication and collaboration between medical professionals, including specialists in different fields of medicine, ensuring that the patient receives a holistic approach to their care.

Further, digital system can help personalize patient's dietary needs.

**Achievement b. The hospital uses a digital system to maintain record of therapeutic diet given to inpatients.**

**Interpretation:** A digital record of therapeutic diet shall ensure accuracy and consistency in patient care. With a digital record, healthcare professionals can easily track patient dietary needs, preferences, and allergies, and update their records as needed.

Additionally, a digital record of therapeutic diet allows for easy communication between healthcare professionals, ensuring that the entire care team is aware of a patient's dietary needs and preferences. This can help prevent errors and ensure that patients receive the appropriate care and support.

Moreover, a digital record of therapeutic diet can also help with quality assurance and compliance with regulatory requirements.

## Digital Health Standard

**COP.7.**

**The hospital uses a digital system to track and monitor all infection related incidents and sentinel events.**

## Digital Health Objective Elements

**Commitment a. The hospital uses a digital system to track, report, and manage different types of infection related incidents individually.**

**Interpretation:** Digital technologies have revolutionized the healthcare industry by enabling hospitals to track, report, and manage different types of infection related incidents individually.

Digital systems shall be used for tracking, reporting, and managing different types of infection-related incidents like reporting time and reporting person etc. individually for the hospital. These systems help healthcare providers to identify and respond to such incidents quickly, prevent the spread of infections, and ultimately improve patient outcomes.

Digital technologies can also help hospitals to monitor patient health and spot symptoms of infections early. They can use remote patient monitoring solutions to track vital signs and other health metrics, which can help identify potential infections before they become serious.

Moreover, digital technologies can help hospitals with inventory management, ensuring that they have the necessary medical supplies and equipment to treat patients with various infections. They can also help to streamline communication and collaboration between different departments and healthcare providers, facilitating faster and more effective responses to infection-related incidents.

**Commitment    b.    The hospital uses a digital system to refer antibiotic usage policy for the treating physicians.**

**Interpretation:** The hospital shall have a clearly defined antibiotic usage policy that is available digitally to treating physicians to prevent the overuse of antibiotics and the emergence of antibiotic-resistant bacteria. Further, physicians shall be able to access the information quickly and easily they need to make informed decisions about the appropriate use of antibiotics. This should help them to choose the right antibiotic for a given patient, based on factors like their medical history, symptoms, and the results of diagnostic tests

Antibiotic policy consists of prescribing strategies to optimize the indication, selection, dosing, route of administration, duration, and timing of antibiotic therapy to maximize clinical cure or prevention of infection whilst limiting the unintended consequences of antibiotic use.

As per Government of India's National Action Plan for antimicrobial resistance (strategic priority) awareness must be improved amongst health professionals as well as the public.

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**Achievement    c.    The hospital uses a digital system to capture all patient care incidents and sentinel events.**

**Interpretation:** The hospital shall use digital systems for incident management.

The most common sentinel events are wrong-site surgery, foreign body retention, falls, suicide, delay in treatment, and medication errors.

Capturing patient care incidents and sentinel events digitally ensures better tracking and analysis of incidents, which can lead to improvements in patient safety and care. With digital capture, hospitals can more easily access and organize incident data, which can help them identify patterns and areas for improvement. Additionally, digital capture systems can provide real-time alerts and notifications, helping staff to quickly address incidents and minimize potential harm to patients.

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**Excellence    d.    The hospital uses a digital system to maintain records of the hospital staff, exposed to any infections at workplace.**

**Interpretation:** The hospital shall have a digital system to maintain digital records of the hospital staff exposed to any infections (HIV, Hep B, Hep C) during the duty hours to keep track of staff who might be at risk and take necessary measures to prevent further spread of the infection. This could include performing tests, providing appropriate treatment, and monitoring the affected staff members.

**Excellence**

- e. The hospital uses a digital system to track the completion of post exposure prophylaxis and other associated health records.**

**Interpretation:** Every healthcare worker has a digital record maintained which specifies whether they have undergone any post infection exposure treatment at the hospital.

## Digital Health Standard

**COP.8.**

**The hospital uses a digital system to provide patient services in non-hospital environment.**

## Digital Health Objective Elements

**Achievement**

- a. The hospital uses a digital system to offer remote/virtual/e-ICU clinical consultations and clinical advice to patients when needed.**

**Interpretation:** The hospital can have provision for remote/virtual/e-ICU consultation. Remote/ virtual consultations include various methods such as videoconferencing, skype, or instant messaging remote/virtual clinical consultations across departments and specialties. Such services can be provided via different ways. For example, telemedicine, which allows medical practitioners and patients to communicate remotely using video conferencing, messaging, or other digital channels. This allows patients to receive medical consultations, check- ups, and even prescriptions from the comfort of their own home. Hospitals can also use digital technology by implementing remote monitoring systems, which allow medical practitioners and nurses to monitor patients' vital signs and other health indicators from a distance. This can help identify potential problems early and allow for more timely interventions. Additionally, hospitals can leverage digital tools such as mobile applications, wearable devices, and patient portals to provide educational resources, track patient progress, and encourage healthy behaviours. This allows patients to receive medical advice and treatment from the comfort of their own home, without having to travel to a physical location. Digital systems can include video conferencing, chatbots, and other communication tools that allow patients to communicate with healthcare professionals remotely. One of the key benefits of using digital systems for clinical consultations is that it can significantly increase access to medical care for patients who live in remote or rural areas, or who have limited access to transportation. It also allows for more

flexibility in scheduling appointments, as patients can often have virtual consultations outside of normal business hours.

- Excellence**      **b. The hospital uses a digital system to provide and manage at homecare services.**

**Interpretation:** A digitally mature hospital shall have capable systems which allows the hospital, among other things, to take a booking for these services, manage billing, monitor at home delivery of services, and take feedbacks, digitally. With the advancement in medical technology, increasingly care is being sought from home and the hospital sends its trained staff to patient's home to provide services (For example, consultation, lab sample collection, ICU at home etc.). This includes the likes of at-home sample collection, at – home physiotherapy, at – home nursing care etc.

## Digital Health Standard

**COP.9.**

**The hospital uses a digital system to record assessment and re-assessment of patients availing rehabilitation services.**

## Digital Health Objective Elements

- Excellence**      **a. The hospital uses a digital system for functional assessment and re-assessment of patients who avail rehabilitation services.**

**Interpretation:** The hospital shall use a digital system for functional assessment and re-assessment of patients who avail rehabilitation services. The assessments shall be done by using relevant functional assessment scales, which are integrated in the hospital' as and when appropriate by qualified individual(s).

A digital record provides accurate and efficient record-keeping of the patient's progress and ensures that all consultations and recommendations are recorded and accessed easily by concerned staff. The system also allows for seamless interprofessional communication and collaboration between medical practitioners and rehabilitation therapists (physiotherapy, occupational therapy, speech therapy, clinical psychology etc.), ensuring that the patient receives a holistic approach to their care.

- Excellence**      **b. The hospital uses a digital system for implementing multi-disciplinary care pathways.**

**Interpretation:** The hospital's digital system shall incorporate clinical care pathways which are based on evidence and / or sound clinical practices. Care pathways provide the team, detailed guidance at various stages of rehabilitation. Development of care pathways is a continuous process. Clinical care pathways shall be developed, consistently followed across all settings of care, and reviewed periodically. Clinical care pathways shall be multidisciplinary and based on the evidence base and / or best clinical practices. A digital record of care pathways provides accurate and efficient record-keeping of the patient's progress and ensures that all consultations and recommendations are recorded and accessed easily by concerned staff, with seamless interprofessional communication.

# Chapter 3

## Management of Medication (MOM)

### 3.1 Intent of Chapter

The pharmacy should have a digital oversight of all the medications stocked out of the pharmacy.

There should be a digital monitoring mechanism to ensure that the required medications are always stocked up and well within the expiry dates.

Every high-risk medication order should be verified digitally by an application-based record to ensure the accuracy of the dosage, frequency, and route of administration. Safety is paramount when using narcotics, chemotherapeutic agents, and radioactive agents.

The hospital uses digital medication management to reduce medication errors and improve the level of care for patients. The hospital should ensure the availability of a digital formulary which is easily available and accessible to medical practitioners anywhere within the hospital premises.

The digital system ensures centralized information and streamlines communications between hospital and patients. The technology intervention reduces the number of errors and ensures proper medicine stocking.

### SUMMARY OF STANDARDS

<b>MOM.1.</b>	The hospital uses a digital system to maintain inventory for medicines and consumables in the pharmacy.
<b>MOM.2.</b>	The hospital uses a digital system to maintain records for prescription, indenting, dispensing and administration of pharmacy orders.
<b>MOM.3.</b>	The hospital uses a digital system to reduce the incidence of medication errors and maintain records of medical devices used.
<b>MOM.4.</b>	The hospital uses a digital system to manage records of emergency medications.



## 3.2 Digital Health Standards and Objective Elements

### Digital Health Standard

MOM.1.

The hospital uses a digital system to maintain inventory for medicines and consumables in the pharmacy.

### Digital Health Objective Elements

- Commitment a. The hospital uses a digital system to manage inventory and disposal of medicines and consumables.**

**Interpretation:** The hospital shall use a digital inventory for medicines and consumables to manage their medical supplies more efficiently and track inventory levels, monitor expiration dates, and quickly locate specific items when needed. The system shall ensure that inventory records shall be maintained properly, and proper grouping shall be followed while storing and updating different categories of medicines (For example, high-risk medicines including sound-alike medications and different concentrations of the same medications, emergency medicines etc.).

Having a digital inventory system can help hospitals because it helps to reduce waste, prevent stockouts and overstocking, and improve patient safety. With real-time monitoring, healthcare providers can ensure that they always have the supplies they need on hand to provide quality care to their patients. Additionally, digital inventory systems can help hospitals save money by reducing the amount of inventory they need to keep on hand and by avoiding expired or wasted supplies

- Commitment b. The hospital uses a digital system to manage usage records of high-risk medication.**

**Interpretation:** Prescriptions shall be received digitally by the pharmacy. The hospital's digital system shall lag high alert medications, look-alike and sound alike medications, different concentrations of the same drug, and drug-drug interactions and food-drug interactions, narcotics (as per statutory requirement) etc.

High risk medicines (For example, narcotic drugs and psychotropic substances, chemotherapeutic agents, radioactive agents, high alert medications, look-alike and sound alike medications, different concentrations of the same drug, and drug-drug interactions and food-drug interactions etc.) are those medicines that have a high risk of causing significant patient harm or death when used in error. Although errors may or may not be more common than with other medicines, the consequences of errors with these medicines can be more devastating.

## Digital Health Standard

### MOM.2.

The hospital uses a digital system to maintain records for prescription, indenting, dispensing and administration of pharmacy orders.

## Digital Health Objective Elements

- Commitment a. The hospital's formulary is available digitally to treating medical practitioners for reference while making prescriptions.**

**Interpretation:** The formulary system is a method by which the treating physicians, evaluate and select medications for use in a hospital.

The hospital's digital formulary shall help medical practitioners to easily access important information about the medications available at the hospital, including dosage, indications, and potential side effects. This can save time and reduce errors, as treating medical practitioners will have the necessary information at their fingertips and be able to make more informed decisions about patient care.

In addition, a digital formulary can provide real-time updates on medication availability and stock levels, helping treating medical practitioners to quickly identify alternative medications if necessary. It can also assist hospital administrators with inventory management, as they can track usage and monitor stock levels to ensure that medications are always available when needed.

- Commitment b. The hospital uses a digital system to record the dispensing of medication.**

**Interpretation:** Dispensing medications (for example pharmacy to ward, and pharmacist to patients etc.) and recording them digitally is critical for ensuring patient safety and providing quality healthcare services. By dispensing medications accurately, healthcare providers can ensure that patients receive the right medication, dosage, and route of administration. This helps in avoiding medication errors, which could lead to adverse drug reactions or other health

complications. Additionally, digital recording of medication dispensing helps maintain accurate records of patient medications, which can be easily accessed and used by healthcare providers to monitor patient progress and make informed treatment decisions. This assists in reducing the chances of duplication or omission of doses and helps in adhering to regulatory requirements.

**Commitment c. The hospital uses a digital system to identify, notify, and record the disposal of expired medicines.**

**Interpretation:** The hospital shall use digital system to record/ notify expired medicines. By recording and notifying the expired medicines digitally, hospitals shall easily identify and dispose them off in a timely manner, thereby ensuring that patients receive only the most effective and safe medications. This shall also help hospitals maintain regulatory compliance and avoid potential legal issues.

**Commitment d. The hospital uses a digital system to record any return and recall of medication / medical product.**

**Interpretation:** The hospital shall use digital system to ensure tracking of medication/ medical product. By tracking returns and recall electronically, the hospital shall keep accurate records of the reasons for the return and recall, including any potential adverse reactions or quality issues with the product. Recording a return of medication or medical product digitally can help a hospital to ensure patient safety and quality of care. There can be several reasons why a hospital might need to return a medication or medical product, this can include expiration, recalls, damage / defect, incorrect order, overstock etc.

## Digital Health Standard

**MOM.3.**

**The hospital uses a digital system to reduce the incidence of medication errors and maintain records of medical devices used.**

## Digital Health Objective Elements

**Excellence a. The hospital uses a digital system to verify patients at the bed side before medicine administration.**

**Interpretation:** Verifying patient identity is essential for ensuring patient safety and preventing medication errors. Digital systems deployed at the bedside shall help automate and streamline this process to greatly reduce the risk of administering medication to the wrong patient. These systems can include

electronic health records, barcode scanners, and mobile devices that allow for quick and accurate patient identification. By using these digital systems, healthcare providers can improve the quality of care they provide while also reducing the risk of adverse drug reactions and other medication-related errors.

**Achievement b. The hospital uses a digital system to record drugs administered.**

**Interpretation:** The hospital shall record administration of drugs digitally. Recording drug administration digitally for a hospital can be extremely beneficial for a hospital. Digital records can help:

- i. Improved accuracy: Digital records eliminate the risk of transcription errors and help ensure accurate documentation of drug administration.
- ii. Increased efficiency: Digital systems can speed up the drug administration process by allowing medical practitioners to quickly access patient information, medication orders, and administration records.
- iii. Enhanced patient safety: Digital records can provide alerts for potential medication errors, such as duplicate orders or drug interactions, helping to prevent adverse events.
- iv. Better communication: Digital records can be easily shared between healthcare providers, improving communication and coordination of care.
- v. Regulatory compliance: Digital records can help hospitals meet regulatory requirements for medication administration documentation and reporting.

**Achievement c. The hospital uses a digital system to maintain records of all implantable prostheses and medical devices used in care delivery.**

**Interpretation:** The batch and the serial number of the implantable prosthesis and medical devices shall be recorded in the patient's medical record, and the discharge summary digitally

**Excellence d. The hospital uses a digital system to prepare records for any medication errors.**

**Interpretation:** The digital system shall capture the record of medication administration across the 6R's; Right Patient, Right Medication, Right Dose, Right Time, Right Route, and Right documentation to prevent medication errors and ensure that patients receive the appropriate treatment.

Examples include prescription error, transcribing error, near misses, dispensing error, administrative error, monitoring error, wrong drug, wrong strength, patient identification at time of administration etc.

## Digital Health Standard

MOM.4.

The hospital uses a digital system to manage record of emergency medications.

### Digital Health Objective Elements

**CORE**

- a. The hospital uses a digital system to maintain records of emergency medications along with record of stock at different locations and in crash carts.

**Interpretation:** Record of emergency medications at different locations shall be maintained digitally. The inventory of these drugs shall be updated based on hospital policy.

**CORE**

- b. The hospital uses a digital system to update the list of drugs at each location whenever a drug is used and then replenished.

**Interpretation:** The hospital shall have a digital tracking system in place to verify the location of a drug when, it is used and replaced, helping to prevent mix-ups or incorrect dosages. A digital system to track and locate a drug when it is used and replaced can help hospitals to ensure patient safety by preventing errors in medication administration. Further, digital tracking system can help to reduce waste and save costs for the hospital. When drugs are tracked and located more easily, they can be better managed and inventory levels can be optimized, reducing the likelihood of expired or unused medication.

**CORE**

- c. The hospital uses a digital checklist as per hospital's policy to keep a check on stock.

**Interpretation:** A digital checklists for stock checks shall help the hospital to ensure that the inventory is accurately tracked and managed according to their policies. This can help prevent waste, reduce the risk of errors and oversights, and improve overall efficiency. By using a digital checklist, hospital staff can easily access and update inventory information in near real-time, so they always know what items are available, what needs to be restocked, and when. With this information at their fingertips, hospital staff can provide better patient care and avoid costly errors.

# Chapter 4

## Digital Infrastructure (DIS)

### 4.1 Intent of the Chapter

The hospital provides a cross-browser compatible digital system to their staff members. Access to digital systems is provided with secured electronic devices and through communication pathways that have additional links to connect all electronic devices in case one link goes down.

The hospital has installed devices (UPS and a generator) that provide instantaneous and uninterruptible power supply.

The hospital has controls in place to encrypt data i.e., data is encrypted at-rest (in all places, including Cloud back- up) and in-transit, with decryption tools. End point devices are secured through active anti-virus and firewall. Data controls such as audit trails for all the core healthcare applications are maintained and analyzed to protect data.

### SUMMARY OF STANDARDS

<b>DIS.1.</b>	The hospital uses Information and Communication Technology (ICT) capabilities to facilitate their digital operations.
<b>DIS.2.</b>	The hospital uses data security controls to prevent security breach.

## 4.2 Digital Health Standards and Objective Elements

### Digital Health Standard

DIS.1.

The hospital uses Information and Communication Technology (ICT) capabilities to facilitate their digital operations.

### Digital Health Objective Elements

- Achievement a. The hospital uses a digital system that supports accessibility of Uniform Resource Locator (URL) on all kinds of devices whether tablet, mobile device, desktop etc.**

**Interpretation:** The hospital's digital system shall ensure accessibility of URL. This means the ease with which the web address or link can be easy to find, read, and use, regardless of whether one is on a web-based or mobile-based interface. This includes making sure that the URL is clear and descriptive, and that it is accessible to users with disabilities, such as those who use text-to-speech software or screen readers.

- Commitment b. In case of a web-based digital system, support for more than one widely used browsers is available to the hospital.**

**Interpretation:** This refers to system feature of any product or service that has been designed and tested to work properly on multiple popular web browsers such as Google Chrome, Mozilla Firefox, Safari, Microsoft Edge, etc. This ensures that users who prefer a particular browser can access and use the product or service without any compatibility issues. Providing browser support is a way to enhance user experience and accessibility for all users, regardless of their preferred web browser.

- Achievement c. The hospital provides treating medical practitioners with electronic devices to access electronic health records of patients.**

**Interpretation:** The hospital shall provide hardware to access electronic health records of patients by medical practitioners. With the help of hardware devices such as computers, laptops, tablets, and smartphones, medical staff can access electronic health records anytime and anywhere. This ensures that patient information is accessible on-demand, which is important for making informed decisions regarding patient care. Additionally, having hardware to access electronic health records can reduce the need for paper-based documentation, which can be time-consuming, prone to errors, and can create storage issues.

Providing hardware to access electronic health records is important for improving patient care, increasing efficiency, and reducing administrative burden.

**Excellence**      **d. The hospital's allied services staff members are equipped with adequate electronic devices to access the hospital's administrative applications.**

**Interpretation:** The hospital shall provide hardware to allied services staff members to enable hospital staff to access and manage patient data and other critical information from anywhere within the hospital, improving efficiency and productivity. It allows for seamless communication and collaboration between hospital staff, which is crucial for providing quality patient care.

Further, hardware such as computers and mobile devices help streamline administrative tasks, reducing the workload on hospital staff and allowing them to focus on more important responsibilities. Providing hardware also helps ensure that the hospital's data and information are kept secure and protected, as it allows for better control and management of access to sensitive information.

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**Commitment**      **e. The hospital ensures that backup is available for internal network.**

**Interpretation:** The hospital shall ensure that backup is available for internal network. Internal network refers to local area network (LAN). Typically, an internal network or LAN is used for sharing resources like printers and files, and for connecting to the internet. Network redundancy/ backup is a system design approach that involves duplicating critical network components such as switches, routers, and servers to ensure that if one component fails, the redundant ones will automatically take over and ensure that the network continues to operate.

Redundancy/backup network is crucial for hospitals because it ensures that their critical systems, such as electronic health records and medical imaging equipment, remain available even if the primary network fails. In a hospital, downtime can be life-threatening, so ensuring that these systems are always up, and running is of utmost importance. Network redundancy reduces the risk of data loss, improves system availability, and provides a backup plan in case of disasters or emergencies. It also helps to maintain the security and integrity of patient data, which is vital for hospitals.

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**CORE**      **f. The hospital uses a power backup for their digital systems.**

**Interpretation:** Power backup for digital systems refers to the use of devices like Uninterruptible Power Supply (UPS) and generators which shall ensure a continuous and stable source of power for digital equipment during an outage or interruption of the main power supply. Power backup is extremely important in hospitals because hospitals need to be able to operate 24/7, without any interruptions.



With power backup systems in place, hospitals can ensure that they can continue to provide essential medical services, even during power outages or emergencies. Additionally, power backup systems can help hospitals avoid data loss, protect sensitive equipment, and maintain a safe and secure environment for patients and staff.

**Excellence**

**g. The hospital uses a digital system that supports single sign-on capabilities.**

**Interpretation:** Interpretation: Single sign-on (SSO) is a technology that enables users to authenticate themselves once, using one set of login credentials, to gain access to multiple applications and systems. Single sign-on (SSO) shall be used in hospitals to simplify the login process for healthcare providers, nurses, and other staff who need to access multiple medical systems throughout their day.

By using SSO, hospital staff can save time and reduce the risk of errors that can occur when logging in and out of multiple systems. SSO also enhances security by reducing the need for users to remember and enter multiple sets of credentials, which can be easily forgotten or compromised.

**Excellence**

**h. The hospital uses a digital system that is largely deployed on cloud-based solutions rather than hosted on on-premises solutions.**

**Interpretation:** Cloud-based deployment in a hospital refers to a system where the hospital's data and digital applications are hosted on servers that are located outside of the hospital, usually in a data center managed by a cloud provider. On the other hand, on-premises deployment refers to a system where the hospital's data and digital applications are hosted on servers that are located within the hospital's premises and are managed by the hospital's IT department.

**Excellence**

**i. The hospital staff uses mobile devices rather than fixed devices to access hospital's digital system.**

**Interpretation:** Interpretation: Mobile devices (tablets, laptops, smart devices etc.) are devices that are designed to be portable and can be easily carried around. Some examples of mobile devices are smartphone, tablets, and laptops. On the other hand, fixed devices (desktop) are designed to be stationary and are usually connected to a power source. Some examples of fixed devices are desktop computers, servers, and printers.

## Digital Health Standard

DIS.2.

The hospital uses data security controls to prevent security breach.

### Digital Health Objective Elements

**Achievement a. The hospital uses a digital means to ensure that their data is encrypted.**

**Interpretation:** Encryption of hospital data is the process of converting sensitive patient information into an unreadable format that can only be deciphered with a specific key or password. This is done to ensure the security and privacy of patient data, as it prevents unauthorized access and keeps the information safe from hackers or other outside threats. Encryption is a crucial aspect of modern healthcare, as it helps to protect patients' personal and medical information from being exposed to anyone who should not have access to it.

**CORE**

**b. The hospital uses an active/valid anti-virus to prevent, detect, and remove malware for hospital applications.**

**Interpretation:** An active anti-virus is a software program designed to prevent, detect, and remove malicious software from a computer system. It is important for a hospital because it helps protect the sensitive patient data that is stored on their computers, as well as prevent the spread of viruses and other malware across the hospital network. By constantly monitoring the system and scanning for threats, an active anti-virus helps ensure that the hospital's computers are secure, and that patient information is kept confidential.

**Commitment c. The hospital uses a firewall that monitors incoming and outgoing network traffic.**

**Interpretation:** A firewall is a security system that helps protect a hospital's computer network from unauthorized access or hacking attempts. It works like a filter between the hospital's internal network and the internet, blocking potentially harmful data and allowing only authorized traffic to pass through.

Hospitals store large amounts of sensitive data, including patient information, medical records, and financial data. A firewall plays a crucial role in ensuring the confidentiality, integrity, and availability of this data by preventing cyber attackers from gaining access to it.

In short, a firewall is important for a hospital because it helps safeguard patient data and other critical information from cyber threats.

Firewalls installed by a hospital can include:

- i. **Software Firewalls:** These are installed directly on computer or device and can come as part of an antivirus software suite.
- ii. **Hardware Firewalls:** These are physical devices that are designed to protect entire network.
- iii. **Next-Generation Firewalls:** These are advanced firewalls that can inspect, and block traffic based on specific criteria such as application type, user identity, and content.
- iv. **Cloud Firewalls:** These are firewall services that are hosted in the cloud and can be used to filter traffic to and from cloud-based resources.

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**Achievement**    d.    **The hospital uses a digital system that captures the audit trails of each transaction.**

**Interpretation:** Audit trails of each transaction shall be captured by the hospital's digital system.

Audit trails are a chronological record of every activity that occurs in a system or application. In a hospital, audit trails are important because they enable the tracking and monitoring of electronic health records (EHRs) and other critical information. They help ensure the accuracy, completeness, and security of patient records, as well as help maintain compliance with regulatory requirements. Audit trails also provide valuable information for identifying and investigating security breaches or errors in the system. Overall, audit trails play a crucial role in ensuring the quality of care provided by hospitals and protecting the privacy and confidentiality of patient information.

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**Excellence**    e.    **The hospital uses a digital mechanism to allow secure access of hospital's data through remote location**

**Interpretation:** There are various ways to remotely access hospital data. One way is to use a virtual private network (VPN), which allows authorized users to securely access the hospital's network and data from outside of the hospital. Another way is to use a cloud-based service, which allows hospital data to be accessed from anywhere with an internet connection. Hospitals may also use remote desktop software, which allows authorized users to access their work computer and data from a remote location.

Secure remote access to hospital data allows medical practitioners, nurses, and other healthcare professionals to access patient records and collaborate on patient care plans from anywhere, which can improve efficiency and patient outcomes.

# Chapter 5

## Digital Operations Management (DOM)

### 5.1 Intent of the Chapter:

The hospital has an updated IT policy to guide standardized IT practices across the hospital. IT infrastructure is implemented properly with monitoring controls and continuous support, and hospital's digital operations do not face connectivity, productivity, and security issues.

The hospital has a systematic approach to manage all IT assets, including storing digital inventory of IT assets, tracking, and maintaining IT assets etc.

Processes are in place to restore data access and IT infrastructure after a disaster. Controls such as - access management, multi-factor authentication, and usage of external storage devices are implemented to protect digital infrastructure.

The hospital is using digital means to create and analyze maintenance related activities for all hospital items.

### SUMMARY OF STANDARDS

DOM.1.	The hospital uses written guidance for usage and operations of IT resources.
DOM.2.	The hospital uses IT support to manage their infrastructure to run digital operations smoothly.
DOM.3.	The hospital uses a digital system to manage IT/digital assets.
DOM.4.	The hospital has a disaster recovery and service continuity plan for digital systems.
DOM.5.	The hospital uses access control to secure their digital system.
DOM.6.	The hospital uses a digital system to maintain and track all incidents and maintenance events of the facility.

## 5.2 Digital Health Standards and Objective Elements

### Digital Health Standard

DOM.1.

The hospital uses written guidance for usage and operations of IT resources.

### Digital Health Objective Elements

**CORE**

**a. The hospital uses an IT policy to manage their digital operations. \***

**Interpretation:** The IT policy shall include a set of guidelines that govern the use, management, and security of a hospital's IT assets. It shall outline the rules and procedures that employees and other stakeholders must follow when using hardware, software, and other technological resources in the workplace. The guidance covers areas such as data privacy, security protocols, password management, and acceptable use of company devices. It helps to ensure that all users are aware of their responsibilities and the consequences of non-compliance. Data management policy can include controls and procedures around data classification, data categorization, data retention and data audit among others.

The guidance can include amongst other things:

- i. IT security
- ii. Open-source software
- iii. Data management
- iv. IMS
- v. IT access
- vi. Disaster recovery
- vii. Monitoring strategy
- viii. Change management

**Achievement b. The hospital ensures that IT policy is reviewed periodically.**

**Interpretation:** The hospital's IT policies and procedures shall be reviewed periodically to ensure that they align with their goals, comply with regulations, and meet the needs of patients, staff, and other stakeholders.

As technology continually evolves, updates to IT policies are necessary to keep up with emerging threats to information security, privacy, and confidentiality. Regular reviews can help to identify gaps in policies and procedures, as well as potential areas for improvement.

Furthermore, changes to healthcare laws and IT regulations may also require corresponding changes to IT policies. By reviewing these policies periodically,

hospitals can ensure that they remain compliant with regulatory requirements and avoid any potential legal consequences.

## Digital Health Standard

DOM.2.

The hospital uses IT support to manage their infrastructure to run digital operations smoothly.

## Digital Health Objective Elements

### Achievement

- a. The hospital uses a digital system to manage internal maintenance plan for IT systems and services.

**Interpretation:** A maintenance plan for IT systems and services is a strategy that outlines the ongoing tasks, processes, and activities required to keep a hospital's technology infrastructure running smoothly. The hospital shall have a digital maintenance plan for its IT infrastructure which includes tasks such as regular updates, backups, security patches, and monitoring of system performance.

A well-maintained IT infrastructure ensures that hospital staff can access critical information and use technology to provide optimal care to patients. It is important for hospitals to have a maintenance plan in place to ensure that their IT systems and services are functioning optimally, securely, and efficiently. This helps to minimize downtime, reduce the risk of data breaches, and maintain the integrity and availability of critical patient information.

### Excellence

- b. The hospital uses a digital system to generate reports that helps to measure their IT infrastructure efficiency.

**Interpretation:** The hospital shall have system-based reports are useful to measure IT infrastructure efficiency to help hospitals gain insights into the performance of their IT systems. This can include data on server uptime, network availability, and application performance, amongst other metrics. Analysing this data can help hospitals identify areas where they can improve their IT infrastructure.

It is important for hospitals to have efficient IT infrastructure because this can directly impact patient care. For example, if a hospital's IT systems are not functioning properly, medical staff may not have access to critical patient information in a timely manner, which can result in delays in treatment or even medical errors. By measuring IT infrastructure efficiency, hospitals can ensure that their systems are working optimally, and that patient care is not being compromised.

## Achievement

- c. **The hospital uses a digital system to monitor the performance of different healthcare applications.**

**Interpretation:** The hospital shall monitor the performance of healthcare applications to ensure their effectiveness and efficiency, by tracking parameters like response time, resource consumption, and error rates so that issues can be identified, and the system can be optimized to provide better patient care. This monitoring can include overall system performance as well as individual application performance, such as EHRs, telehealth platforms, and clinical decision support systems. Regular monitoring ensures that these critical systems are running smoothly and can detect issues before they become serious problems, ultimately improving patient outcomes.

## CORE

- d. **The hospital has continuous support including software updates and upgrades for their clinical healthcare applications.**

**Interpretation:** A software update is a new version of a software product that is released to fix bugs, address security vulnerabilities, and improve performance. Whereas a software upgrade is a more significant change to the software, usually with new features and functionality.

To upgrade / update software(s), the hospital shall have a formal process to ensure proper implementation / roll-out.

In a hospital setting, software updates and upgrades play a crucial role in ensuring that the hospital's systems are up to date with the latest security patches and bug fixes, which helps to prevent any potential data breaches. It also helps to ensure that the hospital's software systems are running smoothly, reducing the risk of any system downtimes that could impact patient care. Additionally, software upgrades can introduce new features and functionality that can improve the hospital's operations, resulting in better patient care and outcomes.

## Commitment

- e. **The hospital has continuous support including updates and upgrades for their non-clinical systems.**

**Interpretation:** A non-clinical system can include desktop, laptop, mobile, database etc. In a hospital setting, software updates and upgrades play a crucial role in ensuring that the hospital's systems are up to date with the latest security patches and bug fixes, which helps to prevent any potential data breaches. It also helps to ensure that the hospital's software systems are running smoothly, reducing the risk of any system downtimes that could impact patient care. Additionally, software upgrades can introduce new features and functionality that can improve the hospital's operations, resulting in better patient care and outcomes.

## Excellence

### f. The hospital uses a formal change request process to manage IT related changes.

**Interpretation:** The hospital shall have written guidance for change request process to ensure that changes to the software are made in a safe and effective manner. To digitally manage IT change request, hospitals can use variety of software applications such as ServiceNow, Jira etc.

Examples of IT change request can include implementation of EMR system, modification in existing workflow for a module, development of a new capability in a digital system etc. A change request process for managing IT-related changes in hospitals typically involves a series of steps that must be followed to ensure that changes are made safely and effectively. This process typically includes the following steps:

- i. **Request:** The first step is to submit a change request. This can be done through a variety of channels, such as a help desk ticketing system or an online form.
- ii. **Approval:** The change request is reviewed by a team of experts to determine whether it is feasible and appropriate. The team considers issues such as the complexity of the change, the potential impact on patient care and safety, and the resources required to make the change.
- iii. **Testing:** Before any change is implemented, it is tested to ensure that it works as expected and does not cause any unintended consequences.
- iv. **Implementation:** Once the change has been tested and approved, it is implemented in a controlled environment to minimize the risk of disruption.
- v. **Monitoring:** After the change has been implemented, it is monitored to ensure that it is working as expected and that there are no adverse effects.

## Digital Health Standard

DOM.3.

The hospital uses a digital system to manage IT/digital assets.

## Digital Health Objective Elements

### Achievement

#### a. The hospital uses a digital system to manage inventory record of all IT assets.

**Interpretation:** The hospital shall maintain a digital inventory record of all IT assets (For example, hardware, networking devices, software etc.) which includes the entire history from procurement of asset to its eventual retirement.

A digital inventory of IT assets is a comprehensive electronic list of all the hardware, software, and network components that make up a hospital's IT infrastructure. It



includes information about the specifications, location, configuration, and usage of each item in the inventory.

This record is used in hospitals to keep track of their IT assets and to ensure that all equipment is properly maintained and serviced. It also helps hospital IT departments to plan for future upgrades and replacements, as well as to identify potential security risks and vulnerabilities in their systems. In addition, a digital inventory record can help hospitals to comply with regulatory requirements by providing an accurate and up-to-date record of all their IT assets.

## Excellence

### b. The hospital uses a centralized digital data repository for all electronic health records (EHRs).

**Interpretation:** The hospital shall have a centralized digital data repository of all its EHRs. A centralized digital data repository is a secure database that stores all electronic health records (EHRs) of a hospital or healthcare organization in one location. This includes patient information such as demographics, medical history, lab results, imaging studies, medications, doctor's notes, and other important data.

Having a centralized digital data repository is important because it allows healthcare providers to access and share patient information easily and efficiently, regardless of location or department. This can lead to improved patient outcomes, increased efficiency, and reduced costs. It also ensures that patient data is secure and protected, since all access to the data is regulated and monitored.

There shall be a mechanism to select relevant data like medico legal reports, MTP reports from the concerned personal.

## Achievement

### c. The hospital uses a digital system to record and track IT security incidents, issues, changes, and problems.

**Interpretation:** An IT Service Management (ITSM) system is used to record and track IT security incidents, issues, changes, and problems. It is a very useful digital system for hospital and can be used to manage:

- i. **Incident Management:** The system helps to quickly identify, record, track, and resolve security incidents and minimize the impact on hospital operations, patient safety, and data security.
- ii. **Problem Management:** The system helps to identify and eliminate the root causes of recurring incidents and problems in the IT infrastructure, which improves system performance and reduces downtime.
- iii. **Change Management:** The system helps to manage and control changes to the IT environment, infrastructure, and applications, ensuring that they are properly planned, tested, approved, and documented to minimize risks and disruptions.
- iv. **Asset Management:** The system helps to manage and track IT assets, such as computers, servers, software licenses, and security devices, ensuring that they are

properly maintained, secured, and replaced.

Overall, such a digital system helps hospitals improve their IT security posture, comply with regulatory requirements, and maintain high levels of patient confidentiality, privacy, and trust.

**Excellence**      **d. The hospital periodically conducts IT audits internally to confirm no major vulnerabilities.**

**Interpretation:** The IT audit shall be an independent evaluation of the information technology infrastructure, policies, procedures, and controls in a hospital. The purpose of an IT audit is to assess the effectiveness of digital systems and how well they are aligned with the business goals and objectives. It involves identifying potential risks and vulnerabilities in the IT environment, evaluating the adequacy and effectiveness of IT controls, and making recommendations for improvements to ensure that the hospital's technology resources are used in a secure and efficient manner.

**Achievement**      **e. The hospital uses a digital system to maintain and track records for electronic waste.**

**Interpretation:** E-waste or electronic waste refers to discarded electronic devices or equipment, such as computers, monitors, medical devices, television etc. The hospital shall be using a digital system to manage e-waste in hospitals by involving the use of technology and software to efficiently handle electronic waste generated within their facilities.

Proper management of e-waste is crucial to ensure environmental sustainability and compliance with regulations.

## Digital Health Standard

**DOM.4.**

**The hospital has a disaster recovery and service continuity plan for the digital systems.**

## Digital Health Objective Elements

**Commitment**      **a. The hospital uses a disaster recovery plan to manage patient healthcare records in case of an unforeseen circumstances.**

**Interpretation:** The hospital shall have written guidance for a disaster recovery plan.

A disaster recovery plan is a set of procedures and protocols designed to help hospitals, to recover and resume operations as quickly as possible in the event of a disaster, such as a natural disaster, cyber-attack, or a power outage.

It is a critical for hospitals to have a disaster recovery plan as they rely on many critical systems to provide life-saving care, such as power, water, medical equipment, and communication systems. If any of these systems fail, patients' lives can be put at risk.

By having a well-designed disaster recovery plan in place, hospitals can protect their patients, employees, and assets, and maintain their reputation as a trusted and reliable healthcare provider.

Numerous disaster recovery options that are used by hospitals:

- i. **Cloud-based backups:** Storing backups of critical data in the cloud can provide a secure and easily accessible solution in case of a disaster.
- ii. **Secondary data centre:** Having a secondary data center in a different location can provide redundancy and allow for quick failover in case of a disaster.
- iii. **Virtualization:** Virtualization can allow for quick and easy recovery of critical systems in case of a disaster, as the virtual machines can be easily moved to another location.
- iv. **Data replication:** Replicating data to an offsite location can ensure that data is available even in the event of a disaster at the primary site.

#### Commitment

- b. **The hospital uses a disaster recovery plan to manage administrative applications (i.e., applications that support health- related systems) in case of an unforeseen circumstance.**

##### *Interpretation:*

Different disaster recovery options can be used by hospitals:

- i. **Cloud-based backups:** Storing backups of critical data in the cloud can provide a secure and easily accessible solution in case of a disaster.
- ii. **Secondary data centre:** Having a secondary data center in a different location can provide redundancy and allow for quick failover in case of a disaster.
- iii. **Virtualization:** Virtualization can allow for quick and easy recovery of critical systems in case of a disaster, as the virtual machines can be easily moved to another location.
- iv. **Data replication:** Replicating data to an offsite location can ensure that data is available even in the event of a disaster at the primary site.

#### CORE

- c. **The hospital uses a digital system to archive and retrieve the data.**

**Interpretation:** A digital system for archiving and retrieving data typically involves using electronic storage devices such as hard drives, cloud storage, or network-attached storage (NAS) systems. The data shall be stored in a structured and organized fashion, making it easy to retrieve later. This can be achieved by using a variety of software applications, such as database management systems or content management systems.

A digital system for archiving and retrieving data is crucial for a hospital as it allows for quick and easy access to patient information, which can be critical in emergency situations. It also ensures that patient data is secure and can only be accessed by authorized personnel.

## Digital Health Standard

DOM.5.

The hospital uses access control to secure their digital system.

## Digital Health Objective Elements

### CORE

- a. The hospital uses a digital system to manage end-user credential and authentication.

**Interpretation:** The hospital shall use a digital system to manage end-user credentials and authentication which allows hospitals to securely manage and store user data such as usernames and passwords. It shall enable users to authenticate and access various online services and applications through a single set of login credentials.

This digital system is important because it provides a secure way to manage user identities and access to sensitive data. It helps prevent unauthorized access to systems and data, thereby protecting the privacy and security of users and organizations. Additionally, it simplifies the login process for users by allowing them to use the same login credentials across multiple platforms and services.

### Excellence

- b. The hospital uses a digital system that provides two factor authentication for all IT systems.

**Interpretation:** Two-factor authentication is a security process that requires users to provide two different authentication factors to access IT systems. Typically, this involves something the user knows, such as a password, and something the user has, such as a mobile device or security token.

Two factor authentication is important because it provides an additional layer of security to protect sensitive patient data and other confidential information. With the rise of cyber-attacks targeting the healthcare industry, hospitals need to be especially vigilant about securing their IT systems. Two factor authentication helps ensure that only authorized personnel can access sensitive data, even if passwords are compromised or stolen. By implementing two factor authentication, hospitals can help prevent data breaches and protect patient privacy.

**CORE**

- c. The hospital uses a digital mechanism to protect and restrict data transfer on external storage devices.**

**Interpretation:** Data transfer on external storage devices is the process of moving data from one device to another, typically using a USB flash drive, external hard drive, or other similar device. The protection of this data transfer is essential to ensure that sensitive information remains confidential and private. For hospitals, data transfer on external storage devices is critically important as they deal with a vast amount of sensitive patient information daily. This information includes medical histories, diagnoses, and test results, which must be kept secure to protect patient privacy.

The hospital shall use either of the several protocols available to restrict transfer of data to external devices such as encryption, password protection, and access controls to safeguard the data.

**Excellence**

- d. The hospital staff uses official e-mail ids for all official communications as governed by hospital's IT policy.**

**Interpretation:** Using a personal email id for official communication can potentially compromise patient data privacy and security. It can further open the possibility of unauthorized access or hacking of that information.

To implement a protocol regarding personal email addresses, the hospital shall create and implement a policy that prohibits staff from using personal email accounts to communicate with patients, colleagues, or other healthcare providers. The policy should include provisions that mandates all communication be conducted through the hospital's secure email system, which would have built-in safeguards to protect patient information.

To ensure compliance with the policy, the hospital may also consider offering training to staff on the importance of patient confidentiality and how to properly use the hospital's secure email system.

**Commitment**

- e. The hospital uses a digital system in which an electronic session is auto terminated after a predetermined time of inactivity.**

**Interpretation:** Auto-termination of electronic session refers to the automatic ending of an electronic session after a specified period of inactivity. It is an important security feature that helps to protect against unauthorized access and data breaches. By automatically terminating sessions after a specified period of inactivity, the risk of unauthorized access is greatly reduced.

## Digital Health Standard

DOM.6.

The hospital uses a digital system to maintain and track all incidents and maintenance events of the facility.

## Digital Health Objective Elements

### Commitment

- a. **The hospital uses a digital system to maintain a record of periodic calibration and maintenance plans for all equipment.**

**Interpretation:** A digital record of periodic calibration and maintenance plans for all equipment is an essential aspect of hospital management. It helps to keep track of the calibration and maintenance schedules of the equipment used in the hospital, ensuring that they are always in their optimal condition. By having a digital record of these schedules, hospital staff can plan and schedule maintenance work in a more efficient and timely manner, thereby reducing downtime and minimizing the risk of equipment failure.

By having a digital record of equipment maintenance and calibration plans enables hospitals to comply with regulatory requirements, maintain accreditation, and ensure patient safety. It also allows maintenance personnel to access the complete history of the equipment, which can help them troubleshoot issues, identify trends, and predict potential problems.

### Achievement

- b. **The hospital uses a digital mechanism to notify maintenance in charge/ Bio Medical department for scheduled maintenance activities.**

**Interpretation:** Digital notification shall be used (For example, system indicator, emails, message, system alerts) for scheduled maintenance activity to ensure the smooth operation of critical hospital systems and equipment. Hospitals rely on a vast array of equipment, from medical devices to heating and cooling systems, to provide patients with the care they need. When maintenance is scheduled, it is important to digitally notify hospital staff so they can make any necessary adjustments or plan for potential disruptions to patient care.

### CORE

- c. **The hospital uses a digital system to maintain a record of collection and disposal of bio medical waste.**

**Interpretation:** Digital records for collection and disposal of bio medical waste (including the details of the registered disposer) is important for a hospital as it helps to ensure that the waste is being disposed of in a safe and proper manner, in compliance with local and national regulations. A digital system also allows for better tracking and monitoring of waste, making it easier to identify areas for

improvement and to detect any potential issues. Additionally, having digital records makes it easier to share information with other departments and stakeholders, improving communication and collaboration.

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**Excellence**

**d. The hospital is registered in the Healthcare Facility Registry under ABDM.**

**Interpretation:** Health Facility Registry (HFR) is provided by the National Health Authority (NHA) and stands for Health Facility Registry which is a comprehensive repository of health facilities of the country across modern and traditional systems of medicine.

# Chapter 6

## Finance and Procurement Management (FPM)

### 6.1 Intent of Chapter

A digitized procurement process helps the hospital to control their assets effectively, manage their processes and comply with regulations and policies. Digitized procurement management activities ensures that the hospitals are ahead of the curve.

The hospital should automate their procurement cycle; indents should be raised digitally and the entire procurement to pay cycle is managed through a digital tool.

Stock movement and updates are captured near real time resulting in improved cycle time. Data is used in decision making and vendor performances are managed through a digital tool.

The hospital uses a digital system to improve their finance related activities such as use of digital system in financial accounting, budgeting, and financial analysis etc.

### SUMMARY OF STANDARDS

FPM.1.	The hospital uses a digital system to manage their supply chain.
FPM.2.	The hospital uses a digital system to manage vendor and customer payments.
FPM.3.	The hospital uses a digital system to perform patient billing functions.



## 6.2 Digital Health Standards and Objective Elements

### Digital Health Standard

FPM.1.

The hospital uses a digital system to manage their supply chain.

### Digital Health Objective Elements

#### Commitment

- a. The hospital uses a digital system to manage its inventory, based on the stock movement of all hospital items.

**Interpretation:** A digital system to manage inventory is a software-based solution that allows hospitals to keep track of all their supplies and equipment in real-time. It is a crucial tool for hospitals because inventory management is essential for ensuring that patients receive the care they need on time.

A digital inventory management system allows hospitals to monitor inventory levels and reorder supplies automatically when they reach a certain threshold. This helps to prevent stockouts, which can lead to delays in treatment or even patient harm.

A digital inventory management system can help hospital to improve patient safety by ensuring that the right supplies and equipment are available when they are needed. This can help to prevent errors and improve clinical outcomes for patients.

#### Commitment

- b. The hospital uses a digital system to create and manage indents for any hospital item.

**Interpretation:** The hospital shall use a digital system for creating and managing indents. A digital system to create and manage indents for any hospital item is a software platform that makes it easy for hospital staff to request and manage the inventory of medical supplies and equipment. This system allows staff to place orders for any necessary medical supplies or equipment needed for patient care and track the status of the order as it moves through the procurement process.

This system is important because it can help streamline the inventory management process, reduce excess inventory, minimize stockouts, and save time and effort for hospital staff. It can also help to improve patient care by ensuring that the necessary medical supplies and equipment are readily available when needed.

Commitment

c. The hospital uses a digital system to create purchase orders.

**Interpretation:** A digital system for creating purchase orders is a software solution that allows hospitals to create, manage and track purchase orders electronically.

In a hospital setting, where a high volume of supplies and equipment are required daily, a digital purchase order system shall be used to streamline the procurement process, reducing the time and effort required to create and manage orders. This can improve the overall efficiency of the hospital, allowing staff to focus on providing patient care.

Moreover, digital purchase order systems can help hospitals track their inventory and manage their budget more effectively.

Commitment

d. The hospital uses a digital system to create receipt notes for orders received in the store.

**Interpretation:** A material receipt note is a document that acknowledges the receipt of goods or materials. In hospitals, it is essential to track the materials received, their quantity, and their quality to ensure efficient supply chain management and quality control. Capturing the material receipt note digitally allows for more accurate and timely tracking of these materials, reducing the risk of errors and improving overall efficiency. Additionally, digital capture allows for easy retrieval of information, analysis, and reporting, which can help in making informed decisions.

Excellence

e. The hospital uses a digital system to record any quality concerns of the purchased hospital assets.

**Interpretation:** The hospital shall use a digital system to record quality concerns (For example, item expiry date, volume, SKU etc.) of ordered items in a hospital that allows healthcare providers to document and track any issues related to the quality of supplies, equipment, or pharmaceutical products that are being used or ordered in the hospital.

Such digital system can help hospitals to maintain high standards of quality by identifying issues quickly and taking appropriate corrective actions. By electronically documenting quality concerns, the hospital can track trends and patterns over time, leading to better decision-making and improved patient care. Additionally, a digital system can help reduce errors and waste by streamlining the process of reporting and addressing quality concerns.

The digital system also allows for recall of any defective assets.

## Digital Health Standard

FPM.2.

The hospital uses a digital system to manage vendor and customer payments.

## Digital Health Objective Elements

### Commitment

#### a. The hospital uses a digital payment channel to make vendor payment.

**Interpretation:** There are several digital payment channels that hospitals can use to make vendor payments, such as electronic funds transfer (EFT), wire transfer, online bill payment through a bank's website, mobile payment applications, UPI, and credit/debit card payments.

Digital payment channels are important for hospitals because they offer various benefits, including:

- i. **Faster transactions:** Digital payments are faster than traditional methods like checks or cash. Transactions can be completed in real-time or within a few seconds.
- ii. **Increased security:** Digital payments are secure as they are encrypted and protected by multiple layers of security. They are less prone to fraud or theft, which is especially important for hospitals where sensitive patient data is at risk.
- iii. **Lower costs:** Digital payments are cost-effective compared to traditional payment methods. They eliminate the need for paper-based transactions, and there are no fees associated with printing, mailing, or processing checks.
- iv. **Improved accuracy:** Digital payments are more accurate because there is no manual data entry required, which reduces the risk of human error.

### Commitment

#### b. The hospital uses a digital system to maintain records of all payables and receivables.

**Interpretation:** Digital records of all vendor and customer payables and receivables for a hospital typically refer to the electronic database that contains all the financial transactions of the hospital with its suppliers and clients.

A digital record of all payables and receivables can improve accuracy and efficiency in financial reporting. This can make it easier for hospital staff to track expenses, identify potential billing errors, and monitor financial performance over time. Digital record of payments and receivables can help reduce the risk of fraud or other financial discrepancies. By having a clear and reliable record of financial transactions, hospitals can better safeguard against errors or fraudulent activity. Moreover, a digital record can also make it easier to share financial information with other stakeholders, such as auditors or regulatory agencies.

**Achievement**

- c. **The hospital follows a periodic payment cycle, and the digital system reflects about payments to be made or received in the upcoming cycles.**

**Interpretation:** A periodic payment cycle is a recurring interval of time during which payments are made or received on a regular basis. For example, if a hospital has a monthly subscription to a service, the periodic payment cycle would be every month.

Digital systems are incredibly important to manage periodic payment cycles for hospitals. With a digital system, hospitals can automate many of the processes associated with billing and payment, including generating invoices, tracking payments, and sending out reminders. This can help to reduce errors and improve efficiency, which ultimately saves time and money for the hospital.

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**Commitment**

- d. **The hospital uses a digital system to create a debit/credit note.**

**Interpretation:** A debit note is a document used in hospitals to request payment from a patient or an insurance company for services that have been rendered. It is an invoice that shows how much money is owed by the patient or the insurance company.

Credit note is issued by the hospital in the event of overpayment or incorrect billing. It is a document that shows the amount of money that is owed back to the patient or the insurance company.

Mentioned below are few reasons how digital system can improve electronic creation of debit / credit notes:

- i. **Accuracy:** Digital systems can accurately calculate and record financial transactions. This reduces the likelihood of errors and helps ensure that the hospital's financial records are correct.
- ii. **Efficiency:** Digital systems can create debit or credit notes quickly and efficiently. This saves time and reduces the workload for hospital staff.
- iii. **Organization:** Digital systems can store and organize financial records in a way that is easy to access and analyze. This can help hospitals to better understand their finances and make informed decisions.

## Digital Health Standard

FPM.3.

The hospital uses a digital system to perform patient billing functions.

## Digital Health Objective Elements

### CORE

- a. **The hospital uses a digital system for patients to pay for availing any hospital services.**

**Interpretation:** The hospital shall have a digital system for patients to pay for hospital services. A digital payment system in a hospital refers to a system that allows patients to pay their medical bills electronically, using a variety of digital payment methods. There can be several digital payment options for patients to pay for their hospital bills. These include:

- i. **Online payment portals:** Hospitals can develop online payment portals and provide access to patients to make payments directly from their bank accounts or credit cards.
- ii. **Mobile payment applications:** Several mobile payment applications such as UPI, Apple Pay, and Google Wallet can be used for hospital payments.

Through digital payment patients can make payments from the comfort of their home, without the need to visit the hospital. Digital payment options also have built-in security features that protect patients' financial information.

### CORE

- b. **The hospital uses a digital system that includes pre-defined charges for all key services and items.**

**Interpretation:** In a hospital's digital payment system, services charges are fees that are associated with the medical services that are provided to the patient, such as doctor's fees, nurse's fees, administrative fees, and medical equipment usage fees. Item charges, on the other hand, are expenses that are associated with the items that are used during the patient's medical treatment, such as medicines, lab tests, and medical supplies.

Pre-defined service and item charges in a hospital's digital payment system can help ensure that patients are aware of the exact amount they will be charged for each service or item they receive, allowing for greater transparency and reducing the likelihood of surprises or disputes. Additionally, having pre-defined charges can help hospitals better track and manage their finances, providing valuable insights into how money is being spent and identifying potential areas for cost savings.

**Excellence**

- c. The hospital uses a digital portal for patient and/or family member to view provisional / final bills.**

**Interpretation:** A hospital can have an online patient portal or a patient billing portal for patients to securely access their billing information. Through such a portal patients can view their bills, sign up for payment plans, and submit inquiries to hospital billing departments.

A patient billing portal can help promote transparency and enhance patient experience. It can help patients to have easy access to their healthcare bills, to understand what they are being charged for, and how much they owe. A digital portal can also help reduce the number of billing inquiries that hospital staff receive, as patients can easily access their bills online and have their questions answered without having to call the hospital.

**Commitment**

- d. The hospital uses a digital mechanism to periodically update the patient on their billing records.**

**Interpretation:** Digital notifications (For example, patient portal, SMS, WhatsApp etc.) on updated billing records are automated alerts sent to hospital staff or patients when there have been changes to their billing information. These notifications shall be sent via email, SMS, or mobile app and are important because they help to ensure that the billing process runs smoothly and accurately.

By receiving digital notifications on updated billing records, hospital staff and patients can quickly and easily stay up to date on any changes to their healthcare costs. This can help to prevent billing errors, reduce the risk of overcharges or undercharges, and can help to eliminate confusion or misunderstandings about healthcare costs.

**CORE**

- e. The hospital uses a digital standardized billing template.**

**Interpretation:** A digital standardized billing template is a pre-designed document that contains all the necessary fields to record a patient's medical expenses in a hospital. It is an important tool that can help hospitals to streamline their billing processes and ensure accuracy in their financial transactions.

With a digital standardized billing template, hospitals can easily record and track all the services provide to a patient, from the initial consultation to the final discharge. This helps to eliminate errors and reduce the risk of financial losses due to incorrect billing. It also ensures that patients are billed accurately for the services they receive, and that they are not overcharged or undercharged.

**Commitment**

**f. The hospital uses a digital system to manage insurance claims.**

**Interpretation:** A digital system to manage insurance claims in a hospital is a software application designed to streamline the process of managing insurance claims for patients receiving medical care. Such a digital system allows hospitals to efficiently manage claims, reduce paperwork, and speed up the billing process.

Digital systems can also help to reduce errors and fraud, making it easier for both patients and providers to trust the claims process.

**Excellence**

**g. The hospital uses a digital mechanism to notify and update about the TPA / insurance /empaneled agencies process(es) to the patient and/or family member.**

**Interpretation:** A digital notification (For example, message, e-mail, app alert) for TPA/insurance process is a way to keep patients informed about the status of their insurance claims and other related processes. This type of notification is usually sent via email, text message, or through an app to inform patients about any updates regarding their insurance claims.

Digital notifications keep patients up to date on the status of their insurance claims, which can help reduce anxiety and uncertainty. Additionally, it aids patient in staying informed about their healthcare expenses by providing them with information regarding any out-of-pocket expenses that they may incur.

Digital notifications can help hospitals by reducing the number of phone calls and inquiries they receive from patients about their insurance claims. This can free up time for providers to focus on delivering care to patients.

**Excellence**

**H. The hospital uses a digital system to route its claim through Health Claims Exchange (HCE).**

**Interpretation:** The Health Exchange Platform is a digital public good that aims to digitize the health insurance industry. It is a simplified workflow with standardized communication protocol between payer and provider to enable digitization of claims processing for health insurance, in accordance with IRDAI guidelines.

The current health insurance claims settlement process in the country is mostly manual, non-digital and laborious in nature posing challenges at every stage. The current process of exchanging claims lacks standardization across the ecosystem with most data exchange occurring through PDF/manual methods and processes vary significantly among Insurers, TPAs, and Providers leading to high cost of processing each claim. To tackle these key challenges and streamline the process of claim settlement, NHA has developed a national Health Claims Exchange (HCX) to enable interoperability of health claims. The HCX serves as a protocol for exchanging claims-related information among various actors, including payers, providers, beneficiaries, regulators, and observers. It is designed to be interoperable, machine-readable, auditable, and verifiable which helps ensure that the information being exchanged is accurate and trustworthy. HCX will act as a gateway (with validation and routing capabilities).

# Chapter 7

## Human Resource Management (HRM)

### 7.1 Intent of Chapter

The most important resource of the organization is its human resource. Human resources are an asset for the effective and efficient functioning of the organization. The management plans on identifying the right number and skill mix of staff required to render safe care to the patients.

The hospital uses a digital system to efficiently manage their activities around human resources. Recruitment of staff is accomplished by having a uniform and standardized system. All the recruitment and separation related activities are managed through digital tools including job postings, candidate background verification, offer roll-out etc.

The organization must orient the staff to its environment and orient them to specific duties and responsibilities related to their position. The organization should have a digital system in place to monitor the staff performance.

Employee learning management is conducted through a digital learning management system as well. Employee performance and exit management is also handled through a digital system.

Note: The term “employee” refers to all salaried personnel working in the organization. The term “staff” refers to all personnel working in the organization including employees, “fee for service” medical professionals, part-time workers, contractual personnel, and volunteers.

### SUMMARY OF STANDARDS

HRM.1.	The hospital uses a digital platform to manage the hospital's human resource administration.
HRM.2.	The hospital uses a digital platform to keep track of recruitment and separation related activities.
HRM.3.	The hospital uses a digital system to monitor staff performance.
HRM.4.	The hospital uses a digital system for training needs of the staff.



## 7.2 Digital Health Standards and Objective Elements

### Digital Health Standard

HRM.1.

The hospital uses a digital platform to manage the hospital's human resource administration.

### Digital Health Objective Elements

#### Commitment

- a. The hospital uses a digital system to maintain personal files for all staff, and their confidentiality is ensured.

**Interpretation:** In a hospital, employees' personal files shall contain information such as their contact details, employment history, performance evaluations, trainings and certifications, job duties and responsibilities, benefits and compensation, and other important documentation related to their employment with the hospital.

Digital systems to maintain personal files of employees are a type of HR software that can help hospitals store, organize, and access employee information in an electronic format.

Digital systems can help automate and streamline HR processes, reduce paperwork, prevent data loss, improve data accuracy, and ensure compliance with labor laws and regulations. This can save time and resources for HR departments, increase employee engagement, and help hospitals make better-informed decisions related to staffing, training, and benefits.

#### Excellence

- b. Medical practitioners at the hospital are registered in the Healthcare Professionals Registry under ABDM.

**Interpretation:** Healthcare Professionals Registry (HPR) is a comprehensive repository of registered and verified practitioners. The HPR ensures that only healthcare practitioners are suitably trained and qualified to practice medicine provide clinical services.

#### Commitment

- c. The hospital uses a digital system to manage staff rostering.

**Interpretation:** A digital system to manage staff rostering is a computerized system that enables hospitals to efficiently plan, organize, and manage employee schedules. This system is designed to ensure that the right number of staff is available at the right time, to meet the needs of patients and the hospital.

Managing staff rostering with a digital system can help hospitals to reduce the

administrative burden and workload associated with scheduling staff. It can improve staff satisfaction and engagement, as they can access their schedules remotely and manage their work-life balance more effectively. In addition to the above points, digital system can improve patient care by ensuring that staff is available when needed and can cover any unexpected absences.

## Excellence

### d. The hospital uses a Human Resource Information System (HRIS) for staff to manage their HR and payroll related activities.

**Interpretation:** Digital system Human Resource Information System (HRIS) for staff related services such as to manage leaves, attendance, pay slips, tax information etc. helps streamline the administrative processes involved in managing the workforce. By automating these processes, the hospital's HR department can save time and resources, allowing them to focus on more critical tasks.

By using digital systems, the hospital can avoid errors and discrepancies in calculating employee pay, leave entitlements, and taxation, which could lead to disputes and legal complications.

A digital system can help improve transparency and accountability. Digital records are easier to track and audit, providing employees with clear and concise information about their employment status, entitlements, and tax obligations. This can help build trust between the hospital and its employees.

## Digital Health Standard

### HRM.2.

The hospital uses a digital platform to keep track of recruitment and separation related activities.

## Digital Health Objective Elements

## Excellence

### a. The hospital uses a digital system that is integrated with external job posting websites.

**Interpretation:** External job posting websites are online platforms that allow hospital to advertise their job openings to a wider audience. Examples include Naukri.com, Indeed, Glassdoor, LinkedIn etc. Once integrated with the hospital's digital system they increase the visibility and accessibility of job postings, which can attract a larger pool of qualified candidates. This can be especially helpful for hospitals that are looking to fill specialized roles or positions that require specific qualifications.

Additionally, integrating with these external job posting websites can help streamline the hiring process by allowing applicants to apply directly through the hospital's digital system, which can save time and reduce administrative

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**Excellence**

**b. The hospital uses a digital system to track and manage internal employee referrals for staff.**

**Interpretation:** An online system for tracking and managing internal referrals is a digital system to help hospitals manage the process of referring employees between different departments.

Also, an online employee referral management system can provide hospital administrators with valuable data on referral patterns, which can help them identify areas where improvements can be made.

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**Achievement**

**c. The hospital uses a digital system to manage employee resignation and related process. Auto notifications are triggered to various concerned departments through this system.**

**Interpretation:** A digital system to manage employee resignation process helps hospitals efficiently manage the process from the time an employee submits their resignation to the time they leave the company.

Through a digital system, an employee can submit a resignation letter, which will be automatically sent to the relevant departments for processing. The system can also assist in managing the employee's exit process, such as returning equipment, removing access to systems and facilities, and ensuring that the employee is paid the correct amount.

This digital system can help hospitals to avoid any potential legal issues that may arise from not handling the resignation process correctly.

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**Excellence**

**d. The hospital uses a digital system to provide access to new recruits, after necessary authorization.**

**Interpretation:** Authorization is very important for staff to ensure a smooth induction process at the hospital. It helps to establish the identity of the new hire and verifies that they are authorized to work at the hospital.

Using a digital system helps to ensure that the staff have gone through all the necessary steps to be part of the hospital, including background checks and training. Authorization can also ensure that the new joiners have access to the necessary facilities and systems required to do their jobs effectively.

## Digital Health Standard

HRM.3.

The hospital uses a digital system to monitor staff performance.

## Digital Health Objective Elements

### Excellence

#### a. The hospital uses a digital system for hospital's staff to set goals and KPIs.

**Interpretation:** There are a variety of digital systems that can be used to set employee goals and KPIs for a hospital. This can include human resources information system (HRIS), objective and key results software, goal setting applications etc. to help hospitals track employee performance and automate goal setting and performance review processes.

A digital system to setup employee goals and KPIs ensures that they are aligned with the hospital's mission and strategic objectives. It can also help improve employee performance, engagement, and satisfaction.

A digital system used for setting and tracking KPIs can allow hospital administrators to measure progress towards important metrics such as patient satisfaction and quality of care.

### Excellence

#### b. The hospital uses a digital system to evaluate staff performance.

**Interpretation:** Digital systems provide an efficient and accurate way of collecting and analyzing data, which can lead to more objective and fair assessments of staff performance. They can also provide real-time feedback to staff members, helping them to improve their performance and increase job satisfaction.

Hospitals use a digital system to identify trends in staff performance over time, allowing them to implement targeted training and development programs to address any areas of concern.

## Digital Health Standard

HRM.4.

The hospital uses a digital system for training needs of the staff.

### Digital Health Objective Elements

**Achievement**      a.    **The hospital has a provision of conducting online induction training for staff at the time of joining the hospital.**

**Interpretation:** Digital systems can facilitate and streamline hospital's onboarding process to make it more efficient and effective. There are various ways include digital systems in the onboarding process:

- i.    **Online training modules:** Hospitals can create online training modules that new employees can complete at their own pace. This allows them to learn about hospital policies, procedures, and protocols before they even step foot in the hospital.
- ii.    **Digital handbooks:** Hospitals can create digital handbooks that new employees can access on their smartphones or tablets. These handbooks can provide information about hospital policies, dress codes, and other important information.
- iii.    **Virtual tours:** Digital systems can be used to create virtual tours of the hospital. New employees can take these tours before they start working to get a sense of the layout of the hospital and where everything is located.
- iv.    **Online collaboration tools:** Hospitals can use online collaboration tools to help new employees connect with their colleagues and mentors. These tools can help them ask questions, learn about their roles, and get feedback on their work.

**Achievement**      b.    **In addition to traditional means of learning and training, the hospital deploys digital means to provide periodic in-service trainings to the staff, wherever feasible.**

**Interpretation:** Hospital can use digital training means to train their staff as it offers a more efficient and cost-effective way of learning. Digital training can save time and money, as it eliminates the need for physical materials and travel expenses. Additionally, it allows for more flexible and personalized learning experiences, as staff can complete the training at their own pace and on their own schedule. Digital training can also provide immediate feedback and assessments, which can help staff identify areas for improvement and reinforce their knowledge.

There are many digital trainings means that a hospital can use to train their employees. (For example, e-learning platform, virtual reality (VR) training, augmented reality (AR) training, mobile learning applications, social learning platforms etc.

**Excellence**

**c. The hospital has digital access to different medical journals.**

**Interpretation:** The hospital can have digital access to renewed medical journals (For example, The Journal of Community Health Management (JCHM), Indian Journal of Microbiology, MVP Journal of Medical Sciences etc.). This can be either at institutional or individual level.

**Commitment**

**d. The hospital uses a digital system to maintain staff training records.**

**Interpretation:** Using a digital system to maintain staff training records in a hospital can be a very important decision:

- i. **Easy access:** With a digital system, staff training records can be easily accessed from anywhere at any time. This can save time and reduce the need for physical copies, which can be misplaced or lost.
- ii. **Improved organization:** With digital systems, staff training records can be easily organized and categorized. This can make it easier to find specific information and can help to reduce errors.
- iii. **Increased accuracy:** Digital systems can reduce the likelihood of errors in record-keeping. This is because they can be set up to automatically validate data and ensure that it is entered correctly.
- iv. **Better reporting:** Digital systems can provide more detailed and accurate reporting on staff training records. This can help hospital administrators to identify areas where training needs to be improved and to track staff progress over time.

# Chapter 8

## Information Management System (IMS)

### 8.1 Intent of Chapter

The goal of the information management in the organization is to ensure that the right information is available to the right person at the right time.

Information management includes management of the hospital information system as well as all modalities of information communicated to staff, patients, visitors, and community in general.

Data and information management must be directed to meet the organization's needs and support the delivery of quality patient care. The information needs are provided in an authenticated, secure and accurate manner at the right time and place.

Information management also includes periodic review, revision, and withdrawal of obsolete information to avoid any confusion among staff, patients, and visitors. The hospital uses a digital system to manage patient records. The hospital also uses a clinical decision support system to create customized care plans.

The hospital has clearly laid down policies governing the patient data creation, modification, and access.

### SUMMARY OF STANDARDS

IMS.1.	The hospital uses a digital system that follows defined data standards which are aligned with national and international guidelines.
IMS.2.	The hospital has an IT operation's team and data-driven decision-making process.

## 8.2 Digital Health Standards and Objective Elements

### Digital Health Standard

IMS.1.

The hospital uses a digital system that follows defined data standards, which are aligned with national and international guidelines.

### Digital Health Objective Elements

#### Excellence

- a. The hospital uses a digital system to create health documents in an interoperable Fast Healthcare Interoperability Resources (FHIR) format as recommended by National Resource Centre for EHR Standards (NRCeS).

**Interpretation:** Interoperability in healthcare refers to the ability of different healthcare systems, devices, and applications to communicate and exchange data with each other seamlessly. This means that patient data can be easily shared between healthcare providers, hospitals, and other hospitals regardless of the technology platform they are using.

Exchanges between hospitals can happen only if there is a standard across all institutions. For example, interoperable standard FHIR (Fast Healthcare Interoperability Resources) format shall be used by hospitals to exchange patient information as FHIR is a modern and flexible standard for health data exchange that allows for seamless communication between different healthcare systems and applications, which is crucial for providing coordinated and high-quality care to patients.

FHIR also supports the use of modern web technologies such as RESTful APIs, JSON, and XML, making it easier for developers to build and integrate health applications with other systems. FHIR can help to streamline workflows, reduce duplication of effort, and improve data quality and accuracy.

Additionally, FHIR has been designed with a strong focus on patient privacy and security, which is of utmost importance in the healthcare industry. It includes features such as fine-grained access controls, encryption, and audit logging to ensure that patient data is always protected.

#### Commitment

- b. The hospital uses a digital system to define clinical standards for clinical terminology for the exchange of clinical health information.

**Interpretation:** Clinical standards such as SNOMED CT and WHO ICD are sets of codes and terminology used in healthcare to ensure a consistent and accurate understanding of medical concepts. These standards provide a shared language for healthcare professionals to effectively communicate patient information and diagnoses, reducing the risk of miscommunication and medical errors.



Hospitals shall use SNOMED CT and/or WHO ICD standards to achieve consistency and interoperability of nomenclature across different healthcare settings and systems. By adopting these standards, hospitals can improve patient safety, enhance clinical decision-making, and facilitate information exchange between healthcare providers. They also help to streamline administrative processes and minimize costs associated with data management.

## Excellence

### c. The hospital uses a digital system in which all lab results are tagged against the Logical Observation Identifiers Names and Codes (LOINC) codes.

**Interpretation:** LOINC codes are a universal standard for identifying medical laboratory observations such as tests, measurements, and other clinical observations. Using LOINC codes, healthcare providers can easily exchange and compare laboratory results across different healthcare systems.

Lab results tagged against LOINC codes help to ensure that the results are accurate and consistent, as well as standardized across different healthcare platforms. This, in turn, helps to improve patient care and reduce errors. Additionally, health researchers use LOINC codes to identify and analyzes data from clinical studies.

## Commitment

### d. The hospital uses a digital system that complies to DICOM standards for digital imaging.

**Interpretation:** DICOM is a standard for handling, storing, printing, and transmitting medical imaging information. DICOM enables medical images and associated patient information to be easily transferred between different imaging systems, hospitals, and healthcare providers.

A digital system for complying with DICOM standards in a hospital is essential for efficiency, accuracy, and quality in medical imaging. With a digital system, medical images can be stored and retrieved electronically, enabling physicians to access patient information and imaging data quickly and easily. This can improve patient care by facilitating faster diagnosis and treatment and reducing the risk of errors and delays.

## Commitment

### e. The hospital uses a digital system to capture still image in JPEG and PDF format.

**Interpretation:** Using a digital system to capture data and images in hospital scan help to reduce errors and improve accuracy by eliminating the need for handwritten notes or physical records.

Digital systems can make it easier for medical practitioners and healthcare professionals to access patient information and medical records from anywhere, allowing for more efficient and effective treatment. Using digital systems to capture images in JPEG and PDF format can help to ensure that images are of high quality and can be easily shared with other healthcare providers.

Commitment	<p><b>f. The hospital uses a digital system to capture the mentioned data types in the: MP3, OGG format for audio and MP4/ MOV format for video respectively.</b></p> <p><b>Interpretation:</b> The digital system having a feature to capture data types in the above-mentioned format as it enables hospitals to store and manage patient data more efficiently. This can help reduce the risk of data loss, enhance data security, and enable healthcare providers to access patient data quickly and easily.</p>
Excellence	<p><b>g. The hospital uses a digital consent management system to capture and enforce patient, hospital and jurisdictional privacy policies for hospital, and health information exchange between hospitals.</b></p> <p><b>Interpretation:</b> A digital consent management system is a tool used in hospitals to manage patient consent for the collection, use, and exchange of their personal health information (PHI). This system ensures that patients are informed about how their PHI will be used and that they give their consent before any data is collected or shared.</p> <p>In a hospital setting, it is important to exchange information when there is a need for collaboration between healthcare providers. This can occur when a patient is transferred to another department within the hospital, or when they are referred to a specialist outside of the hospital. The digital consent management system shall ensure that the patient's privacy and confidentiality is protected throughout the data collection and exchange process.</p> <p>Patients can access and share their information using various means. For example, QR code, Bar code, ABDM compliant solutions etc.</p>
Excellence	<p><b>h. The hospital uses a digital system for patients to request for data correction, completion, update, and erasure of their personal data for which they have previously given consent.</b></p> <p><b>Interpretation:</b> The hospital shall be using a digital system for patients to request data correction, completion, update, and erasure in compliance with Digital Personal Data Protection Act, 2023. Such a digital system plays a crucial role in enabling patients to manage their data requests. Few of the advantage include:</p> <p><b>Data Accuracy and Integrity:</b> Hospital data needs to be accurate and up to date to ensure proper patient care. Digital system allows patients to request corrections and updates to their personal information, ensuring that their medical records remain accurate and reliable.</p> <p><b>Patient Empowerment:</b> Digital systems empowers patients by giving them control over their own health information. Patients can actively participate in managing their data, which promotes transparency and trust between patient and hospital.</p>

**Patient-Centric Care:** By enabling patients to request data corrections and updates, digital systems promote a patient-centric approach to healthcare. Providers can tailor treatment plans and medical advice based on accurate and complete patient information, ultimately leading a better healthcare outcome.

**Reduced Risk of Errors:** Digital systems reduce the likelihood of errors that can occur during manual data entry or handling.

When patients are directly involved in the correction and completion process, the chances of incorrect information being included in their records are minimized.

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**Commitment**      **i. The hospital uses a digital system to ensure mandatory fields in healthcare system are identified and filled for any patient record.**

**Interpretation:** Mandatory fields are the required fields that must be filled out in an application. These fields are typically marked with an asterisk (\*) or are otherwise denoted as required. The purpose of mandatory fields is to ensure that all necessary information is provided, and that the application can be processed properly. Common mandatory fields include name, address, phone number, email address, and certain personal or professional information depending on the type of application

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**Commitment**      **j. The hospital uses a digital system that accepts field values in the pre-defined format while creating a patient record.**

**Interpretation:** Defined format refers to standardized formats used for entering different information. For example, Date of birth can be captured in DDMMYY format of DDMMYYYY format or MMDDYY format. Similar Names can be written in <first, middle, last name> or <last, middle, first name>.

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**Commitment**      **k. The hospital uses a digital system to define different templates for clinical and non-clinical usages.**

**Interpretation:** The hospital shall use defined templates in a digital system vitals to streamline clinical and non-clinical processes. These templates can be customized to fit the specific needs of each department and can help to ensure consistency and accuracy in documentation.

For clinical usage, templates can be used for patient charting, admission and discharge forms, and progress notes. These templates can include drop-down menus, pre-populated fields, and standardized formatting to make documentation faster and more efficient.

For non-clinical usage, templates can be used for HR forms, purchasing requests, and performance evaluations. By using standardized templates, employees can

easily access and submit the necessary information, and managers can quickly review and approve requests.

## Digital Health Standard

IMS.2.

The hospital has an IT operation's team and data-driven decision-making process.

## Digital Health Objective Elements

### Commitment

#### a. The hospital has a designated IT team to manage digital operations.

**Interpretation:** The hospital shall have a designated IT team to manage digital operations efficiently. The team shall be responsible for managing and maintaining the hospital's computer systems, networks, and software applications. With the help of an IT team, hospitals can ensure that their electronic health records (EHR) systems are secure and up to date, which is critical to protecting patient data. Additionally, the IT team can help hospitals implement new technologies that can improve patient care and streamline operations, such as telemedicine and electronic prescribing.

### Excellence

#### b. The hospital has defined a role for Data Protection Officer (DPO)

**Interpretation:** The hospital shall appoint a Data Protection Officer to ensure the privacy and security of sensitive patient information and other personal data in compliance with Digital Personal Data Protection Act, 2023.

A DPO is responsible for overseeing data protection and privacy matters within the hospital. They serve as a point of contact between the hospital, Data Principle (individual to whom the personal data relates), and regulatory authorities.

### Achievement

#### c. The hospital uses a clinical decision support system to create customized care plans.

**Interpretation:** The hospital shall use a clinical decision support system (CDSS) to provide healthcare professionals with assistance in making clinical decisions by providing patient-specific information and recommendations. Some examples of CDSS include drug interaction alert systems, clinical guidelines, and diagnostic decision support systems.

CDSS can improve patient outcomes, reduce medical errors, and increase efficiency in the delivery of care. CDSS can also improve communication between healthcare providers and patients, increase patient satisfaction, and reduce healthcare costs. Additionally, CDSS can provide decision support for complex

medical conditions, such as cancer or chronic diseases, which can be difficult to diagnose and treat.

## Commitment

### d. The hospital uses a digital dashboard to measure the quality-of-care delivery.

**Interpretation:** Digital hospital dashboards are tools that allow hospitals to monitor and measure their quality-of-care delivery in real-time. These dashboards can provide an overall picture of the hospital's performance, enabling healthcare providers to make data-driven decisions.

Digital hospital dashboards can help hospitals to improve patient outcomes and drive performance improvement. By monitoring key metrics (For example, turnaround time, wait time per person, infection control indicator etc.) in a dynamic and interactive manner, healthcare providers shall identify areas of improvement and take action to address them. This can lead to better patient outcomes, increased patient satisfaction, and reduced healthcare costs.

## Excellence

### e. The hospital has a defined IT budget to manage existing IT infrastructure and undertake future IT projects.

**Interpretation:** The hospital shall allocate budget for its information technology needs. This could include IT infrastructure, hardware, software, and personnel to support the efficient management of digital operations.

Investing in IT can help hospitals to improve patient outcomes, increase efficiency, and reduce costs. A well-planned IT budget can ensure that hospitals have the resources they need to stay at the forefront of healthcare innovation and provide the best possible care to their patients.

## Excellence

### f. The hospital uses a digital system to show different types of analytical dashboards.

**Interpretation:** An analytical dashboard (For example, descriptive, diagnostics, predictive, and prescriptive) is a tool that can provides a visual representation of key performance indicators or metrics that are important to a hospital. An analytical dashboard shall help hospital administrators and healthcare providers make informed decisions by providing real-time insights into patient care, resource utilization, financial performance, and more.

For example, an analytical dashboard can display important metrics such as the number of patients admitted, discharged, and transferred, the average length of stay, patient satisfaction scores, and resource utilization rates. Healthcare providers can use this information to identify areas for improvement and make data-driven decisions that can lead to better patient outcomes.

Additionally, an analytical dashboard can be integrated with electronic health records (EHRs) and other healthcare information systems to provide a comprehensive view of patient care across the hospital.

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**Excellence**

- g. The hospital uses a HIMS that is capable of interfacing with third-party systems like research institutions, medical college for research and development purposes etc.**

**Interpretation:** Integration with different systems enables HIMS to share patient information and other data seamlessly across different platforms.

This is particularly important in the case of research institutions, where the availability of accurate and timely data is critical for conducting medical research and discovering new treatments. With HIMS, hospitals can easily share patient information with research institutions, helping them to develop new medical therapies and treatments.

Moreover, HIMS can help healthcare providers to manage patient data more effectively, ensuring that it is accurate, up-to-date, and easily accessible. This is essential for ensuring that patients receive the right care at the right time, and that healthcare providers have access to all the information they need to make informed decisions.

## GLOSSARY

Term	Definition
ABDM	<p><b>Ayushman Bharat Digital Mission</b></p> <p>The Ayushman Bharat Digital Mission is a program launched by the Government of India on 15th August 2020 to bring in a digital revolution in the healthcare sector. This mission aims to create a digital health ecosystem that will benefit millions of people across the country. It aims to achieve this by creating a digital infrastructure that will allow the easy exchange of healthcare data, making healthcare services more accessible and affordable. The mission will also create a unique health ID for every citizen, which will help in creating a digital health profile that can be easily accessed by clinicians. Overall, the Ayushman Bharat Digital Mission is a significant step towards creating a more efficient and accessible healthcare system in India.</p> <p>ABDM aims to develop the backbone necessary to support the integrated digital health infrastructure of the country. It will bridge the existing gap amongst different stakeholders of healthcare ecosystem through digital highways.</p>
ABHA	<p><b>Ayushman Bharat Health Account</b></p> <p>Ayushman Bharat Health Account (ABHA) or Health ID is an initiative of the Indian government under the Ayushman Bharat Digital Mission (ABDM) for Indian citizens to establish a centralized database of all their health-related data. Ayushman Bharat Health Account is a health savings account that is part of the Ayushman Bharat Yojana, a health insurance scheme launched by the Government of India. The scheme aims to provide financial protection to people who are vulnerable and have limited access to healthcare services. The Health Account allows beneficiaries to deposit funds that can be used to pay for healthcare expenses that are not covered by the insurance scheme. The amount can also be used to pay for preventive healthcare services.</p>
Analytical dashboard	<p>An analytical dashboard (For example, descriptive, diagnostics, predictive, and prescriptive) is a tool that can provides a visual representation of key performance indicators or metrics that are important to a hospital.</p>
AP	<p><b>Account Payable</b></p> <p>When a company purchases goods on credit which needs to be paid back in a short period of time, it is known as Accounts Payable. It is treated as a liability and comes under the head 'current liabilities.' Accounts Payable is a short-term debt payment which needs to be paid to avoid default.</p>

Term	Definition
API	<p>Application Programming Interface</p> <p>An application programming interface (API) is a way for two or more computer programs to communicate with each other. It is a type of software interface, offering a service to other pieces of software.</p>
Critical lab values	<p>Critical lab values are results that indicate an urgent and often life-threatening health issue, such as extremely high or low levels of certain chemicals or substances in the body. By receiving these alerts, patients and physicians can work together to develop a treatment plan that addresses the issue quickly, potentially saving the patient's life or preventing serious complications. In addition, timely notification of critical lab value alerts can help improve patient satisfaction and trust in the healthcare system, as it demonstrates a commitment to patient safety and well-being.</p>
Clinical decision support system (CDSS)	<p>The hospital shall use a clinical decision support system (CDSS) to provide healthcare professionals with assistance in making clinical decisions by providing patient-specific information and recommendations. Some examples of CDSS include drug interaction alert systems, clinical guidelines, and diagnostic decision support systems.</p>
Core Health Care Applications	<p>Core Healthcare Applications</p> <p>Core healthcare applications refers to the fundamental and essential uses of technology in the field of healthcare to improve patient care, streamline processes, and enhance overall healthcare delivery. These applications span various areas within healthcare and can include, Electronic Health Records (EHRs), Clinical Decision Support Systems (CDSS), Health Information Exchange (HIE), Picture Archiving and Communication Systems (PACS), Laboratory Information System (LIS), Radiology Information Systems (RIS), Hospital Information System (HIS) etc.</p>
CPOE	<p>Computerized Provider Order Entry</p> <p>Computerized provider order entry, sometimes referred to as computerized physician order entry or computerized provider order management, is a process of electronic entry of medical practitioner's instructions for the treatment of patients under his or her care - including medication, laboratory, and radiology orders</p>



Term	Definition
CSSD	<p>Central Sterile Supply Department</p> <p>An integrated place in hospitals and other health care facilities that performs sterilization and other actions on medical devices, equipment, and consumables; for subsequent use by health workers in the operating theatre of the hospital and for other aseptic procedures, e.g., catheterization, wound stitching and bandaging in a medical, surgical, maternity, or pediatric ward.</p>
DICOM	<p>Digital Imaging and Communications in Medicine</p> <p>DICOM is the standard for the communication, management and exchange of medical imaging information and related data. It is used in medical imaging to enable the integration of medical imaging devices, such as MRI machines, CT scanners, and ultrasound machines, with medical image processing and analysis software. DICOM enables the sharing of medical images and information between different healthcare organizations, ensuring that medical images can be viewed and analyzed by healthcare professionals around the world.</p>
Digitalization / Digital system	<p>Digitalization is the transformation of processes, activities, and objects into a digital format, allowing for easier access, storage, and manipulation of data. It involves the integration of digital technologies into all aspects of business operations, resulting in increased efficiency and productivity.</p> <p>Digitalization involves a complete rethinking of how organizations operate and how they can leverage technology to improve their business models. By embracing digitalization, companies can stay competitive in an increasingly digital world.</p> <p>There are numerous ways that digitalization is being used in healthcare organization to improve patient care and healthcare operations. One of the most common use cases is the implementation of electronic health records (EHRs), which allows clinicians to access patient information quickly and easily.</p> <p>Other use cases of digitalization in healthcare organization include telemedicine, which allows patients to receive care remotely via videoconferencing or other technologies, and digital imaging, which enables clinicians to view and analyze medical images such as X-rays and MRIs on a computer screen.</p> <p>Another area where digitalization is being used is in patient engagement and education, where healthcare organization are using mobile apps and other technologies to help patients manage their health, access educational resources, and communicate with their healthcare team.</p> <p>Digitalization and digitization are often used interchangeably, but they refer to different things. Digitization is the process of converting analog information into digital form, such as scanning a physical document and creating a digital copy of it.</p>

Term	Definition
	<p>Digitalization, on the other hand, refers to the broader transformation of various aspects of society, business, and culture to digital technologies and processes. It involves the integration of digital technologies and data into every aspect of an organization's operations, from customer service and marketing to production and supply chain management.</p> <p>In simpler terms, digitization is about converting physical information into digital form, while digitalization is about using digital technologies to improve and transform the way we live, work, and interact with each other.</p>
Digital standardized billing template	A digital standardized billing template is a pre-designed document that contains all the necessary fields to record a patient's medical expenses in a hospital. It is an important tool that can help hospitals to streamline their billing processes and ensure accuracy in their financial transactions.
Digital system	A digital system to manage inventory is a software-based solution that allows hospitals to keep track of all their supplies and equipment in real-time. It is a crucial tool for hospitals because inventory management is essential for ensuring that patients receive the care they need on time.
Digital consent management system	A digital consent management system is a tool used in hospitals to manage patient consent for the collection, use, and exchange of their personal health information (PHI). This system ensures that patients are informed about how their PHI will be used and that they give their consent before any data is collected or shared.
Digital hospital dashboards	Digital hospital dashboards are tools that allow hospitals to monitor and measure their quality- of-care delivery in real-time. These dashboards can provide an overall picture of the hospital's performance, enabling healthcare providers to make data-driven decisions.
Digital Signatures	<p>There can be several options for digital signatures:</p> <ol style="list-style-type: none"> <li>Electronic signatures: These are the most basic type of digital signature. They involve using a digital image of a handwritten signature or a typed name as a way of indicating agreement or authorization.</li> <li>Advanced electronic signatures (AES): These are more secure than regular electronic signatures and are often used in situations where a higher level of security is required. AES typically involves using a digital certificate to encrypt the signature, making it more difficult to tamper with.</li> <li>Digital certificates: These are used to verify the identity of the signer and ensure the integrity of the signed document. Digital certificates are issued by trusted third-party organizations called Certificate Authorities (CAs).</li> <li>Biometric signatures: These involve using unique personal characteristics, such as fingerprints or facial recognition, to authenticate the signer.</li> </ol> <p>Blockchain-based signatures: These are a relatively new type of digital signature that uses blockchain technology to create a secure, tamper-proof record of the signature.</p>

Term	Definition
Disaster recovery plan	A disaster recovery plan is a set of procedures and protocols designed to help hospitals, to recover and resume operations as quickly as possible in the event of a disaster, such as a natural disaster, cyber-attack, or a power outage.
ECG	Electrocardiogram An electrocardiogram records the heart's electrical activity through repeated cardiac cycles.
EEG	Electroencephalogram A test that measures the spontaneous electrical activity of the brain using small, metal discs (electrodes) attached to the scalp.
eMARs	Electronic Medication Administration Record and Scheduling It aims to distribute medication and treatments safely, efficiently, and cost-effectively. The technology documents all medication processes, allowing facilities to track medication-related issues in their long-term care software.
Employees	In the book employee is considered as individual working on non-clinical dimensions
EMR	Electronic Medical Records An electronic (digital) collection of medical information about a person that is stored on a computer. An electronic medical record includes information about a patient's health history, such as diagnoses, medicines, tests, allergies, immunizations, and treatment plans.
Encryption of hospital data	Encryption of hospital data is the process of converting sensitive patient information into an unreadable format that can only be deciphered with a specific key or password. This is done to ensure the security and privacy of patient data, as it prevents unauthorized access and keeps the information safe from hackers or other outside threats
ER	Emergency Room A department in a hospital where people who have severe injuries or sudden illnesses are taken for emergency treatment.

Term	Definition
FHIR	<p>Fast Healthcare Interoperability Resources</p> <p>Fast Healthcare Interoperability Resources, or FHIR, is a standard for exchanging healthcare information electronically. It is designed to make it easier for different healthcare systems to share and exchange data with each other. FHIR uses modern web technologies, such as RESTful APIs, to allow healthcare organizations to securely access patient data from other systems. This can improve patient care coordination and enable more efficient healthcare workflows. FHIR is a set of rules and specifications for exchanging electronic health care data/ information electronically. FHIR provides a means for representing and sharing information among clinicians and organizations in a standard way regardless of the ways local EHRs represent or store the data. FHIR combines the best features of previous standards into a common specification, while being flexible enough to meet the needs of a wide variety of use cases within the health care ecosystem. FHIR focuses on implementation and uses the latest web technologies to aid rapid adoption.</p>
GRN	<p>Goods Receipt Notes</p> <p>A document that acknowledges the delivery of goods to a customer by a supplier. A GRN consists of a record of goods that the buyer has received. This record helps the customer compare the goods delivered against the goods ordered.</p>
HCX / HEX	<p>National Health Claims Exchange</p> <p>The National Health Claims Exchange (NHCE) is a digital platform under the Ayushman Bharat Digital Mission (ABDM) in India that serves as a central repository for health insurance claims. It aims to digitize and streamline the process of health insurance claims by creating a paperless and secure environment for all stakeholders involved in the claims process, including insurers, hospitals, and beneficiaries. The NHCE will help in improving transparency, reducing fraud, and increasing efficiency in the healthcare sector. The HCX serves as a protocol for exchanging claims-related information among various actors, including payers, providers, beneficiaries, regulators, and observers.</p>
HFR	<p>Health Facility Registry</p> <p>It is a comprehensive repository of health facilities of the nation across different systems of medicine. It includes both public and private health facilities including hospitals, clinics, diagnostic laboratories and imaging centers, pharmacies, etc.</p>
HIV	<p>Human immunodeficiency virus</p> <p>Human immunodeficiency virus (HIV) is a chronic infection that attacks the body's immune system, specifically the white blood cells called CD4 cells.</p>

Term	Definition
HL7	<p>Health Level Seven</p> <p>Health Level 7 (HL7) is a set of international standards for the exchange, integration, sharing, and retrieval of electronic health information. It's used in healthcare settings to facilitate communication between various healthcare systems, such as electronic health records (EHRs), medical devices, and other healthcare applications. The HL7 standards ensure that health information is transferred accurately, securely, and in a standardized format, which can improve patient care and help healthcare organizations operate more efficiently. The standards are produced by Health Level Seven International, an international standards organization, and are adopted by other standards issuing bodies such as American National Standards Institute and International Organization for Standardization.</p>
HR	<p>Human Resource</p> <p>Human resource is the set of people who make up the workforce of an organization, business sector, industry, or economy. A narrower concept is human capital, the knowledge, and skills which the individual's command.</p>
HRIS	<p>Human Resource Information System</p> <p>A form of Human Resources software and a centralized repository of employee master data that combines a number of systems and processes to ensure the easy management of human resources, business processes and data.</p>
HSP	<p>Healthcare Service Provider</p> <p>A health care provider is an individual health professional, or a health facility organization licensed to provide health care diagnosis and treatment services including medication, surgery, and medical devices.</p>
HTTPS	<p>Hypertext Transfer Protocol Secure</p> <p>A protocol that secures communication and data transfer between a user's web browser and a website. It uses encryption for secure communication over a computer network and is widely used on the Internet.</p>
ICD	<p>International Classification of Diseases</p> <p>The International Classification of Diseases is a globally used diagnostic tool for epidemiology, health management and clinical purposes. The ICD is originally designed as a health care classification system, providing a system of diagnostic codes for classifying diseases, including nuanced classifications of a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or disease.</p>

Term	Definition
ICT	<p>Information and Communication Technology</p> <p>An extensional term for information technology (IT) that stresses the role of united communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage, and audio-visual, that enable users to access, store, transmit, understand, and manipulate information. It is maintained by the World Health Organization (WHO) and used globally for statistical analysis and tracking of diseases and health conditions. The ICD is currently in its 11th edition and is regularly updated to reflect changes in medical practices and emerging health concerns.</p>
ICU	<p>Intensive Care Unit</p> <p>An organized system for the provision of care to critically ill patients that provides intensive and specialized medical.</p>
ID	<p>Identification Data</p> <p>Personal data allowing a data subject to be directly identified</p>
IPD	<p>In-patient Department</p> <p>Part of a healthcare facility or hospital where patients are admitted for over 24 hours. An IPD of the hospital is generally fitted with beds, medical equipment, and 24×7 availability of doctors and nurses.</p>
IT	<p>Information Technology</p> <p>Information technology (IT) is the use of computers to create, process, store, retrieve and exchange all kinds of data and information.</p>
IT Infrastructure	<p>IT infrastructure refers to the composite hardware, software, network resources and services required for the existence, operation, and management of an enterprise IT environment.</p>
KPI	<p>Key Performance Indicators</p> <p>A measurable and quantifiable metric used to track progress towards a specific goal or objective. These are the critical (key) quantifiable indicators of progress toward an intended result.</p>

Term	Definition
LOINC	<p>Logical Observation Identifiers Names and Codes</p> <p>Logical Observation Identifiers Names and Codes, or LOINC, is a universal code system for identifying medical laboratory observations and clinical measurements. It is used to standardize the identification of test results and measurements, which helps to improve the accuracy and efficiency of medical data exchange between healthcare organizations and patients. LOINC codes are used to uniquely identify laboratory and clinical observations in electronic health records (EHRs), billing systems, public health reporting, and research studies.</p>
Master Data	<p>Master data is the set of identifiers that provides context about business data such as location, customer, product, asset, etc.</p>
MCI	<p>Medical Council of India</p> <p>The Medical Council of India was a statutory body for establishing uniform and high standards of medical education in India until its dissolution on 25 September 2020 when it was replaced by National Medical Commission.</p>
MIS	<p>Management Information System</p> <p>An information system used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization. The study of the management information systems involves people, processes, and technology in an organizational context.</p>
MLC	<p>Medico Legal Case</p> <p>A Medico-Legal Case can be defined as a case of injury or ailment, etc., in which investigations by the law-enforcing agencies are essential to fix the responsibility regarding the causation of the injury or ailment.</p>
MoU	<p>Memorandum of Understanding</p> <p>A type of agreement between two or more parties. It expresses a convergence of will between the parties, indicating an intended common line of action.</p>
MOV	<p>QuickTime video format</p> <p>A MOV file is one of the most common video file types, often storing a movie, TV show, short video clip, or home movie.</p>
MP3	<p>MPEG Audio Layer 3</p> <p>A data compression coding format for encoding digital audio to enable digital storage and transmission.</p>
MP4	<p>MPED-V Advanced Video Coding</p> <p>A digital multimedia container format most used to store video and audio, but it can also be used to store other data such as subtitles and still images.</p>

Term	Definition
MRN	<p>Material Receipt Note</p> <p>A written record that indicates the receiving details of materials from a supplier to the inventory location. Material receipt note represents a transaction that took place when the hardware items are supplied from a supplier and delivered at the inventory location. The MRN usually includes, various items, quantity of each item, date, order number, supplier name and inventory location name.</p>
MSME	<p>Ministry of Micro, Small and Medium Enterprises</p> <p>MSME was introduced by the Government of India in agreement with the MSMED (Micro, Small, and Medium Enterprises Development) Act of 2006. As per this act, MSMEs are the enterprises involved in the processing, production, and preservation of goods and commodities.</p>
MTP	<p>Medical Termination of Pregnancy</p> <p>A legalized method of termination of pregnancy, intentionally, before its full term. It is also known as induced abortion or intentional or voluntary termination of pregnancy.</p>
Nursing notes	<p>Nursing notes are a narrative written summary of a given nursing care encounter. This might include a description of a nursing visit, a specific care event, a summary of care, nursing care plans and records of nursing risk management. The system could address components of nursing care plan and include, Assessment, Plan of care, Implementation of care, Evaluation and Modification of plan of care as may be required.</p>
NACO	<p>National AIDS Control Organization</p> <p>NACO is the nodal organization and a division of the Ministry of Health and Family Welfare for National AIDS response in India.</p>
NHA	<p>National Health Authority</p> <p>National Health Authority (NHA) is the apex body responsible for implementing India's flagship public health insurance/assurance scheme called "Ayushman Bharat Pradhan Mantri Jan Arogya Yojana" &amp; has been entrusted with the role of designing strategy, building technological infrastructure and implementation of "National Digital Health Mission" to create a National Digital Health Eco-system.</p>
NRCeS	<p>National Resource Centre for EHR Standards</p> <p>MoHFW has established a Centre of Excellence named as National Resource Centre for EHR Standards (NRCeS) at C-DAC, Pune to accelerate and promote adoption of EHR standards in India.</p> <p>NRCeS is a single point of contact for assistance in developing, implementing and using EHR standards in India. It provides the knowledge base for EHR Standards and associated resources and facilitates acceptance of and adherence to EHR standards. It also offers different services to facilitate adoption of the entire set of notified EHR Standards for India in healthcare applications.</p>



Term	Definition
OGG	Ogg Vorbis Compressed Audio File A free, open container format which is unrestricted by software patents and designed to provide for efficient streaming and manipulation of high-quality digital multimedia.
OPD	Out-patient Department Part of a hospital designed for the treatment of outpatients, people with health problems who visit the hospital for diagnosis or treatment, but do not at this time require a bed or to be admitted for overnight care.
OT	Operating Theatre A facility within a hospital where surgical operations are carried out in an aseptic environment.
OTP	One-time password A one-time authorization code or dynamic password, that is valid for only one login session or transaction, on a computer system or other digital device.
PAC	Pre-Anaesthesia Check-up The process of clinical assessment that precedes the delivery of anaesthesia for surgical and nonsurgical procedures.
PACS	Picture Archiving and Communication Systems A medical imaging technology which provides economical storage and convenient access to images from multiple modalities.
PEP	Post-Exposure Prophylaxis Post-exposure prophylaxis, also known as post-exposure prevention (PEP), is any preventive medical treatment started after exposure to a pathogen in order to prevent the infection from occurring.
PHR	Personal Health Record A personal health record is an electronic health record where health data and other information related to the care of a patient is maintained by the patient.
Patient Data Encryption	There are several ways in which patient data can be encrypted: Symmetric Encryption: This method uses a single key to encrypt and decrypt data. The same key is used by both the sender and the recipient, making it easy to use but less secure than other methods. Asymmetric Encryption: This method uses two keys, one public and one private, to encrypt and decrypt data. The sender uses the recipient's public key to encrypt data, and the recipient uses their private key to decrypt it. This method is more secure than symmetric encryption. Hashing: This method creates a unique digital fingerprint of the data that cannot be reversed to its original form. While hashing is not technically encryption, it can be used to verify the integrity of data.

Term	Definition
RIS	<p>Radiological Information System</p> <p>A radiological information system is the core system for the electronic management of imaging departments. The major functions of the RIS can include patient scheduling, resource management, examination performance tracking, reporting, results distribution, and procedure billing.</p>
Single sign-on (SSO)	<p>Single sign-on (SSO) is a technology that enables users to authenticate themselves once, using one set of login credentials, to gain access to multiple applications and systems</p>
SNOMED CT	<p>Systematized Nomenclature of Medicine Clinical Terms</p> <p>The Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) is a comprehensive and universal clinical terminology system used by healthcare professionals to accurately record, store, and exchange clinical information across different healthcare settings and systems. It consists of clinical concepts and terms that are organized into hierarchies and relationships, allowing health professionals to communicate clinical information in a more consistent and accurate manner. SNOMED CT is designed to support clinical decision-making, improve patient safety, and enhance the interoperability of healthcare information systems.</p>
Software update	<p>A software update is a new version of a software product that is released to fix bugs, address security vulnerabilities, and improve performance. Whereas a software upgrade is a more significant change to the software, usually with new features and functionality.</p>
SOP	<p>Standard Operating Procedure</p> <p>A standard operating procedure is a set of step-by-step instructions compiled by an organization to help workers carry out routine operations. SOPs aim to achieve efficiency, quality output, and uniformity of performance, while reducing miscommunication and failure to comply with industry regulations.</p>
Staff	<p>In the book staff is considered as individual working on clinical dimensions</p>
TPA	<p>Third Party Administrator</p> <p>A company that provides operational services such as claims processing and employee benefits management under contract to another company.</p>
Two-factor authentication	<p>Two-factor authentication is a security process that requires users to provide two different authentication factors to access IT systems. Typically, this involves something the user knows, such as a password, and something the user has, such as a mobile device or security token.</p>

Term	Definition
UHI	<p>United Health Interface</p> <p>United Health Interface (UHI) is a digital platform developed by the Indian government to facilitate the integration of various health information systems across the country. ABDM (Ayushman Bharat Digital Mission) is a flagship initiative of the Indian government aimed at providing affordable healthcare to the underprivileged sections of society.</p> <p>The UHI platform is part of ABDM and serves as a common interface for healthcare organizations, insurers, and beneficiaries. It enables the secure exchange of health information, including medical records, prescription details, and payment information, among all stakeholders in the healthcare ecosystem. The platform also incorporates various data analytics tools to provide insights into healthcare delivery and utilization patterns, enabling policymakers to make informed decisions.</p>
UHID	<p>Unique Health Identification</p> <p>A system used in healthcare to assign a unique identification number to each patient to track a patient's medical history and ensure accurate record-keeping.</p>
UPS	<p>Uninterruptible Power Supply</p> <p>A type of continual power system that provides automated backup electric power to a load when the input power source or mains power fails.</p>
VPN	<p>Virtual Private Network</p> <p>A mechanism for creating a secure connection between a computing device and a computer network, or between two networks. A secure, apparently private network is achieved using encryption over a public network (typically the internet)</p>
WHO	<p>World Health Organization</p> <p>A specialized agency of the United Nations responsible for international public health. The World Health Organization sets standards for disease control, health care, and medicines; conducts education and research programs; and publishes scientific papers and reports.</p>
6 R	<p>Right patient: Ensuring that the patient receiving the healthcare services is the intended person with correct patient ID, demographic, and clinical data.</p> <p>Right medication: Administering the correct medication to the right patient in the right dose, frequency, and route.</p> <p>Right dose: Determining the appropriate dose of medication based on the patient's age, weight, and medical condition.</p> <p>Right route: Selecting the appropriate route of medication administration such as oral, intravenous, intramuscular, or subcutaneous.</p> <p>Right time: Administering medications at the prescribed time to ensure that the patient receives the intended therapeutic effect</p> <p>Right documentation: Documenting all the aspects of medication administration help minimizing the risk to patients.</p>

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# Key Performance Indicators (KPI)

Key Performance Indicators (KPI)										
S. No.	Indicator	Indicator Brief	Inclusion Criteria	Exclusion Criteria	Formula	Unit	Frequency of data collation/	Corresponding Digital OE	Category	Remarks
1	Digital Appointment	The hospital uses a digital system for patient appointments	OPD consultations	All emergency visits, dialysis visits, chemotherapy visits, vaccination visits, wound-dressing or antibiotic therapy visits, diagnostic visits, i.e., all those consultations that do not require direct clinician consultation	$\{ \text{Number of OPD consultations booked digitally (either telephonically, through website or app)} / \text{Total number of OPD consultations including walk-ins} \} * 100$	Percentage	Monthly	AAC 3.a The hospital uses a digital system for booking an appointment by the patients.	Silver, Gold, Platinum	The hospital should be using a HIMS/EMR system or any other digital system to book digital appointments
2	ABHA Creation	The hospital uses ABDM compliant HIMS to create ABHA account for their patients.	New ABHA accounts created by healthcare organization	Existing patient ABHA account	$\text{Number of ABHA created by the healthcare organization}$	Number	Monthly	AAC 2.c The hospital uses a digital system that has the capability to generate and capture ABHA of the patient and link it to the unique patient identifier.	Gold, Platinum	The hospital should be using any ABDM compliant system to capture ABHA of the patient

3	Digital Prescription	Hospital provides clinicians with a digital system to create prescriptions for OPD	OPD consultations	All emergency visits, dialysis visits, chemotherapy visits, vaccination visits, wound-dressing or antibiotic therapy visits, diagnostic visits, i.e., all those consultations that do not require direct doctor consultation	(Number of digital OPD prescriptions / Total number of OPD consultations) * 100	Percentage	Monthly	COP 1.b The hospital uses a digital system for treating medical practitioner to create OPD prescriptions and consultation notes.	Silver, Gold, Platinum	Hospital should be using a HIMS / EMR system to create OPD prescriptions
4	Digital Nursing Notes	Hospital uses a digital system for nurses to capture patient history and create nursing notes	IPD	NA	(Number of digital nursing notes / Total number of nursing notes prepared for patients) * 100	Percentage	Monthly	COP 2.b The hospital uses a digital system to manage and record nursing care plans for IPD patients.	Gold, Platinum	Hospital should be using a HIMS / EMR system for nursing notes
5	IPD Digital Feedback	Hospital uses a digital system to capture IPD patient feedback	Feedbacks collected by way of SMS, kiosk, IVRS, etc.	Feedbacks collected on paper or verbal feedbacks are excluded	(Number of unique discharges that are accompanied by at least one digital feedback / Total number of unique discharges) * 100	Percentage	Monthly	AAC 8.a The hospital uses a digital system to collect patient and/or family member's feedback.	Silver, Gold, Platinum	The hospital should be using HIMS / EMR system to capture patient feedback

6	OPD Digital Feedback	Hospital uses a digital system to capture patient feedback for all the OPD patients that avail the consultation facilities of the healthcare organization	Patients digital feedback	All emergency visits, dialysis visits, chemotherapy visits, vaccination visits, wound-dressing or antibiotic therapy visits, diagnostic visits, i.e., all those consultations that do not require direct doctor consultation	(Number of unique consultations that are accompanied by at least one digital feedback / Total number of unique consultations) * 100	Percentage	Monthly	AAC 8.a The hospital uses a digital system to collect patient and/or family member's feedback.	Silver, Gold, Platinum	Hospital should be using digital patient feedback system
7	Digital IPD Billing	Hospital uses a digital system to create bills for IPD patients	Discharge Bills created on digital system for IPD	NA	(Number of discharge bills created digitally / Total number of discharges) * 100	Percentage	Monthly	FPM 3.e The healthcare organization uses a digital standardized billing template.	Silver, Gold, Platinum	Hospital should be using HIMS or any digital billing system to generate patient bills
8	Digital Discharge Summaries/ LAMA	Hospital uses a digital system to create digital discharge summaries	Digital discharge summaries include summaries captured on digital system and do not include the summaries created on paper	NA	(Number of discharge summaries created digitally / Total number of unique patient discharges) * 100	Percentage	Monthly	AAC 7.a The hospital uses a digital system through which the primary treating medical practitioners can request and update their patient's discharge information.	Silver, Gold, Platinum	Hospital should be using a HIMS / EMR system to create patient discharge summary

9	System uptime	Average system uptime for critical healthcare systems/applications shall be 99% including scheduled maintenance	Critical healthcare systems	Non-critical systems and hardware	(Total system uptime in hours (for core healthcare application) / Total time-planned downtime) * 100	Percentage	Monthly	DOM 2.c The hospital uses a digital system to monitor the performance of different healthcare applications.	Gold, Platinum	The hospital must be using system monitoring applications to track application uptime and performance
10	Access and Security	A cyber-attack is an unauthorized system/network access by a third party that aims at destroying or stealing confidential information from the victim's system. Such unauthorized access attempts must be blocked, and logs must be maintained for reporting	Applicable to all digital systems	NA	Number of cyber or security attacks detected by intrusion detection system, anti-virus, or firewall	Number	Monthly	DIS 2.c The hospital uses a firewall that monitors incoming and outgoing network traffic.	Silver, Gold, Platinum	The hospital can use network logs and other security systems to access any suspicious activity and incidents.
11	IT support	Hospital provides support to manage IT related incidences	Applicable to all digital systems	Non-IT related incidences	Percentage of IT support tickets resolved within agreed SLA	Percentage	Monthly	DOM 3.c The hospital uses a digital system to record and track IT security incidents, issues, changes, and problems.	Gold, Platinum	Hospital using ITSM platform can generate reports specifically related to SLA compliance.





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