भारतीय गुणवत्ता परिषद्
QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

राष्ट्रीय अस्पताल और स्वास्थ्यचर्या-प्रदाता प्रत्यायन बोर्ड
National Accreditation Board For Hospitals and Healthcare Providers

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NABH DIGITAL HEALTH STANDARDS FOR CLINIC MANAGEMENT SYSTEMS

Enabling Quality and Digital Excellence in Clinic Ecosystem

QUALITY : SAFETY : WELLNESS

NABH Digital Health Standards for Clinic Management Systems (CMS)

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FOREWORD

For nearly two decades, the National Accreditation Board for Hospitals & Healthcare Providers (NABH), a constituent board of the Quality Council of India (QCI), has promoted quality and excellence in healthcare services. NABH standards have significantly transformed healthcare delivery, providing professionals, patients, and their families with a deep understanding of their rights and responsibilities.

After the successful launch of NABH digital health standards for HIS/EMR systems in September 2024, we are pleased to announce NABH's latest digital health initiative – India's first edition of standards for Clinic Management Systems (CMS). These standards, consisting of Objective Elements (OEs), are structured into four levels: Core, Commitment, Achievement, and Excellence, and address important clinical and administrative workflows, data security, and interoperability functionalities.

NABH acknowledges the contributions of the National Health Authority (NHA) and the Ayushman Bharat Digital Mission (ABDM) platform in promoting interoperability. Consequently, NABH standards for CMS require products to be evaluated and approved by NHA for ABDM and security requirements before applying for NABH certification. This alignment ensures that robust Digital Health solutions are certified and adopted by facilities across India.

Inspired by global standards and best practices in security, NABH, in collaboration with industry experts, has developed these standards to enhance patient care nationwide.

We urge all clinicians, healthcare facilities, CMS companies, stakeholders, and policymakers to support the adoption of these standards to elevate healthcare quality and promote patient-centric care. Together, we can contribute to a healthier India through cutting-edge digital health solutions.

We extend our best wishes to all CMS companies adopting these standards and applaud their commitment to quality and patient safety. May this edition inspire a new era of excellence in healthcare, ensuring every patient receives the highest standard of care.

Jai Hind

Dr. Atul Mohan Kochhar
CEO, NABH

ACKNOWLEDGEMENT

The creation of the inaugural NABH Standards for Clinic Management Systems saw invaluable contributions from several individuals and organizations. **Shri Jaxay Shah, Chairperson of QCI**, led the promotion of quality at grassroots levels across India. **Mr. Rizwan Koita, Chairperson of NABH**, provided pivotal guidance and support. **Mr. Chakravarthy T. Kannan, Secretary General of QCI**, ensured resource availability.

The NABH board members offered insightful suggestions, enhancing the quality of the standards and guidebook significantly.

NABH's Technical Committee meticulously incorporated best practices from extensive academic research and stakeholder feedback. Special thanks to the Koita Foundation and PwC teams for their technical contributions.

Thanks are also due to the dedicated assessors, and other stakeholders for their valuable feedback. Lastly, appreciation goes to the officers at the NABH Secretariat for their dedication in completing this work on time.

Jai Hind

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 and promoting continuous quality improvement and patient safety. The board, while being supported by all stakeholders, including industry, consumers, and 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 an 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.

NABH Activities

- NABH Accreditation Programmes: NABH offers accreditation to Hospitals, Small Healthcare Organizations/Nursing Homes, Blood Banks, Eye Care hospitals/clinics, Oral Substitution Therapy Centres, Community Health Centres/Primary Health Centres, Ayush (Ayurveda, Homeopathy, Unani, Siddha and Yoga and Naturopathy) hospitals, Medical Imaging Services, Dental Centres, Allopathic Clinics, Ethics Committees, Panchakarma Clinics and Digital health Accreditation to Hospitals
- NABH Certification Programmes: NABH offers certification to HIS/EMR Systems, Medical Laboratory, Nursing Excellence, Emergency Department, Entry Level for Hospitals, Entry Level Ayush Hospitals, Entry Level Ayush Centres and digital health certification for Entry level hospitals.
- NABH Empanelment: NABH offers empanelment program for CGHS, ECHS and Medical Value Travel Facilitator (MVTF)
- 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 and Education: NABH conducts Education/Interactive Workshops, Awareness Programmes, and Programme on Implementation (POI) on a regular basis.

INTRODUCTION

The healthcare industry is undergoing a rapid transformation, driven by digital innovations that are revolutionizing the delivery and management of healthcare services. Recognizing the need for robust standards to ensure quality and interoperability, the National Accreditation Board for Hospitals & Healthcare Providers (NABH) has developed comprehensive standards for Clinic Management Systems (CMS) - hereafter also referred to as 'system'. These standards are crucial in creating a more efficient, interconnected, and technologically advanced healthcare ecosystem in India.

By aligning with the NABH standards for Allopathic clinics and the NABH digital health standards for HIS/EMR systems, the CMS standards uniquely position NABH as the sole authority responsible for these critical benchmarks.

This streamlined approach ensures comprehensive evaluation while emphasizing ongoing enhancement of healthcare standards.

NABH offers two certification maturity levels for CMS: Basic Level and Advanced Level.

- **Basic Level certification** requires compliance with 100% Core, 60% Commitment, and 30% Achievement Objective Elements.
- **Advanced Level certification** requires compliance with 100% Core, 80% Commitment, 60% Achievement, and 60% Excellence Objective Elements.

NABH acknowledges the National Health Authority (NHA) for its pivotal role in driving interoperability through the ABDM platform. NHA's certification ensures that Digital Health products meet rigorous interoperability and security standards, including comprehensive WASA testing. Consequently, NABH mandates that CMS products undergo NHA evaluation and approval before seeking NABH certification. This collaboration harmonizes NHA and NABH initiatives, ensuring that only robust Digital Health solutions are certified and widely adopted across healthcare organizations in India.

The development of NABH Standards for CMS systems has been a meticulously orchestrated endeavour, drawing inspiration from the NABH digital health standards for HIS/EMR systems, global Digital Health standards, DPDP Act and integrating best practices from software development and security. Extensive collaboration with industry experts has refined these standards to meet the dynamic and evolving requirements of the healthcare sector.

While these standards have been developed with significant internal and industry guidance, NABH recognizes that their development is an ongoing journey. Feedback from Digital Health companies, clinics, and stakeholders will continue to be instrumental in refining and enhancing these standards.

Together, these initiatives highlight NABH's dedication to fostering excellence and innovation in Digital Health, paving the way for a more interconnected and efficient healthcare ecosystem in India and beyond.

Definition of Clinic: A healthcare facility that provides patient care services by doctors registered with Medical Council of India/National Medical Council or State Medical Council (practicing Allopathic medicine). The clinic may be in the community or in the premises of an organization, such as school,

factory, etc. and includes healthcare facilities:

S. No.	Healthcare Facility	Definition
1.	**Clinic**	A Single Doctor running healthcare facility (other than OPD of a hospital) providing outpatient patient care services
2.	**Polyclinic**	A clinic where multiple doctors either from same speciality or different speciality provide outpatient patient care services.
3.	**Dispensary**	A clinic, where along with consultation for patients, medicine is dispensed
4.	**Daycare Clinic***	Daycare clinic is the facility that has admitting beds for limited time for providing patient care services (barring overnight stay)

*The services include treatments such as ambulatory surgical procedures, dialysis, chemotherapy etc.

In addition, a "clinic" may have add-on services as follows:

Diagnostic services such as:

- Clinico-diagnostic examination (e.g., Endoscopy)
- Procedures
- Laboratory-pathology, imaging, etc.

Therapeutic services such as:

- Intervention
- Pharmacy etc.

Support services such as:

- Physiotherapy
- Occupational therapy
- Nutrition
- Counselling Services (e.g., Psychology Counselling)

In the Standards, the Clinic/Polyclinic/Dispensary/Daycare Clinic hereinafter will be referred to as "Clinic"

Definition of Clinic Management System (CMS): A Clinic Management System is a digital solution developed for an allopathic clinic's medical care and operations. CMS systems are designed to support clinics in enhancing patient care, reducing operational costs, optimizing revenue, and managing data.

Note: CMS vendors are encouraged to review the specialised accreditation standards for different specialities, which will be periodically issued by NABH. These standards will serve as optional annexures to this primary document. The first of such annexures on Diabetes is available and CMS vendors are encouraged to apply for the same for additional certification.

HOW TO READ THE STANDARDS

The standards in this document outline the key components necessary for administering patient-centred, safe, and high-quality care. These standards function as a reference for quality assurance and improvement, emphasising patient safety and clinical outcomes. They specify the criteria that CMS Vendors are required to meet regarding the quality of care.

The CMS standards are covered across eight chapters. **The Eight Chapters are:**

1. **Access, Assessment, and Continuity of Care (AAC)**
2. **Care of Patients (COP)**
3. **Management of Medication (MOM)**
4. **Digital Applications Control (DAC)**
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 Continuity of Care'.

What is an Objective Element?

It is that component of the standard which can be measured objectively on a rating scale. An 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 serial order. For example, AAC.1. c. would mean that it is the third objective element of the first standard of the chapter titled 'Access, Assessment, and Continuity of Care'.

What is an Interpretation?

The interpretation provides guidance on what the organization needs to do to ensure that the requirement(s) of the objective element are 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' be 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 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.

Categories of Objective Elements

The objective elements are divided into four levels: Core, Commitment, Achievement, and Excellence. **Core Objective Elements**: In these standards, certain Objective Elements have been designated as Core. These are Objective Elements that the organization should have in place to ensure the quality of care or the safety of people within the organization.

The rest of the standards have been divided into three levels, namely **Commitment, Achievement,** and **Excellence**, reflecting that quality is a journey, and that accredited products and organizations need to improve constantly.

Note:

1. Certain objectives relate to specific service areas such as Daycare, Laboratory, Radiology, Procurement Management, and Human Resource Management, which may not be part of the mandatory requirements. These are therefore classified as optional modules, for which CMS companies may apply separately. The final certification will clearly specify the scope of services for which the CMS software is certified.
2. At the time of registration, a CMS will be able to apply for one or more modules as listed below. The relevant Objectives Elements will then appear in the Form as Mandatory or Optional, depending on the selected scope.
    - Clinics, Polyclinics & Dispensary Services (CPD) – Mandatory
    - Daycare Clinics Services (DCS) – Optional
    - Laboratory Services (LTS) – Optional
    - Radiology Services (RLS) – Optional
    - Procurement Management (PCM) – Optional
    - Human Resource Management (HRM) – Optional

During the registration process, if a CMS company opts to include any of the optional modules-namely DCS, LTS, RLS, PCM, or HRM-all associated objectives for the selected module(s) will be incorporated into the compliance denominator. Accordingly, the company will be required to demonstrate compliance in alignment with the maturity level chosen.

SUMMARY OF THE STANDARDS

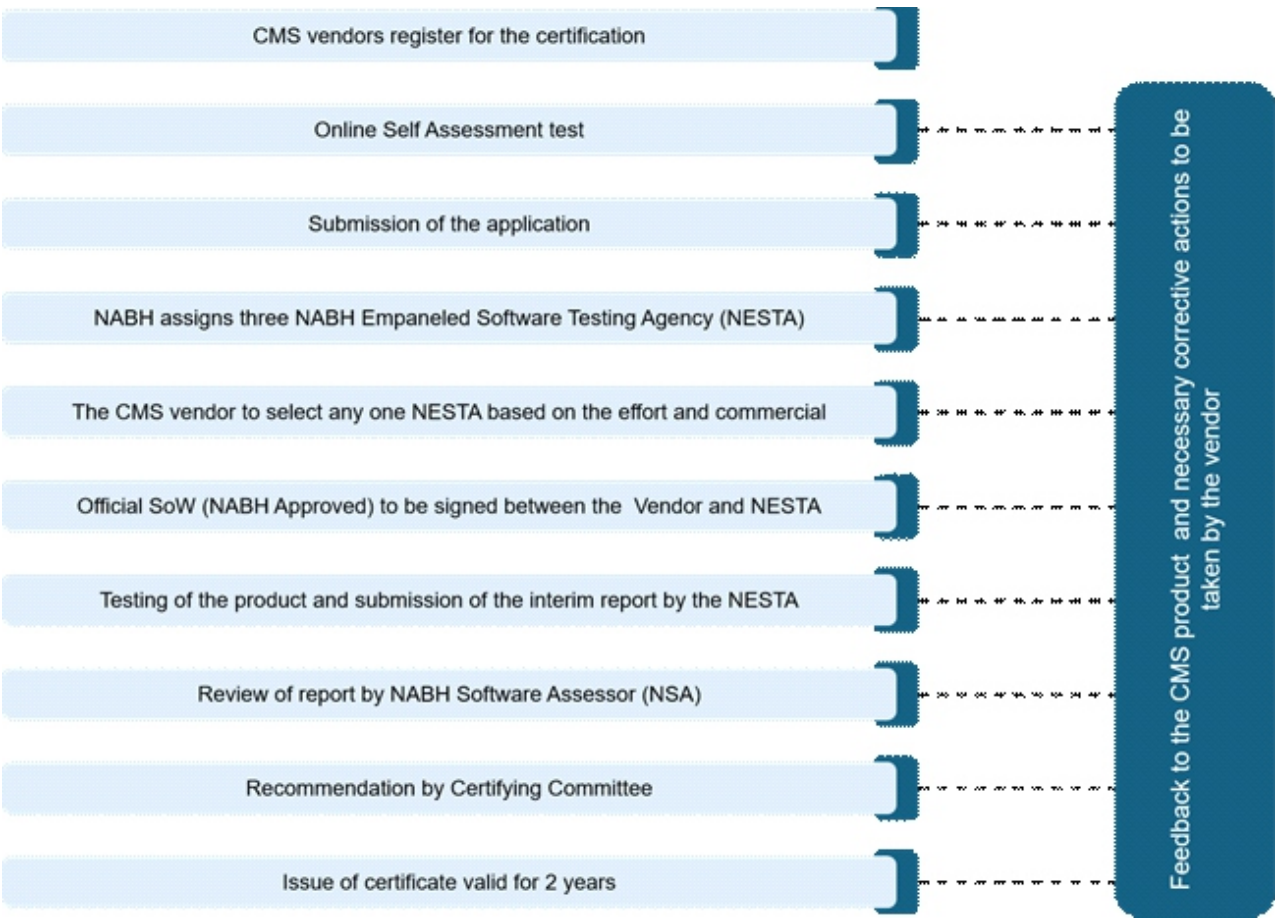
Chapter	Standard	Objective Elements	Core	Commitment	Achievement	Excellence
AAC	6	28	17	2	7	2
COP	9	27	3	6	4	14
MOM	3	8	1	1	4	2
DAC	2	8	1	3	3	1
DOM	4	10	8	2	0	0
FPM	4	13	6	2	4	1
HRM	1	5	3	0	2	0
IMS	3	13	2	4	3	4
Total	32	112	41	20	27	24

MATURITY LEVEL SCHEMES

NABH's maturity level schemes for certification of Clinic Management System (CMS) are as follows:

Category of OE	Basic Level	Advanced Level
Core	100%	100%
Commitment	60%	80%
Achievement	30%	60%
Excellence	NA	60%

CERTIFICATION PROCESS



Note: The applicable fee shall be paid alongside the submission of the application

ABBREVIATIONS

ABDM	Ayushman Bharat Digital mission
ABHA	Ayushman Bharat Health Account
ABI	Ankle Brachial Index
ACR	Albumin Creatinine Ratio
ALT	Alanine Aminotransferase
API	Application Programming Interface
AST	Aspartate Amino Transferase
B12	Vitamin B12
BMI	Body Mass Index
CBC	Complete Blood Count
CDSS	Clinical Decision Support System
CGM	Continuous Glucose Monitoring
CHF	Congestive Heart Failure
CMS	Clinic Management System
CPOE	Computerized Provider Order Entry
CPD	Clinics, Polyclinics & Dispensary
CT scan	Computed Tomography scan
CVD	Cardiovascular Disease
DCS	Daycare services
DPDP	Digital Personal Data Protection
DVT	Deep Vein Thrombosis
eAG	Estimated Average Glucose
ECG	Electrocardiogram
ECT	Electroconvulsive therapy

eGFR	Estimated Glomerular Filtration Rate
EHR	Electronic Health Record
eMAR	Electronic Medication Administration Record
ESRD	End-Stage Renal Disease
FBS	Fasting Blood Sugar
FSN	Fast, Slow, Non-Moving
HbA1C	Glycosylated Haemoglobin
HCO	Healthcare Organization
HRM	Human Resource Management
ICD- 10	International Classification of Disease
IPD	In-Patient Department
ISH	International Society for Hypertension
ISO	International Organization for Standardization
KPI	Key Performance Indicator
L1, L2, L3	Level 1, Level 2, Level 3
LDL	Low Density Lipid
LFT	Liver Function Test
LOINC	Logical Observation Identifiers Names and Codes
LTS	Laboratory Services
MASLD	Metabolic Disfunction-Associated Steatotic Liver Disease
MLC	Medico Legal Case
NHA	National Health Authority
OGTT	Oral Glucose Tolerance Test
OTP	One Time Password
PAN	Permanent Account Number
PCM	Procurement Management
PHI	Personal Health Information

PPBS	Postprandial Blood Sugar
PT	Prothrombin Time
RLS	Radiology services
SBP	Systolic Blood Pressure
SDE	Scarce, Difficult, Easy
SMBG	Self- Monitoring of Blood Glucose
SNOMED- CT	Systematized Nomenclature of Medicine - Clinical Terms
UHID	Unique Health Identifier
VED	Vital, Essential, Desirable
VPN	Virtual Private Network
VPT	Vibration Perception Threshold
WASA	Web Application Security Audit
WHO	World Health Organization
WHR	Waist-to-hip Ratio

CHAPTER 1

Access, Assessment, and Continuity of Care (AAC)

Intent of the chapter

The Access, Assessment, and Continuity of Care chapter covers administrative, operational and clinical functionalities required by a Clinic Management System (CMS) (hereafter referred to as system). The chapter includes patient registration, consultation, admission, referral, discharge and transfer, patient education, and ancillary functions like laboratory, and patient feedback.

The system brings efficiency by gathering and sharing current and accurate information about patients including diagnostics, and clinical services.

An effective CMS system can improve laboratory operations by ensuring high-quality test results, optimizing workflows, and enhancing overall process efficiency.

The system enables the healthcare staff to monitor patient progress and plan follow-up, referral admission, discharge, or transfer as required.

The systems enable health-related information to be easily accessible and understandable to the patients.

SUMMARY OF STANDARDS

AAC. 1.	The system manages patient registration and referral processes.
AAC. 2.	The system supports patient appointments and medical practitioner schedules.
AAC. 3.	The system handles laboratory and radiology tests orders and samples.
AAC. 4.	The system supports patient admissions in daycare facilities.
AAC. 5.	The system facilitates dissemination of information to patients.
AAC. 6.	The system manages patient feedback and complaints.

Core Commitment Achievement Excellence

Standard

AAC . 1.	The system manages patient registration and referral processes.

Objective Elements

Category	Core	Head	CPD	Type	Assessment
Objective Element AAC.1a.	The system registers a new patient and has the ability to modify the details as and when required.				
Interpretation	The system shall have the provision to register new patients and manage existing patient registrations. The registration module shall capture the following mandatory fields: Patient's name, Gender, Age, Date of birth, address, mobile number, and any registered National ID (like ABHA, Aadhaar, driving license). Optionally, the system may capture insurance details and payment preference. The system shall have the provision to configure other mandatory and non-mandatory fields depending on the clinic's requirements. Each registration data should be qualified as editable/ non-editable by the clinic. Please refer to Annexure A for-sample patient registration form				

Category	Core	Head	CPD	Type	Assessment
Objective Element AAC.1b.	The system verifies the patient's mobile number.				
Interpretation	After a patient is registered in system, system should be able to send a notification/ OTP to the patient's registered mobile number for verification. This mobile number can then become the primary source of communication.				

Category	Core	Head	CPD	Type	Assessment
Objective Element AAC.1c.	The system captures the point of origin for each patient.				

Interpretation	The system shall capture the point of origin for each patient during registration, categorizing patients into distinct categories, which may include categories such as: • Walk-in patients • Registrations through health camps • Registrations through mobile application • Registrations through the website or online portal • Registrations through call centre or by phone • Registrations through referrals

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element AAC.1d.	The system generates unique patient identifier.				
Interpretation	The system shall have the provision to generate a unique patient identifier (Numeric or alphanumeric) for each patient at the time of registration. This unique identifier should serve as a permanent identifier for the patient and should be used across all future interactions and transactions within the system.				

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element AAC.1e.	The system has the capability to configure the unique patient identifier as per the clinic's requirements.				
Interpretation	The unique patient identifier shall have a consistent format (numeric or alphanumeric). Based on the Clinic's configuration preferences, the unique patient identifier may be generated using methods such as 1. A combination of the patient's demographic identifiers (e.g., name, date of birth, gender, address). 2. A system-generated random or serial number or alphanumeric code. 3. A hybrid format that combines random or serial numbers or alphanumeric codes with selected patient demographic identifiers.				

Category	Core	Head	CPD	Type	External Certification
Objective Element AAC.1f.	The system has the capability to generate and capture patient's ABHA and link it to the unique patient identifier.				
Interpretation	The system shall be able to generate and capture the ABHA (Ayushman Bharat Health Account) which is a national unique health identifier. This corresponds to Milestone 1 (M1) of ABDM. Additionally, the system should be able to link the patient's ABHA with their unique patient identifier.				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element AAC.1g.	The system checks and alerts duplicate patient registrations.				
Interpretation	The system shall include a mechanism to detect and alert potential duplicate patient registrations if a unique patient identifier has already been generated and allocated to a patient. During registration, the system shall perform a check for potential duplicate patient registration using predefined criteria (e.g., exact or fuzzy match on name, date of birth, contact details, or other demographic identifiers like Aadhaar, ABHA) and alert the user and prevent the creation of a duplicate identifier for the same patient.				

Category	Core	Head	CPD	Type	Assessment
Objective Element AAC.1h.	The system links all patient medical records to the respective unique patient identifier.				
Interpretation	The system shall ensure that all patient records are linked to the patient's unique identifier. These shall include all records generated across different service areas (For example: consultation, pharmacy, laboratory etc), irrespective of the time of occurrence.				

Category	Core	Head	CPD	Type	Assessment
Objective Element AAC.1i.	The system automatically fills in relevant data fields when the unique patient identifier for an existing patient is entered.				

Interpretation	The system shall populate patient data when a valid unique patient identifier is entered for a repeat patient visit. This functionality helps to streamline workflows by minimizing redundant data entry and ensuring continuity of care.

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element AAC.1j.	The system manages patient referrals across different specialities.				
Interpretation	The system shall support the patient referral process. Some of the ways by which the system can enable referrals are given below: • External Referrals: The system allows the medical practitioner to select a specialist from a pre-approved list and record the referral made in the system. • Internal Referrals for Collaborative Care: In a polyclinic setting or an integrated care setting, the system shall facilitate internal referrals. For example, when a medical practitioner identifies the need for a patient to see a dermatologist within the same facility, they can create an internal referral via the system. The patient's electronic medical record is accessible to the referred specialist, ensuring continuity of care.				

Standard

AAC . 2.	**The system supports patient appointments and medical practitioner schedules.**

Objective Elements

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element AAC.2a.	The system creates and manages patient appointments which is visible to staff members.				
Interpretation	The system mustetails such as contact information, medical condition, practitione include an appointment booking feature for scheduling visits with medical practitioners. It should provide an interface to book appointments, showing available time slots and the practitioner's schedule. The booking process should collect patient dr's name, appointment date, time, and location. The system should also enable rescheduling or cancelling appointments, with real-time updates to availability of free/busy time slots of medical practitioner				

Category	Core	Head	CPD	Type	Assessment
Objective Element AAC.2b.	The system has the capability to record timestamps.				
Interpretation	The system should record time stamps for important patient touchpoints within the clinic (wherever applicable), such as: • Patient Registration: The system should log the time of a new patient registration. • Billing: The system should log the time at which billing transactions are processed for each patient. • Laboratory Report Generation: The system should record the time of lab order generation and the time at which any specimen test report or other diagnostic results are received.				

Category	Achievement	Head	CPD	Type	Assessment
Objective Element AAC.2c.	The system has the capability of queue management for various healthcare services.				
Interpretation	The system shall include a queue management mechanism to facilitate the efficient handling of patient flow within the clinic. This queue management can be done by different ways, including token generation, where the system generates a unique token number for each patient upon registration.				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element AAC.2d.	The system maintains a follow-up management feature to schedule, track, and manage patient follow-up visits.				
Interpretation	The system shall allow medical practitioner and staff to schedule follow-up appointments and reminders based on clinical needs and treatment plans. The system should track follow-up adherence, generate alerts for missed appointments, and facilitate rescheduling.				

Core Commitment Achievement Excellence

Standard

AAC . 3.	The system handles laboratory and radiology test orders and samples.

Objective Elements

Category	Core	Head	LTS	Type	Assessment
Objective Element AAC.3a.	The system assigns a unique specimen identifier to every sample collected and links it to the patient's unique identifier.				
Interpretation	The system should assign a unique specimen identifier (numeric or alphanumeric) for every sample collected and link it to the patient's unique identifier. This identifier can be generated based on any of the predefined rules, such as: 1. Type: Capture the type of sample (Blood, Semen, Urine, Stool) 2. Prefix: Specimen identifier could start with a department (Haematology, Biochemistry, Microbiology etc.) location code (e.g., "LAB" for the laboratory). 3. Sequential Number: A numeric portion that increments with each new specimen. 4. Date and Time Stamp: Include the collection date and time (e.g., "LAB2505211230" for a sample collected on May 21, 2025, at 12:30 PM).				

Category	Core	Head	LTS	Type	Assessment
Objective Element AAC.3b.	The system clearly marks the damaged/ rejected samples.				
Interpretation	The system shall have the capability to mark a sample as damaged or rejected along with the reason. This could include adding a specific code or annotation to indicate the sample's status. For example, appending "DAMAGED" or "REJECTED" to the sample ID can help clearly distinguish it from other samples. This ensures that the samples are not used for further testing. Indicators: The system could use colour coding/ icons to visually highlight damaged or spoiled samples. For example: • Red labels or tags could indicate damaged samples. • Yellow labels or tags could indicate samples that need retesting due to spoilage. • Green labels or tags could represent valid samples.				

Category	Core	Head	LTS	Type	Assessment
Objective Element AAC.3c.	The system displays the reference range for a test and highlights abnormal results.				
Interpretation	The system shall have the capability to maintain reference ranges for each laboratory test. For instance, if a patient's cholesterol is 200 mg/dL, the system should indicate whether this is within the normal range or not. The system could support the following features: • **Reference Range Database:** Maintain an up-to-date database of reference ranges for all common lab tests, which can be regularly updated based on the latest medical guidelines and research. • **User Interface:** Provide an interface that displays test results alongside their corresponding reference ranges, allowing easy interpretation by healthcare professionals. • **Customization Options:** Enable customization of reference ranges based on specific population needs, age, gender, or other relevant factors. • To highlight abnormal results, the system should use a combination of font type, size, color-coding etc., such as: • Green: Normal results • Yellow: Borderline or cautionary results • Red: Abnormal or critical results				

Category	Excellence	Head	LTS	Type	Assessment
Objective Element AAC.3d.	The system converts measurement units of lab diagnostic results to other measurement units.				
Interpretation	The system should have the ability to convert laboratory diagnostic values into various Units. For instance, if a laboratory provides blood sugar results in mmol/L and the clinic uses mg/dL, the system should be able to perform the conversion according to the clinic's requirements. The system could have the following capabilities to enable this: • **Unit Conversion Database:** Maintain a database of commonly used units and their conversion factors. • **Automatic Conversion:** Automatically detect and convert diagnostic values from one unit to another based on the clinic's predefined settings				

Interpretation	• **Customizable Settings:** Allow clinics to set their preferred units for different diagnostic tests.

Category	Core	**Head**	LTS	**Type**	External Certification
Objective Element AAC.3e.	The system links the laboratory reports of the patients to their ABHA.				
Interpretation	The system shall have the capability to link a patient's laboratory reports to patient's ABHA. Linking patient's laboratory reports to their ABHA makes this information more sharable and helps healthcare providers to have a complete and accurate understanding of patient's health status, allowing them to make more informed decisions about diagnosis, treatment, and care planning. This corresponds to Milestone 2 (M2) of ABDM.				

Category	Excellence	**Head**	LTS	**Type**	Assessment
Objective Element AAC.3f.	The system identifies tests that have been referred to external laboratories and maintains the records of the results.				
Interpretation	The system shall maintain a list of tests that have been sent to external laboratories and maintain a digital record of these tests. These tests should be clearly identifiable and sample collection material clearly labelled accordingly. The following features can facilitate this process: • The system should track and identify details of outsourced lab tests including details such as the type of sample, patient Identifier, specimen identifier, time and date the sample was sent. • The system should identify the name and address of the external laboratory, where the sample is sent. • All records of external lab tests should be easily accessible and clearly identifiable within the system to facilitate efficient clinical record management. • The system should provide notifications and alerts to the clinic staff for any delays related to outsourced lab tests, ensuring timely follow-up and communication with external laboratories.				

Category	Achievement	Head	RLS	Type	Assessment
Objective Element AAC.3g.	The system creates/ modifies a new radiology request, generates a unique ID for the request, and link it to the patient's unique ID.				
Interpretation	The system shall create a unique ID for a radiology request for every radiological test or procedure. It should be able to link this unique ID with the patient's unique identifier.				

Category	Achievement	Head	RLS	Type	Assessment
Objective Element AAC.3h.	The system sends notifications to the radiology department as soon as any test is booked.				
Interpretation	The system shall send notifications to the radiology department as soon as any test is booked. These notifications should include details like the patient's name, age, type of test required, and the medical practitioner who has requested for the test.				

Category	Achievement	Head	RLS	Type	Assessment
Objective Element AAC.3i.	The system captures and shows the radiological test status for every radiology test order.				
Interpretation	The system shall have the capability to show the status of radiology tests ordered by the medical practitioners. The status options could include tests booked, on-going, completed, reported, etc.				

Category	Core	Head	LTS	Type	Assessment
Objective Element AAC.3j.	The system generates a non-editable final report once it is signed by the pathologist/radiologist.				
Interpretation	The system shall have the capability to generate a final report with the ability of a pathologist / radiologist to sign the report. Final reports generated and signed by the pathologist / radiologist shall not be editable.				

Standard

AAC. 4.	The system supports patient admissions in daycare facilities.

Objective Elements

Category	Core	Head	DCS	Type	Assessment
Objective Element AAC.4a.	The system sets operational rules and workflows for patients during daycare procedures and admissions.				
Interpretation	The system should be able to generate admission documents and configure admission rules for various types of admissions required by the clinic (such as dialysis, chemotherapy, dermatology procedures, and cyst removal) The system should record: • Admission type • Procedure details (e.g., dialysis, cataract surgery) • Pre-procedural screening • Medication administered • Post-procedural patient details • Home care/advice for daycare procedures • Follow-up appointment scheduling				

Category	Core	Head	DCS	Type	Assessment
Objective Element AAC.4b.	The system identifies the patient's primary treating medical practitioner for all daycare admissions.				
Interpretation	The system shall assign and display the patient's primary treating medical practitioner for all day care admissions. This shall be recorded in the patient's admission details and shall be available for reference throughout the continuum of care. The system shall also ensure that the assigned practitioner is linked to all relevant clinical documentation and orders during the daycare admission.				

Standard

AAC. 5.	The system facilitates dissemination of information to patients.

Objective Elements

Category	Achievement	Head	CPD	Type	Assessment
Objective Element AAC.5a.	The system provides important care delivery information to patients.				
Interpretation	The system shall provide important care delivery information to patients through SMS, online messaging platforms, email, or on a patient portal/mobile application. This information could include: • Appointment details (location, address, contact details) • Medical Lab Reports and their availability • Follow-up schedule • OPD consultation report • Teleconsultation report • Prescription • Medication Adherence Reminders (based on the clinical need) • Reminder for Self-Monitoring of Blood Glucose (based on the clinical need) With appropriate consent, the system could send notifications to the designated kin or relatives. This is especially useful for elderly patients or those with limited digital fluency.				

Standard

AAC. 6.	The system manages patient feedback and complaints.

Objective Elements

Category	Achievement	Head	CPD	Type	Assessment
Objective Element AAC.6a.	The system has the capability to capture feedback and complaints from the patients/family members.				
Interpretation	The system should have the ability to capture patient feedback using online surveys. These surveys can be rolled out to patients during and after their visit or stay. The system should also allow the sharing of the questionnaires to patients on their mobile phone, online messaging platform, SMS, feedback form (as a URL or QR code) or email for their feedback on these surveys and perform a rating analysis based on the following-				

Interpretation	Patient Satisfaction Score: The feedback form should, at a minimum, include the following five questions (but not be limited to), to be rated on a 5-point scale: 1. How would you rate your overall experience at the clinic? 2. How would you rate the quality of care, including medical practitioner's consultation, nursing care, etc. you received? 3. How would you rate the healthcare staff's clarity of communication and explanation of the treatment plan? 4. How would you rate the clinic environment, including cleanliness and amenities? 5. How would you rate the ease of registration/discharge processes?

CHAPTER 2

Care Of Patient

Intent of the chapter

It is imperative for clinics to consistently provide best quality care across all care settings. The "Care of Patients" chapter describes the essential specifications for the CMS (hereafter referred to as the system), to support standardized care delivery. The objective of this chapter is to foster and prioritize patient care and safety by using CMS.

Clinics need to adopt digital technology to effectively manage health conditions, diseases and foster preventive care. The system must allow medical practitioners to access medical records and proficiently initiate orders for laboratory tests, and pharmaceutical services. Further, the system should support patient services in remote settings.

The system can also provide clinical decision support – Clinical Decision Support Systems (CDSS) - for medical professionals, leveraging the data available in the system and the ability to apply evidence-based guidelines to enhance care and patient safety.

SUMMARY OF STANDARDS

COP.1.	The system manages OPD consultation services.
COP.2.	The system captures management of patient admission and related processes.
COP.3.	The system manages medico-legal and emergency cases.
COP.4.	The system manages dietary consultation and specific nutritional therapy.
COP.5.	The system supports the clinic's antimicrobial usage policy.
COP.6.	The system supports the risk assessment of patients.
COP.7.	The system supports patient services in remote settings.
COP.8.	The system provides a Clinical Decision Support System.
COP.9.	The system manages the assessment and re-assessment of patients availing rehabilitation services.

Core Commitment Achievement Excellence

Standard

COP. 1.	The system manages OPD consultation services.

Objective Elements

Category	Core	Head	CPD	Type	Assessment
Objective Element COP.1a.	The system allows capture and reviewing of the initial patient assessment.				
Interpretation	The system shall allow capture and review of the initial assessment of the patient conducted by the designated staff. The system should allow medical practitioner access to the information on initial patient assessment as captured by the designated staff. The records should capture vital signs, medical history, physical examination findings and results from diagnostic test reports available at the time of assessment.				

Category	Core	Head	CPD	Type	Assessment
Objective Element COP.1b.	The system allows the medical practitioner to access and view patient's previous consultation/medical records.				
Interpretation	The system shall provide a functionality that allows medical practitioners to access and view a patient's previous consultation records and summaries, to support continuity of care. Patient records can be retrieved using key identifiers such as patient name, mobile number, UHID, or ABHA. The previous consultation records should provide information on medical records including diagnostics, medical history, medication history, procedure/surgical history (in case of Daycare), and vaccination records. Please refer to annexure B for sample case history form				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element COP.1c.	The system has the capability for Computerized Provider Order Entry (CPOE) of laboratory and Radiology Tests				

Interpretation	The system should enable medical practitioners to place laboratory and Radiology tests (as applicable) for patients. It should contain master data of all commonly prescribed laboratory tests/ radiology tests (as applicable), which can be digitally selected and prescribed by the medical practitioner. If an in-house diagnostic lab is available, the system shall have the capability to transmit orders electronically.

Category	Commitment	**Head**	CPD	**Type**	Assessment
Objective Element COP.1d.	The system has the capability to generate Computerized Provider Order Entry for medicines.				
Interpretation	The system shall allow medical practitioners to digitally place medication orders for patients. This functionality diminishes the likelihood of errors from illegible handwriting or lost documents, thereby ensuring patients receive precise prescriptions.				

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element COP.1e.	The system creates order sets based on frequently prescribed medications.				
Interpretation	The system shall have the capability for medical practitioners to view commonly prescribed medications and create order sets. The system should have a comprehensive medication database (drug names, dosage forms, routes, strengths, indications, contraindications, and potential side effects, as well as the categorization of medications into different classes or therapeutic categories). This information assists medical practitioners in making informed decisions. Order sets (also known as “abbreviated medication lists”) help to organize and automate the process of placing orders. To facilitate the creation of order sets, the system should offer pre-established templates tailored for common medical conditions or procedures. These templates can then be personalized by medical practitioners to suit their specific needs and the needs of individual patients.				

Category	Excellence	**Head**	CPD	**Type**	Assessment

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Category	Excellence	Head	CPD	Type	Assessment
Objective Element COP.1f.	The system has an authorisation mechanism for prescription of certain medications to designated medical practitioners only.				
Interpretation	The system should have a mechanism to authorise prescription of certain medications to designated medical practitioners only. This can be done through an authorisation mechanism of combining user authentication, RBAC, and specific medication usage policies. The list of such medications shall be configurable by the clinic and may include medications that are categorised as High-risk medications, Narcotics, Cancer Medications etc. The system could also configure prescription / authorisation rights to certain medical professionals only Action by system: Block the prescription request if found against authorization guidelines, the system could send a request to the authorised medical practitioner for approval.				

Category	Excellence	Head	CPD	Type	Assessment
Objective Element COP 1g.	The system notifies medical practitioners while placing duplicate orders.				
Interpretation	The system should notify medical practitioners when placing duplicate orders. In integrated care, patients often see multiple physicians who may prescribe the same tests or medications. To avoid redundancy and unnecessary repetitions, digital systems must allow practitioners to review previous prescriptions and notify them of duplicates. This streamlines patient care and improves healthcare efficiency.				

Category	Excellence	Head	CPD	Type	Assessment
Objective Element COP.1h.	The system maintains records of medical devices.				
Interpretation	The system should enable capturing of medical device details like the batch number, serial number, etc. Other details may include type, manufacturer, batch number, and expiration date. The details should also include device and patient identifier. This information should be documented in the patient's medical record.				

Interpretation	This information is vital for tracking, recall management, and ensuring the use of medical devices before their expiration date.

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element COP.1i.	The system generates the OPD consultation /visit summary.				
Interpretation	The system should be capable of generating a structured and standardized summary of every OPD consultation or visit. The OPD summary shall include details such as: a. Patient identification details (Name, Age, Gender, Unique ID) b. Date & time of visit c. Name of consulting medical practitioner & department d. Presenting complaints & clinical findings e. Any food or drug allergy f. Diagnosis (Provisional and/or Final) g. Treatment advised (including prescriptions, procedures, lifestyle changes etc) h. Investigations ordered i. Follow-up instructions and referrals j. Electronic signature/authentication by the medical practitioner				

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element COP.1j.	The system has the capability to capture the digital signature of treating medical practitioners.				
Interpretation	The system shall be able to deploy digital signatures of treating medical practitioners on key clinical documents such as prescriptions, OPD consultation summaries and discharge summaries (for daycare clinics). All care and treatment plans shall bear the medical practitioner's signature, name and time. This shall help identify the treating medical practitioner and ensure the authenticity of medical records. Digital signature methods may include biometric authentication, one-time password (OTP) generated digital signatures, or digital signature keys, which help obliterate the need for a Medical Practitioner to physically sign the documents.				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element COP.1k.	The system generates multilingual OPD consultation /visit summaries.				
Interpretation	The system shall generate consultation/visit summary in more than one language. This is particularly important for treatment-related instructions, including medication prescriptions, associated lifestyle and dietary recommendations.				

Standard

COP. 2.	The system captures management of patient admission and related processes.

Objective Elements

Category	Excellence	Head	DCS	Type	Assessment
Objective Element COP.2a.	The system has capability to record necessary details of surgical procedures / interventions undertaken.				
Interpretation	The System shall maintain digital records of surgical procedures and interventions. These records could encompass details such as the surgical technique employed, the type of anaesthesia administered, the surgical team involved, various resources utilized during surgery, consent and any specimens collected.				

Category	Commitment	Head	DCS	Type	Assessment
Objective Element COP.2b.	The system captures nursing notes for daycare admissions				
Interpretation	The system should provide the ability to document nursing notes, detailing the nursing care provided to patients admitted to daycare. These notes can be added in form of a free text input option or in a structured template. The template can have fields like patient identification, nurse identification, an overview of the patient's condition, relevant clinical findings, significant events, and observations concerning the patient's response to care or progress.				

Category	Achievement	Head	DCS	Type	Assessment
Objective Element COP.2c.	The system has the capability of maintaining an electronic medication administration record (eMAR).				
Interpretation	An eMAR provides a comprehensive view of medication administration to the medical practitioners administering medications. The eMAR system should have the capability to record drugs administered using a specific template. The eMAR should contain capability to record: • Generic name of the drug. • Dosage: The prescribed amount of the medication. • Route of Administration: The method by which the medication is administered (for example, oral, intravenous, subcutaneous). • Date and Time: When the medication was given. • Administering Personnel: The name or initials of the person who administered the medication and who verified the medication in case of high-risk medications. • System entry of any medication administered based on verbal orders.				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element COP.2d.	The system creates / modifies a discharge summary for patients admitted for daycare procedures.				
Interpretation	The system shall be capable of generating a discharge summary report for the patient capturing the minimum details as recommended in NABH Discharge Form Summary Format given in Annexure C.				

Standard

COP. 3.	The system manages medico-legal and emergency cases.

Objective Elements

Category	Commitment	Head	CPD	Type	Assessment

Objective Element COP.3a.	The system has the capability to label a medico-legal case (MLC).
Interpretation	The system shall be able to label a case as a medico-legal case. For example, adding a checkbox that allows for streamlined identification of such cases. The system could provide a digital checklist for collecting and capturing pertinent information within the system. The system could allow comprehensive documentation of the case and the accurate storage of relevant data, with a complete audit trail. Please refer to Annexure D for sample details that can be included.

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.3b.	The system captures the details of any emergency services given to a patient in the clinic.				
Interpretation	The system shall have the capability to record the details of any emergency services given to a patient during his stay in the clinic, for a consultation or for a daycare procedure. The details may include the type of emergency, any underlying reason(s) or medial conditions, treatment extended, condition of patients at final discharge etc.				

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.3c.	The system maintains records of patient consent.				
Interpretation	Consent is an important part of clinic operations, for both MLCs and non-MLC cases. The system shall have the capability to record patient consent for various healthcare activities, and procedures. The system facilitates the documentation of patient consent for treatment, medical procedures, sharing of health information, participation in research studies, and other healthcare-related activities. The system should capture the records belonging to a minor or patient with disability and obtain consent from the legal guardian. The system should also allow for updating the patient information based upon patient consent.				

Interpretation	.The consent process could include Aadhar-based OTP/ fingerprints of the patient/kin/ legal guardian, or an upload facility of scanned Consent document. Please refer to annexure E for sample consent form

Standard

COP. 4.	**The system manages dietary consultation and specific nutritional therapy.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.4a.	The system captures dietary screening, manages dietary consultation and maintains these records where relevant.				
Interpretation	The system shall incorporate validated screening and assessment tools to guide nutritional therapy. The system shall accommodate a range of diets, including specialized dietary requirements tailored for different patients. This ensures that all consultations, dietary recommendations and food allergy (if any) are meticulously documented and readily accessible to the concerned staff. Please refer to annexure F for sample diet form.				

Standard

COP. 5.	**The system supports the clinic's antimicrobial usage policy.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.5a.	The system manages the clinic's antimicrobial usage policy.				

Interpretation	Antimicrobial policy provides detailed indications for antimicrobial usage, criteria for antimicrobial selection, appropriate dosing regimens, preferred routes of administration, the optimal duration of treatment, and timing considerations. The overarching objective is to achieve maximal clinical efficacy in curing infections or preventing their onset, while concurrently minimizing the risk of unintended consequences associated with antimicrobial use, such as antimicrobial resistance and adverse effects. The system should incorporate controls based on the antimicrobial usage policy defined by clinics. The antimicrobial usage policy shall be readily available to medical practitioners in a digital format. The system shall flag any restricted antimicrobial and mandate the medical practitioner to provide a justification for prescribing the same. The list of antibiotics among the restricted antimicrobials shall adhere to WHO's AWaRe classification. The system shall help the medical practitioner to identify the appropriate pre surgery prophylactic antibiotic based on the clinic's policy. The system should also monitor selection of the right drug, duration of prophylaxis and administration of the first prophylactic dose in accordance with the clinic's policy.

Standard

COP. 6.	**The system supports the risk assessment of patients.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.6a.	The system incorporates different scoring tools for patient risk assessment including clinical risk assessment.				
Interpretation	The system shall incorporate scoring tools to assess the risk of a patient to develop medical conditions or complications. The system shall calculate the risk score and alert the medical practitioner about the severity of the risk score based on the tool used. Some examples of these risk scores are BMI (Body Mass Index) , Waist to Hip Ratio, WHO/ISH Risk Score – Southeast Asia Region. Please refer to the Annexure G for details on some examples of these risk scores.				

Category	Excellence	Head	CPD	Type	Assessment
Objective Element COP.6b.	The system has the capability to auto-calculate clinical parameters, based on other available patient data.				
Interpretation	The system shall have ability to auto-calculate clinically relevant parameters using available patient data from laboratory results, demographic details, or vital signs etc. Please refer to Annexure H for selected examples of such auto calculated clinical parameters (e.g., TC/HDL ratio, eGFR, ACR, INR, AST/ALT ratio, etc.). The system can also have the following capabilities: • Allow visualisation of historical trends over time • Generate alerts or flags for values that exceed clinical thresholds				

Category	Excellence	Head	CPD	Type	Assessment
Objective Element COP.6c.	The system captures all patient care incidents and sentinel events.				
Interpretation	In the event of patient care incidents and sentinel events, the system triggers real-time alerts to staff, ensuring a swift response, and enhancing overall patient safety. Common patient care incidents and sentinel events include wrong-site procedure, foreign body retention, and medication errors.				

Category	Excellence	Head	CPD	Type	Assessment
Objective Element COP.6d.	The system captures clinic's staff exposure to any infections at the workplace.				
Interpretation	The system shall capture records of clinic staffs who have been exposed to infectious agents such as HIV, Hepatitis B, and Hepatitis C during their duty hours (e.g., needle stick injury, sharp injury, spillage). It should be able to maintain comprehensive digital health records detailing the post-exposure prophylaxis administered to affected employees. The same should be linked to the employee's personnel records and health records to enable due follow-up.				

Standard

COP. 7.	**The system supports patient services in remote settings.**

Objective Elements

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element COP.7a.	The system offers teleconsultation services.				
Interpretation	The system should assist medical practitioners in providing virtual consultations to patients. These virtual consultations can be provided through a variety of modalities. For example: desktop/laptop or mobile applications (including video conferencing / instant messaging).				

Standard

COP. 8.	**The system provides a Clinical Decision Support System.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.8a.	The system supports Clinical Decision Support System (CDSS) tools .				
Interpretation	The system should be equipped to offer Clinical Decision Support System (CDSS) functionality either internally or integrated with external CDSS tools. This functionality can be across a wide range of domains like diagnosis, drug prescriptions, and treatment planning. Please refer to Annexure I for a non – comprehensive list of common CDSS applications				

Standard

COP. 9.	**The system manages the assessment and re-assessment of patients availing rehabilitation services.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element COP.9a.	The system supports functional assessment and re-assessment of patients who avail rehabilitation services.				
Interpretation	The system shall support functional assessments and reassessments for patients undergoing rehabilitation services, including physiotherapy, occupational therapy, speech therapy, and clinical psychology. These assessments are conducted using functional assessment scales, incorporated into the clinic's system.				

CHAPTER 3

Management of Medication

Intent of the chapter

This chapter highlights the digital systems requirements for management of medication. The system must have the capabilities to ensure consistent prescription, dispensing and safe administration of medications. The system should provide real-time clinical decision support to medical practitioners while prescribing medications. For example, regarding drug interactions, allergies and contraindications.

Further, it is important for the system to issue alerts for high-risk medication orders and require the healthcare professional to re-confirm the correctness of prescribed dosage, frequency and route of administration. This is important for adherence to stringent safety protocols to reduce risks and protect both patients and healthcare professionals. For example, narcotics, chemotherapeutic agents and radioactive substances.

SUMMARY OF STANDARDS

MOM.1.	The system maintains inventory records for medicines and consumables in the pharmacy.
MOM.2.	The system supports the process of medication management.
MOM.3.	The system provides access to locally approved drug information.

Standard

MOM. 1.	The system maintains inventory records for medicines and consumables in the pharmacy.

Objective Elements

Category	Commitment	Head	CPD	Type	Assessment
Objective Element MOM.1a.	The system has the capability to search, track and maintain inventory records of medicines and consumables in the pharmacy.				
Interpretation	The system should have a medication inventory management system that allows the users to search, track, and maintain real-time records of medicines and consumables. The system should provide the following features: • Maintain real-time stock levels and automatically update inventory following each transaction (e.g., sale, return, or restocking). • Include a Master Drug Register that captures key details for medicines, medical devices, and consumables, for example: o Brand name o Generic name o Strength and formulation o Batch number o Expiry date o Quantity • Support grouping and categorisation of inventory items (e.g., oral medications, injectables, surgical supplies).				

Category	Achievement	Head	CPD	Type	Assessment
Objective Element MOM.1b.	The system classifies inventory items for inventory management.				
Interpretation	The system shall include a feature to classify inventory items. Some of the ways in which it can be done are as follows: • VED (Vital, Essential, Desirable) categorizes items based on their importance to the business process. • FSN (Fast, Slow, Non-moving) classifies items based on their usage rate.				

Interpretation	• SDE (Scarce, Difficult, Easy) groups items based on the availability of supply. • ABC analysis prioritizes items based on their value contribution to the business • Other classification like Emergency Medicine, High Risk Medicine etc.

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element MOM.1.c.	The system notifies about the minimum re-order levels of medications.				
Interpretation	The system shall include a feature to define and configure minimum reorder level for each medication and consumable. The system shall notify and alert if inventory falls below the minimum re-order level of a given medication and consumable.				

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element MOM.1d.	The system provides notifications regarding medications that are approaching their expiration date.				
Interpretation	The system shall generate notification when medications are nearing their expiry dates. The notifications could be sent to the relevant staff through system dashboard, emails, or other alert mechanisms integrated into the clinic's workflow.				

Standard

MOM. 2.	**The system supports the process of medication management.**

Objective Elements

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element MOM.2a.	The system has the capability to identify high – risk medication(s).				

Interpretation	The system has the capability to identify high-risk medication(s) as identified by the clinic. Please refer to Annexure J for examples of such high-risk medications.

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element MOM.2b.	The system alerts the prescription of a high-risk medication.				
Interpretation	The system shall alert the prescription of high-risk medications (for example, narcotic drugs, psychotropic substances, chemotherapeutic agents, radioactive substances) to designated medical practitioners, nursing professionals, para-medical professionals, etc. Please refer to Annexure J for examples of such high-risk medications. The system could also implement a mechanism that is capable of visually tagging high-risk medications.				

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element MOM.2c.	The system generates records of medication errors.				
Interpretation	The system shall assist clinics to maintain records of medication errors including near misses, administration error and adverse drug reactions. The system shall alert physicians to any potential drug interactions or allergies when placing medication orders either through an internally built solution or integrated with external solutions. Please refer to Annexure K for Guidance on Monitoring of Medication Errors				

Standard

MOM. 3.	**The system provides access to locally approved drug information.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element MOM.3a.	The system provides information about drugs which have been approved for usage by CDSCO.				
Interpretation	The system should provide access to information about drugs that have been approved by CDSCO for usage in India. This information can include details like generic equivalents, different brands, package insert information, clinical trial results, approved indications and pricing details. This information compendium can be developed in-house or made available by integrating with a third-party provider via an external APIs or standard drug databases like Common Drug Codes for India (CDCI).				

CHAPTER 4

Digital Application Control

Intent of the chapter

The increasing use of digital technologies in a clinic has made it imperative for Clinic Management Systems to provide secure and easy access to all stakeholders. This chapter focuses on ease of access and provisions to protect the security and privacy of personal health data. By prioritizing compatibility, security, and ease of use, the system can empower healthcare professionals to focus on patient care while maintaining data integrity.

The system should be designed to function seamlessly across major web browsers. The system should have controls in place to secure data i.e., data is encrypted at-rest (in all places, including back-up) and in-transit.

The system should have robust capability to ensure that all patient data sharing outside the clinic happens with appropriate patient consent.

SUMMARY OF STANDARDS

DAC.1.	The system provides secure and flexible access to users.
DAC.2.	The system has robust access and data security controls.

Standard

DAC. 1.	The system provides secure and flexible access to users.

Objective Elements

Category	Commitment	Head	CPD	Type	Assessment
Objective Element DAC.1a.	The system supports secure URL access.				
Interpretation	The system shall enhance the security and integrity of patient data by offering secure URL access. All web-based access to the system including APIs, should be conducted over HTTPS (TLS encryption). Authorized users with proper credentials should be able to access the system through designated URLs. For remote access outside the clinic network, additional security layers such as VPN access or two-factor authentication (e.g., OTP) should be used. These provisions apply to all web-based and cloud-hosted CMSs.				

Category	Achievement	Head	CPD	Type	Assessment
Objective Element DAC.1b.	The system supports application usage on multiple devices.				
Interpretation	The system shall support users to seamlessly access the system through multiple devices including desktops, laptops, tablets, and mobile devices. It should be able to dynamically detect the device's resolution and adjust the display accordingly (a responsive design is recommended). Note: Specific modules of CMS may not be accessible on tablet or mobile devices for security reasons. Also, some modules (e.g., patient portal) may be only designed for tablet or mobile devices.				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element DAC.1c.	The system supports cross-browser compatibility where applicable.				

Interpretation	The system should be compatible with common browsers (For example: Google Chrome, Mozilla Firefox, Microsoft Edge, Safari, and Opera etc.), to ensure consistent user experience across browsers. Ensuring compatibility means that users can access the system regardless of their preferred browser. This broad compatibility should prevent issues such as layout inconsistencies, functionality problems, and performance disparities that can arise from browser-specific quirks. These provisions apply to only web-based and cloud-hosted CMSs and a minimum of 2 common browsers should be supported.

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element DAC.1d.	The system offers multiple digital channels for the patient to engage with the clinic and avail healthcare services.				
Interpretation	The system should provide functionality for availing healthcare services via multiple digital channels, allowing patients to interact with the system through their preferred channels. The system should support at least two or more of the following digital channels - Web Portal (Accessible via desktop/laptop), Mobile Application (Android/iOS app), Chatbots or Messaging Platforms (Integration with instant messaging platforms, SMS, or web chat), Teleconsultation Interface, email. All digital channels should ensure secure authentication and authorization, encrypt sensitive health information during transmission, and maintain access logs and consent trails, where applicable.				

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element DAC.1e.	The system supports a mobile application for medical practitioners that is compatible with the prevalent mobile operating systems.				
Interpretation	The system shall support a mobile application that is compatible with the leading mobile operating system, for example Android and/or IOS operating systems. This enables healthcare professionals to efficiently manage common tasks from their smartphones or tablets. It shall be ensured that major features/functionality of Clinical Management System related to patients' information are simulated on mobile application. The common tasks such as patient history, medication records, records of laboratory and diagnostic investigations etc. should be accessible on a mobile application.				

Interpretation	Mobile applications should be updated regularly with the latest feature/ security updates.

Standard

DAC. 2.	**The system has robust access and data security controls.**

Objective Elements

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element DAC.2a.	The system encrypts all the healthcare data at rest and in transmission.				
Interpretation	To safeguard personal and sensitive data from unauthorized access and maintain confidentiality, the system shall ensure that all healthcare data at rest is encrypted (including backup data). Also, all healthcare data in transmission should be encrypted. The system should employ contemporary data encryption techniques. "These techniques utilize encryption algorithms and protocols to securely encode sensitive PHI (Personal Health Information)".				

Category	Commitment	**Head**	CPD	**Type**	Assessment
Objective Element DAC.2b.	The system provides Role-Based Access Control (RBAC) to patient data.				
Interpretation	The system shall implement Role-Based Access Control (RBAC), ensuring that each user can access only the specific categories of patient data and system functions relevant to their assigned role within the healthcare facility. The system should include RBAC with customizable roles and permissions, ensure the system UI and backend enforce access restrictions consistently, provide user-role mapping and permission matrix documentation, and support audit logging and access report generation.				

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element DAC.2c.	The system configures rules to capture and retain audit logs.				

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Interpretation	The system shall have the capability to define, capture, store, and manage audit logs based on configurable rules, ensuring that all critical events and user actions are traceable and protected from tampering. These logs should capture details such as: User Information, Action Type, Actions performed, Timestamp, Status, and IP Address login. The system should provide configuration interface for administrators to define logging rules and retention settings, ensure logs are immutable and securely stored, and implement filters and export functions to assist with compliance reviews. Audit logs for key events and transactions should include successful log-in, unsuccessful log-in, patient registration, patient discharge, etc.

CHAPTER 5

Digital Operations Management (DOM)

Intent of the chapter

Digital Operations Management chapter outlines the approach, controls, testing and documentation guidelines that software companies need to establish to ensure high quality deliverables.

The CMS vendor should be capable of providing maintenance and support in a timely manner with clearly defined service level agreements (SLAs). This is very important for building trust and comfort within the clinic while using these systems in providing critical care delivery.

The vendor should ensure the secure release of updates and patches to address identified software bugs and security issues.

Healthcare data needs to be preserved over time, both for care delivery and compliance to legal requirements. The system must have the ability to backup and retrieve healthcare data in a timely and efficient manner whenever required.

The system must also provide strong end-user controls e.g., password policy, auto-logout etc. to ensure that only authorized individuals are accessing the system.

Documentation is the backbone of effective software management. System documentation should be emphasized throughout the development process, and user manuals to support easy implementation and use should be available.

Finally, healthcare providers may desire to migrate to another system based on their preferences or changing business needs. The vendor must support the healthcare providers in achieving the migration to a new system.

SUMMARY OF STANDARDS

DOM.1.	The system uses standardised design and implementation methodology.
DOM.2.	The system provides software support and guidance to the users.
DOM.3.	The system manages access controls to provide secure access to the users.
DOM.4.	The system supports the migration to a new system whenever needed by the clinic.

Core Commitment Achievement Excellence

Standard

DOM. 1.	The system uses standardised design and implementation methodology.

Objective Elements

Category	Commitment	Head	CPD	Type	Assessment
Objective Element DOM.1a.	The system distributes master data uniformly throughout all modules.				
Interpretation	The system shall store and share master files and data across all modules. The system should ensure that master data (such as patient, Medical Practitioner, service, department information etc.) is maintained centrally and is consistently accessible and updated across all modules, without duplication or manual synchronization. This feature is essential for maintaining consistent system performance, preventing data duplication.				

Category	Core	Head	CPD	Type	Assessment
Objective Element DOM.1b.	The system has the capability to take backup/archive old data.				
Interpretation	The system shall provide functionality to schedule and perform regular backups of both transactional and master data and retrieval of backup copies. The system shall be capable of retrieving and restoring the backup whenever needed. The system shall follow the data backup/archiving policy/SOP as documented by the clinic. The system shall systematically retain and access data for a specified retention period depending on the law of the state or clinic's requirements (e.g., 5 years or as notified by state laws). Additionally, audit logs shall be maintained to track access and modifications to the archived data, ensuring compliance and accountability. The system may support data archiving mechanisms based on configurable rules (e.g., by data age, patient discharge date, financial year closure etc.), and should include a functionality of data retrieval from archive storage.				

Category	Commitment	Head	CPD	Type	Assessment
Objective Element DOM.1c.	The CMS vendor defines, and practices source code management processes.				
Interpretation	CMS vendors shall have a documented processes for source code versioning, branching, merging, code review, issue tracking, and secure storage. All source codes should be maintained in a secure, version-controlled repository (For example: Git, SVN, Mercurial etc.). Changes to source code should be traceable with records of who made the change, when, and why. The vendor shall have defined processes for releasing builds, hotfixes, patches, and upgrades. Source code backups should be regularly performed and securely stored to prevent loss or corruption. Access to the source code shall be restricted based on roles (principle of least privilege) and monitored. A disaster recovery plan for source code (For example: restoring code from backups) should exist. Open-source components used within the CMS solution should be tracked, with licenses documented and managed properly.				

Standard

DOM. 2.	The system provides software support and guidance to the users.

Objective Elements

Category	Core	Head	CPD	Type	Assessment
Objective Element DOM.2a.	The system provides a help section to guide the users.				
Interpretation	The system should incorporate a help section to provide guidance and support for users. This feature should include resources like comprehensive documentation, frequently asked questions (FAQs), tutorials, user manuals, and other similar resources. Its objective is to assist users in comprehending the system's functionalities, resolving common or technical issues, and enhancing their overall experience.				

Category	Core	Head	CPD	Type	Self-attestation
Objective Element DOM.2b.	The CMS vendor provides maintenance and user support in a timely manner, with clearly defined service level agreements (SLAs).				

Interpretation	The CMS vendor shall have a documented and well-defined service level agreement (SLA) finalized with all its customers before system deployment. The vendor should commit to timelines for addressing different categories of issues (For example: critical, major, minor) as specified in the SLA. Emergency support processes (For example: system outages) should be defined and available. Additionally, skilled IT support staff should be available to provide guidance, perform regular application maintenance, address technical issues, and ensure secure and smooth system operation. Support channels can include in-application support, email, online messaging platform, or phone support. Levels of support, support process and resolution time should be clearly defined by CMS vendor: • L0 Support: Well defined self-help process • L1 Support: Base end-user support (for functionality or technical issues) • L2 Support: Support related to system or admin configuration requirements or issues. Needs deeper expertise in handling technical problems, technology, and product • L3 Support: Support related to software bugs or changes in software deployment. Needs in-depth expertise in computer hardware, software, system architecture, and network configurations. Tasks include diagnosing intricate software bugs, optimizing system performance, and addressing hardware issues. By adhering to well defined SLAs and support practices, the vendor can ensure reliable and efficient support to clinics. In many cases, L0 and L1 support can be managed by the clinic themselves, whereas the CMS vendor can provide L2 and L3 support for the product. The vendor should maintain records of support tickets, response times, and resolutions for audit and review.

Category	Core	**Head**	CPD	**Type**	Self-attestation
Objective Element DOM.2c.	The system has capability to roll-back changes by a designated IT officer, whenever needed.				
Interpretation	The system shall be able to roll-back any changes made. For example: upload of patches, upgrades, and transactions. This roll-back functionality ensures that the system can be correctly restored to the previous working state in case of any errors/ failures with the new changes rolled out in the system, and the staff/ departments can continue working on the previous working state with no loss of system data.				

Standard

DOM. 3.	The system provides software support and guidance to the users.

Objective Elements

Category	Core	Head	CPD	Type	Assessment
Objective Element DOM.3a.	The system has the capability to log critical security incidents and events information.				
Interpretation	The system shall be able to log critical security incidents and events, enabling systematic issue resolution, audit trails, compliance with security standards, and post-incident analysis. This aids in improving the overall robustness of the system over time.				

Category	Core	Head	CPD	Type	Assessment
Objective Element DOM.3b.	The system follows a defined password policy for user authentication.				
Interpretation	The system shall have a password policy functionality, allowing administrators to define and enforce specific rules for user passwords. These policies should include requirements such as minimum length, complexity, and expiration intervals, password renewal timeframe, ensuring a high level of security and compliance with industry standards. Configurable elements must at minimum include Password complexity, Password expiry duration, Password history, Account lockout after a defined number of failed login attempts, Session timeout settings. The system must ensure that password policy meets minimum requirements, For example: • At least eight characters (alpha-numeric, one special character) • Changes in passwords at least every 90 days • Avoidance of commonly used passwords (For example: Password123) • Two factor authentication Passwords must be stored securely and must never be visible or retrievable in plain text.				

Category	Core	Head	CPD	Type	Assessment
Objective Element DOM.3c.	The system has the capability to configure auto screen lock feature.				
Interpretation	The system shall have the capability to set up an automatic screen lock feature (i.e., idle after a certain duration). This functionality enhances security by automatically locking user screens after a specified period of inactivity, thereby preventing unauthorized access in situations where users leave their workstations unattended.				

Standard

DOM. 4.	The system supports the migration to a new system whenever needed by the clinic.

Objective Elements

Category	Core	Head	CPD	Type	Assessment
Objective Element DOM.4a.	The system supports the migration to a new system whenever needed by clinic management.				
Interpretation	The CMS vendor must provide a documented system and data migration plan. The plan must include a list of data which will be made available during migration and what data will not be made available during migration to a new system. The System vendor must provide documentation with the details of the relevant data structures and definitions of all data elements to the clinic. The system vendor must provide documentation on how the system data can be exported, and how it can be retrieved by a new system being implemented by the clinic.				

CHAPTER 6

Finance and Procurement Management (FPM)

Intent of the chapter

In today's rapidly evolving landscape, digitalization has become a cornerstone for efficient and streamlined business operations. For clinics, adopting digitalized finance, procurement, and billing offer significant advantages - track finances and cashflows, manage procurement, patient billing and payment processes. This chapter focuses on

- Finance and Procurement Process for Suppliers:
    - o Stakeholder Communication: Suppliers are the key stakeholders in any healthcare ecosystem. Digitalized finance processes ensure suppliers remain informed throughout the payment lifecycle.
    - o Supply Chain and Vendor Management: Systems should extend their capabilities beyond finance to supply chain and vendor management. Real-time data on inventory levels, enables proactive decision-making.
- Seamless Patient Billing: The digitization of billing processes significantly enhances patient experience. Patients should have convenient options to settle bills through various channels including online banking, mobile apps etc. The system should be capable of performing automated calculations to minimize errors, ensuring accurate billing and prompt settlements.

Note : Finance & Procurement Management (FPM) is an optional module. If the Clinic Management System supports FPM functionalities, the following standards shall apply. Within FPM, Objective Elements are graded as Core, Commitment, Achievement, or Excellence, indicating increasing levels of maturity.

SUMMARY OF STANDARDS

FPM.1.	The system has the capability to manage the supply chain process.
FPM.2.	The system manages vendor payments.
FPM.3.	The system performs patient billing functions.
FPM 4.	The system supports insurance payment functions.

Core Commitment Achievement Excellence

Standard

FPM. 1.	The system has the capability to manage the supply chain process.

Objective Elements

Category	Core	Head	PCM	Type	Assessment
Objective Element FPM.1a.	The system configures masters, workflows, and rules for procurement management.				
Interpretation	The system shall configure masters, workflows, and rules for procurement management functions, involving procurement of medical devices, equipment, products, and services needed by a clinical facility. Some of the features include need identification, supplier selection, purchase order approval, and order placement. The system shall have the capacity to configure master for procurement and inventory management, such as material and supplier masters, and configure workflows for supplier onboarding, procurement, quality control, and stock management, adapting to specific healthcare needs like medical devices versus general supplies.				

Category	Achievement	Head	PCM	Type	Assessment
Objective Element FPM.1b.	The system creates and tracks the purchase order.				
Interpretation	The system shall have the capability to create, modify, and track purchase orders as per the clinic's policy. The system should streamline the procurement process, minimizing the time and effort needed for creating and tracking the orders.				

Standard

FPM. 2.	The system manages vendor payments.

Objective Elements

Category	Core	Head	PCM	Type	Assessment
Objective Element FPM.2a.	The system supports payments through multiple online/digital channels.				
Interpretation	The system shall support a range of commonly used digital payment channels for making payments. These channels include Electronic Funds Transfer (EFT), wire transfer, online bill payment through a bank's website, mobile payment applications, Unified Payments Interface (UPI), credit/ debit card payments, etc. The system shall also have the capability to capture the mode of payment along with other relevant information for easy reconciliation.				

Category	Achievement	Head	PCM	Type	Assessment
Objective Element FPM.2b.	The system maintains a record of all payables and receivables of suppliers.				
Interpretation	The system shall have the capability of maintaining comprehensive digital records of all payable and receivables. In the context of a clinic this includes detailed financial transactions with suppliers.				

Category	Commitment	Head	PCM	Type	Assessment
Objective Element FPM.2c.	The system generates debit/credit notes for suppliers.				
Interpretation	The system shall support generation of both debit and credit notes for suppliers.				

Standard

FPM. 3.	The system performs patient billing functions.

Category	Core	Head	CPD	Type	Assessment

Core Commitment Achievement Excellence

Objective Element FPM.3a.	The system configures rates for various services provided by the clinic.
Interpretation	The clinic shall configure rates for all the services being offered. This flexibility allows for customized pricing based on the services provided.

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element FPM.3b.	The system configures patient billing templates.				
Interpretation	The system shall have the feature of configurable billing templates, tailored to the needs of clinic ensuring consistency across all billing documents. The template includes at least the following but is not limited to- a) Unique Patient Identifier b) The date on which the bill was generated and the date(s) over which the services were delivered c) Details of the services availed In addition, the bill shall clearly mention all necessary disclaimers as per the clinic's policy.				

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element FPM.3c.	The system generates patient bills as per the goods and services provided.				
Interpretation	The system shall generate bills based on the services provided, goods and services provided, any applicable taxes, any applicable discounts, specific billing rules of the Clinic and Insurance companies.				

Category	Core	**Head**	CPD	**Type**	Assessment
Objective Element FPM.3d.	The system supports patient bill payments through various digital payment channels.				
Interpretation	The system shall support multiple digital payment methods, enabling patients to pay their medical bills. These include credit/debit cards, UPI, bank transfers and other digital payments.				

Standard

FPM. 4.	The system supports insurance payment functions.

Objective Elements

Category	Commitment	Head	CPD	Type	Assessment
Objective Element FPM.4a.	The system captures patients' insurance details, including their eligibility and coverage.				
Interpretation	The system shall capture insurance eligibility and coverage post-verification which could be performed either digitally or manually. This includes confirming the patient's insurance details such as policy number, coverage dates, co-payments, deductibles, and any applicable limitations or exclusions.				

Category	Achievement	Head	CPD	Type	Assessment
Objective Element FPM.4b.	The system captures pre-authorization details from the payor for planned treatment/procedures.				
Interpretation	The system shall be able to capture pre-authorization or pre-approval information for billing requirements. Pre-authorization from the payor could be performed either digitally or manually. Pre-authorization functionality allows the system to submit planned treatment details to payors for pre-approval on the estimated treatment costs done either digitally or manually. The payor category includes TPA/Insurance companies or any applicable government insurance schemes.				

Category	Achievement	Head	CPD	Type	Assessment
Objective Element FPM.4c.	The system captures the claim submission for the payors.				
Interpretation	The system shall be able to capture the details and cost of the final treatment provided to the patient and as submitted for reimbursement purposes to the payor (can be done digitally or manually). In addition to the claim submission, the system should also have the capability to capture any associated or relevant correspondence made with the insurance company towards the claim settlement.				

Category	Excellence	Head	CPD	Type	Assessment
Objective Element FPM.4d.	The system has the capability to submit health insurance claims via the National Health Claims Exchange (NHCX).				
Interpretation	The system shall be able to submit health insurance claims via National Health Claims Exchange (NHCX). NHCX enables the standardization and automation of health claim-related information exchange between payors, clinics, beneficiaries, and other stakeholders. NHCX is supported by the National Health Authority (NHA) and aligns with the IRDAI guidelines. To support NHCX, the systems must have complied with the following: 1. M1 integration requirements of ABDM 2. Integration with NHCX APIs 3. Attain NHCX certificate from NHA				

CHAPTER 7

Human Resource Management (HRM)

Intent of the chapter

Human resources are a vital aspect of any organization, serving as a key asset for effective and efficient operations. The Human Resource Management (HRM) chapter defines how leveraging Clinic Management Systems can optimize HR processes and enhance overall organizational efficiency. By digitizing routine tasks such as records management, attendance tracking, CMS frees HR staff from manual administrative burdens.

A centralized database for staff information helps to ensure accuracy and compliance with privacy regulations.

The system should enable staff to independently manage their HR information, thereby reducing the workload of the HR team and allowing them to focus on more strategic tasks.

Embracing digitalization empowers the workforce, ensures compliance, and positions organizations for sustained growth.

Note : Human Resource Management (HRM) is an optional module. If the Clinic Management System supports HRM functionalities, the following standards shall apply. Within HRM, Objective Elements are graded as Core, Commitment, Achievement, or Excellence, indicating increasing levels of maturity.

SUMMARY OF STANDARDS

HRM.1.	The system manages human resource administration.

Core Commitment Achievement Excellence

Standard

HRM. 1.	**The system manages human resource administration.**

Objective Elements

Category	Core	**Head**	HRM	**Type**	Assessment
Objective Element HRM.1a.	The system captures personal and professional data (master data) related to medical and non-medical staff.				
Interpretation	The system shall manage key staff data, including departments, roles, and personal files with contact details, employment history, health records, trainings, certifications, job duties, benefits, compensation, and disciplinary actions. It shall include forms for staff information like names, addresses, phone numbers, emergency contacts, emails, gender, date of birth, bank details, education, and certifications. Document uploads should include birth certificates, Aadhaar cards, PAN cards, licenses, photographs, and registrations. Forms shall have fields for personal info, job roles, qualifications, and family details. Functionality shall include Create, Read, Update, delete for staff records, permissions management, data security, leave types, attendance, payroll, skills, competencies, and training.				

Category	Core	**Head**	HRM	**Type**	Assessment
Objective Element HRM.1b.	The system assigns unique IDs and role/s to every staff.				
Interpretation	The system shall be able to assign a unique identifier to each member of staff within the clinic. Upon creating a new staff record and providing the respective role, the system shall automatically generate a unique staff ID, ensuring that each ID remains exclusive across the entire system.				

Category	Achievement	**Head**	HRM	**Type**	Assessment
Objective Element HRM.1c.	The system has the capability to configure duty rules for the staff.				

Interpretation	The system shall have the capability to configure duty rules for the staff, which is essential for efficient workforce scheduling. Real-time parameters for this process may include dynamic adjustments to templates based on factors such as staff availability, skill sets, unexpected absences, urgent tasks, or operational changes and compliance with labour regulations. Additionally, the system shall be configured to capture, store, perform, and execute operations in real-time based on available data. This includes staff-specific duty start and end hours for each shift and break, day offs, weekends, monthly leave allowance, additional shifts, shift codes, tour or event schedules, overtime, and extra shifts.

Category	Core	**Head**	HRM	**Type**	Assessment
Objective Element HRM.1d.	The system manages staff attendance and maintains records.				
Interpretation	The system shall be able to configure attendance for various employees. It can be done by setting attendance rules and schedules, tracking clock-in and clock-out times, or by providing reporting tools to analyse attendance patterns and identify trends etc. The system shall have an attendance management module, providing options for capturing attendance – manual entry, biometric verification (fingerprint or face detectors), integration with attendance tracking devices (access cards), or location-based recording (mobile apps or web interfaces). The system shall maintain records of attendance. The system will display the leave balance for the staff and give options for applying for leaves.				

Category	Achievement	**Head**	HRM	**Type**	Assessment
Objective Element HRM.1e.	The system has the capability to calculate, maintain and share staff payroll.				
Interpretation	The system shall be able to configure payroll registers for various employees. This can include things like setting up payment schedules, calculating gross and net pay, managing deductions such as taxes and insurance, ensuring compliance with labour laws etc. Additionally, it should accommodate different types of employees, such as full-time, part-time, and contract workers, each with their own unique payroll needs. The system may be integrated within the payroll module which enables staff to view and download configured rules for salary components, tax calculations, pay slips, and other payroll-related documents.				

CHAPTER 8

Information Management System (IMS)

Intent of the chapter

The purpose of this chapter is to establish a comprehensive set of CMS standards and guidelines for facilitating interoperability, security, privacy, and integrity of patient data. Digital healthcare systems must adhere to established digital healthcare standards and demonstrate compliance. By adhering to relevant digital health standards, organizations can enhance the functionality and reliability of their digital solutions.

Key standards and guidelines covered in this chapter include:

- Interoperability and continuity of care
- Key Performance Indicators and Analytics
- Compliance with Quality and Security Standards

By following these guidelines, CMS vendors can build open systems that form the backbone of a resilient and efficient healthcare ecosystem, ensuring trust and reliability in digital health solutions.

SUMMARY OF STANDARDS

IMS.1.	The system supports recognized healthcare data and interoperability standards, including ABDM.
IMS.2.	The system has the capability to support NABH defined Key Performance Indicators and analytical dashboards.
IMS.3.	The system complies with Security standards.

Standard

IMS. 1.	The system supports recognized healthcare data and interoperability standards, including ABDM.

Objective Elements

<table>
<tr><td>Category</td><td>Core</td><td>Head</td><td>CPD</td><td>Type</td><td>External Certification (NHA)</td></tr>
<tr><td>Objective Element IMS.1a.</td><td colspan="5">The system supports a minimum set of clinical ABDM FHIR profiles to exchange data with other systems.</td></tr>
<tr><td>Interpretation</td><td colspan="5">FHIR – Fast Health Interoperability Resource is a globally accepted standard for healthcare information management and exchange. The system should support ABDM FHIR profiles to exchange data with other systems.

ABDM provides a framework for implementation and exchange of FHIR to create an interoperable digital healthcare ecosystem.

The system should implement capture and exchange of the following ABDM FHIR resource profiles as a core capability.

<table>
<tr><th>Profile</th><th>Description</th></tr>
<tr><td>Diagnostic Report Record</td><td>This profile represents diagnostic reports including Radiology and Laboratory reports that can be shared across the health ecosystem.</td></tr>
<tr><td>Outpatient Consult Record</td><td>This represents the outpatient visit consultation note which may include clinical information on any Outpatient examinations, procedures along with medication administered, and advice that can be shared across the health ecosystem.</td></tr>
<tr><td>Immunization Record</td><td>This represents the immunization records with any additional documents such as vaccine certificate, the next immunization recommendations, etc.</td></tr>
<tr><td>Prescription Records</td><td>This represents the medication advice to the patient in compliance with the Pharmacy Council of India (PCI) guidelines, which can be shared across the health ecosystem.</td></tr>
</table>

ABDM FHIR standards for a reference are available at the National Resource centre for EHR standards: https://www.nrces.in/ndhm/fhir/r4/index.html</td></tr>
</table>

Category	Commitment	Head	CPD	Type	Assessment
Objective Element IMS.1b.	The system supports an extended set of clinical ABDM FHIR profiles to exchange data with other systems.				

Interpretation

The system shall have the capability to capture and exchange the following ABDM FHIR resource profiles:

Profile	Description
Observation Vital Signs	This profile sets minimum expectations for the Observation Vital Signs to record, search, and fetch the details of the vital signs of a patient.
Observation General Assessment	This profile sets minimum expectations for the Observation General Assessment to record, search, and fetch the details of the general health assessment of a patient.
Immunization Diagnostic Report Imaging	This profile represents the set of information related to the imaging diagnosis report generated by imaging services like Radiology, Cardiology, Endoscopy, etc. are ordered for the patient.
Family Member History	This profile sets minimum expectations for the Family Member History resource for searching and fetching significant health conditions of a person related to the patient in the context of care.

ABDM FHIR standards for a reference are available at the National Resource centre for EHR standards: https://www.nrces.in/ndhm/fhir/r4/index.html

Category	Achievement	Head	CPD	Type	Assessment
Objective Element IMS.1c.	The system supports an advanced set of clinical ABDM FHIR profiles to exchange data with other systems.				

Interpretation

The system shall have the capability to capture and exchange the following ABDM FHIR resource profiles:

Profile	Description
Health Document Record	This represents the unstructured historical health records as a single of multiple Health Record Documents generally uploaded by the patients through the health locker and can be shared across the health ecosystem.
Wellness Record	This represents regular wellness information of patients typically through the Patient Health Record (PHR) application covering clinical information such as vitals, physical examination, general wellness, women's wellness, etc., that can be shared across the health ecosystem.
Medication Statement	The Medication Statement resource can be used to record a patient's medication information. It is used to record the information about the medications consumed by the patient in the past, present, or future.
Observation Lifestyle	This profile sets minimum expectations for the Observation Lifestyle to record, search, and fetch the details of the lifestyle of the patient.
Observation Physical Activity	This profile sets minimum expectations for the Observation Physical Activity to record, search, and fetch the details of the physical activities of a patient.
Specimen	This profile sets minimum expectations for the Specimen resource to searching for and fetching information regarding a sample to be used for the analysis of a patient.

ABDM FHIR standards for reference are available at the National Resource centre for EHR standards: https://www.nrces.in/ndhm/fhir/r4/index.html

Category	Core	Head	CPD	Type	Assessment
Objective Element IMS.1d.	The system supports ICD 10/11 or SNOMED CT covering clinical terminologies for diagnosis, morbidity and mortality data accurately.				

Interpretation	The system shall support ICD 10/11 or SNOMED CT codes. The system should have the capability to prompt and recommend the relevant ICD 10/11 or SNOMED-CT codes. Implementation of ICD 10/11 or SNOMED-CT can be done through application user interface, backend matching services, or through dedicated medical coding service modules.

Category	Excellence	**Head**	CPD	**Type**	Assessment
Objective Element IMS.1e.	The system supports SNOMED-CT or NRCeS Drug Registry for coding of drugs and devices.				
Interpretation	The systems shall support the use of SNOMED-CT or NRCeS Drug Registry for coding of drugs and devices. These terminologies enable healthcare systems to accurately identify and exchange information about medications and medical devices. The system shall support coding of prescriptions through the application user interface, backend matching services or through dedicated medical coding service modules.				

Category	Excellence	**Head**	LTS	**Type**	Assessment
Objective Element IMS.1f.	The system supports laboratory tests and observation terminologies and implements coding of lab with LOINC codes.				
Interpretation	The system shall support laboratory tests and observation terminologies and implement coding of lab with LOINC codes. Logical Observation Identifiers Names and Codes LOINC is a standardized coding system used to identify and exchange laboratory test results and clinical observations across different healthcare settings and information systems. By integrating LOINC codes into its data architecture, the system ensures that laboratory data is uniformly coded and can be easily exchanged and interpreted by healthcare professionals, regardless of the healthcare facility or system where the tests were performed. NRCeS (National Resource Centre for EHR Standards) maintains a list of LOINC codes for the most common laboratory tests conducted in India. Implementing coding of laboratory results and observations can be done through the application user interface, backend matching services or through dedicated medical coding service modules.				

Interpretation	The system should support the following LOINC related capabilities: • Implement upload, upgrade and deprecation and storage of LOINC codes by version into the system Populate applicable outbound FHIR data exchange messages with system supported LOINC codes.

Category	Excellence	**Head**	RLS	**Type**	Assessment
Objective Element IMS.1g.	The system supports DICOM (Digital Imaging and Communications in Medicine) standards for imaging datasets.				
Interpretation	The system shall provide the functionality for medical professionals to view captured images from multiple modalities, radiologist reports, readings and annotations relevant to the encounter and historical images. Medical imaging plays an instrumental role in diagnostics and quality of care. With increasing use of medical imaging, access to medical images along with clinical data of patients helps physicians provide better care. The system shall support following DICOM related capabilities • Support imaging visualization and storage of medical images. • System should support modalities relevant to the medical specialties e.g., Ultrasound for mother and childcare, X-Rays/MRI/CT for orthopedics (viewing capabilities required for regular PC/laptop screens) • Implement the following ABDM imaging resource FHIR profiles o Diagnostic report Imaging o Imaging Study Reference: https://www.nrces.in/standards/dicom				

Category	Commitment	**Head**	CPD	**Type**	Assessment
Objective Element IMS.1h.	The system connects with external devices and stores captured information.				
Interpretation	For carrying out day to day administrative functions in a clinic several devices may be required to be connected with system. These devices could be • Biometric device (e.g. for attendance, access to the system) • RFID Reader (e.g. for restricted areas access, patient identification)				

Interpretation	• Scanners (e.g. for patient related documents) • Printers (e.g. for billing, reports) • Barcode scanners (e.g. for pharmacy, lab samples) The system shall have provisions to connect with such devices and capture data transmitted.

Standard

IMS. 2.	**The system has the capability to support NABH defined key performance indicators and analytical dashboards.**

Objective Elements

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element IMS.2a.	The system electronically computes and publishes Key Performance Indicators (KPIs) per NABH Standards for Allopathic Clinics Second Edition.				
Interpretation	The system shall capture relevant patient and administrative data and compute the following KPIs as per NABH Standards for Allopathic Clinics Second Edition. The list of KPIs to be computed by system is given in Annexure L. The system should have the ability to compute the KPIs based on end-user defined periods (start/end dates) and export the KPIs and underlying computation to end-users for further analysis in JSON, .csv, .xml, .xls, .pdf formats.				

Category	Commitment	**Head**	CPD	**Type**	Assessment
Objective Element IMS.2b.	The system can create a clinic's operational performance dashboard.				
Interpretation	The system can create the clinic's operational performance dashboard for the following mandatory indicators. • Total number of patients seen over a specified time. • Categorization of patients by gender, Age Group, geography • Monthly, item-wise and Total Revenue Realization • Pending payments				

Interpretation	The system can have the capability to create dashboard for other indicators as deemed required by clinics. Examples of other indicators include – Appointment no-show rate, patient throughout, staffing ratios, medical equipment utilisation, cost per patient, operating margin etc.

Category	Achievement	**Head**	CPD	**Type**	Assessment
Objective Element IMS.2c.	The system provides templates for different services, which can be configured by the clinic.				
Interpretation	The system shall provide templates for different services, which can be configured by the clinic. Some examples of these templates are given below • Templates for different healthcare packages, detailing the inclusion and exclusion of services, charges, etc. These packages can include charges based on the type of services available, such as medical treatment, medicines, daycare services, consultation, dietary services, etc. • Templates for routine check-ups, specifying the necessary tests and consultations. • Templates for chronic disease management, outlining the required follow-up visits and treatments. • Templates for preventive health packages, including vaccinations and wellness screenings. Users shall be able to configure template sections, including headings, subheadings, and content blocks. The system shall provide a library of pre-designed components that users can include into the templates. Users shall have the ability to save, preview, and print templates before finalizing them.				

Standard

IMS. 3.	**The system complies with Security standards.**

Objective Elements

Category	Excellence	**Head**	CPD	**Type**	Third party certification (ISO)
Objective Element IMS.3a.	The CMS Vendor should comply with ISO 27001 – 2022 information security standards .				

Core Commitment Achievement Excellence

Interpretation	The system should be built in adherence to applicable chapter 8 – Technological controls of ISO 27001-2022 standards. These include- • Secure Development lifecycle • Application security requirements • Secure system architecture and engineering The system should support implementation of the following security requirements- • Tracking of user endpoint devices • Implementation of privileged access rights • Information access rights • Access to source code • Secure authentication • Protection against malware • Management of technical vulnerabilities • Data leakage prevention • Information backup • Redundancies of Information processing facilities • Monitoring activities • Use of privileged utility programs • Installation of system on operational systems

Category	Commitment	**Head**	CPD	**Type**	External Certification
Objective Element IMS.3b.	The system shall have a valid WASA certification.				
Interpretation	The system shall adhere to WASA compliance standards and obtain formal WASA certification from an accredited cybersecurity organization at least every two years or following any major system upgrades, whichever occurs first. The WASA certification should have a minimum of 6 months validity at the time of NABH certification application submission. This measure ensures that the system remains free from known technical vulnerabilities identified by cybersecurity authorities, thereby guaranteeing data protection. These provisions are applicable only for web-based or cloud-hosted CMSs.				

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GLOSSARY

S.no.	Word	Definition
1	ABHA	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.
2	Access rights	Access rights refer to the permissions an individual user or a computer application holds to perform specific operations on a computer file, object, or system. These permissions can include the ability to: • Read from a file • Write to a file • Modify files or configurations • Delete files • Add or remove applications
3	Accreditation	A self-assessment and external peer review process used by health and social care organisations to accurately assess their level of performance in relation to established standards and to implement ways to continuously improve the health or social care system.
4	Audit log	An audit log, also known as an audit trail or audit history, is a chronological record of events, actions, and changes within a computer system, software application, network, or organization. It provides documentary evidence of the sequence of activities that have affected at any time a specific operation, procedure, event, or device.
5	CDSS	Clinical Decision Support System (CDSS) provides 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.
6	Certification	Formal recognition of compliance with set standards validated by external evaluation.

S.no.	Word	Definition
7	CPOE	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
8	Digital signatures	There can be several options for digital signatures: a. 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. b. 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. c. 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). d. Biometric signatures: These involve using unique personal characteristics, such as fingerprints or facial recognition, to authenticate the signer. 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.
9	eMAR	Electronic Medication Administration Record
10	Employee	Employees of the organisation including temporary and permanent staff.
11	Encryption techniques	Encryption of clinic 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.

S.no.	Word	Definition
12	FHIR	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 healthcare ecosystem. FHIR focuses on implementation and uses the latest web technologies to aid rapid adoption.
13	FHIR profiles	A Fast Healthcare Interoperability Resources (FHIR) profile is a set of rules that define how different healthcare systems process resources. FHIR profiles are built on top of the base FHIR specification and can include requirements and constraints on a resource. They can describe the features a system supports for a resource, or the information it handles or produces for a specific use case.
14	Goods	Goods refer to tangible items or commodities used for various purposes.
15	Healthcare organization	In this document, healthcare organization refers to the organizations providing care delivery, like clinics.
16	HL7	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.

S.no.	Word	Definition
17	ICD	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 endings, complaints, social circumstances, and external causes of injury or disease.
18	Inventory	Inventory, also known as stock, refers to the goods and materials that a healthcare facility has on hand.
19	ISO 27001	ISO/IEC 27001 is the international standard for information security management. Part of the ISO 27000 series, ISO 27001 sets out a framework for all organisations to establish, implement, operate, monitor, review, maintain and continually improve an ISMS (information security management system).
20	KPI	Key Performance Indicators are 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.
21	LOINC	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.
22	Master data	Master data is the set of identifiers that provides context about business data such as location, customer, product, asset, etc.
23	Medical practitioners	In this document medical practitioners refer to the clinical service providers like doctors.
24	Medication	Medication, for the reference in this document, includes all medicines, medical devices, implants, consumables, vaccines and other items that are regularly used in a clinic pharmacy.

S.no.	Word	Definition
25	Medico legal case	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.
26	NRCeS	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.
27	Nursing professional	A nursing professional, often referred to as a nurse, is a healthcare provider who is trained and licensed to practice nursing. Nurses integrate the art and science of caring and focus on the protection, promotion, and optimization of health and human functioning. They play a crucial role in the prevention of illness and injury, facilitation of healing, and alleviation of suffering through compassionate presence.
28	OPD	People with health problems who visit the clinic for diagnosis or treatment, but do not require a bed or to be admitted for overnight care are treated at the Outpatient department.
29	Operating System	An Operating System (OS) is a type of system software that manages computer hardware and software resources and provides common services for computer programs.
30	Patient identifier	A patient identifier is a unique data element that helps distinguish one patient from another, ensuring accurate identification and reducing the risk of medical errors. These identifiers help maintain patient safety and facilitate care coordination across healthcare settings.
31	PHI	Personal Health Information (PHI) is any information that can be linked to an individual and relates to their health status, healthcare, or payment for healthcare services
32	Referral	In the medical context, a referral is the transfer of care for a patient from one clinician or clinic to another by request. It is a written order from a primary care physician arranging for a patient to see a specialist for a specific medical service.

S.no.	Word	Definition
33	Role-based access control (RBAC)	Role-based access control (RBAC) is a system that limits access to resources based on a user's role within an organization. RBAC systems assign access and actions to users based on their job roles and designations, and everyone with a given role has the same rights. This approach can help protect sensitive data from improper access and misuse, while also ensuring that employees have the information, they need to do their jobs
34	Sentinel event	A sentinel event is an unexpected occurrence in a healthcare setting that results in death or serious physical or psychological injury to a patient, or the risk thereof.
35	Single sign on	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
36	SLA	SLA stands for service level agreement. It refers to a commitment between a service provider and a client, including details of the service, the standards the provider must adhere to, and the metrics to measure the performance.
37	SNOMED-CT	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.
38	Specialist	In this document, specialist refers to the medical practitioners who have a specialization in a particular area, e.g., dermatology, gynaecology etc.

S.no.	Word	Definition
39	Stakeholder	A person, group or organisation that has interest or concern in an organisation. Stakeholders can affect or be affected by the organisation's actions, objectives and policies. Internal stakeholders are individuals who are already committed to serving the organisation such as board members, staff and volunteers, including surveyors. External stakeholders are individuals who are impacted by the work of the organisation such as clients and community partners.
40	System	In this document, system refers to the CMS or software that is deployed in the healthcare organizations.
41	Teleconsultation	Teleconsultation, also known as remote consultation or telehealth, refers to interactions that happen between a clinician and a patient for the purpose of providing diagnostic or therapeutic advice through electronic means. It's a type of telemedicine service, where digital information and communication technologies, such as computers and mobile devices, are used to deliver health related information
42	Time stamp	A "timestamp" is a sequence of characters or encoded information identifying when a certain event occurred, usually giving date and time of day, sometimes accurate to a small fraction of a second.
43	User	In this document, users refer to all the nonclinical professionals using the system like administration staff, technicians etc.
44	WASA	Web Application Security Testing is a process to identify the vulnerabilities present in a web application.

ANNEXURE A – Sample Patient Registration details

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
A	Registration		
A1	Date of First Visit		Calendar View, Date Selection
A2	Visit Type	o New o Follow Up	Radio Button
A3	Point of Origin	o Referred by _____ o Self o Health Camp o Through Mobile Application o Through Website o Through Call Centre/Phone o Walk-in o Others, ____	Radio Button
A4	Others/Remarks		Free Text Field
B	Demographic Information		
B1	Patient First Name		Free Text Box
	Patient Middle Name		Free Text Box
	Patient Last Name		Free Text Box

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
B2	Father Name		Free Text Box
B3	Mother Name		Free Text Box
B4	Guardian Name		Free Text Box
B5	Spouse Name		Free Text Box
B6	Registered National ID Number	☐ Aadhar, ___ ☐ Driving License, ___ ☐ ABHA, ___	Checkbox
B7	Date of Birth		Calendar View, Date Selection
B8	Age on day of Registration		Numeric Field limits from 0 to 125
B9	Sex	o Male o Female o Other o Unknown	Radio Button
B10	Religion	o Hindu o Sikh o Jain o Parsi o Muslim o Christian o Others	Radio Button
B11	Place of Residence		Free Text Box
B12	Telephone Number		Numeric Field
B13	Mobile Number		Numeric Field
B14	Email		Free Text Box

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
B15	Mother Tongue	o Assamese o Bengali o English o Gujarati o Hindi o Kannada o Kashmiri o Malayalam o Manipuri o Marathi o Mizo o Nepali o Oriya o Punjabi o Sanskrit o Sindhi o Tamil o Telugu o Urdu o Others (specify)____	Radio Button
B16	Education	o Illiterate o Literate o Primary o Middle o Secondary o Technical o College and above o Unknown	Radio Button

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
B17	Socio Economic Status	o Low income o Medium income o High income o Unknown	Radio Button
B18	Unique Identifier		Autogenerated
B19	Health Insurer		Free Text Field
B20	Health insurance policy number		Free Text Field
B21	Health Insurance Plan		Free Text Field
B22	Health Insurance Start Date		Calendar View, Date selection
B23	Health Insurance Term End Date		Calendar View, Date selection
B24	Health Insurance Sum Insured		Free Text Field
B25	Copayment Policy		Free Text Field
B26	Deductibles		Free Text Field
B27	Exclusions		Free Text Field
B28	Limits		Free Text Field
B29	Others/Remarks		Free Text Field

ANNEXURE B – Case History Details

1. General Assessment

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
A	History of Presenting Illness		
A1	Date of Assessment		Calendar View, Date
A2	Chief Complaint		Free Text Field
A3	History of Presenting Complaint	Onset ___ Duration ___months ___years Symptoms _____ Relieving and Aggravating factors____ Others _____	Free Text Fields
A4	History of Past Illness	History of Hospitalization_____ History of Past Illnesses_____ Any similar illness in past____ Blood transfusions____ Others _____	Free Text Fields
A5	Vital Signs	BP Heart Rate Temperature Weight Height Waist Circumference Hip Circumference SPO2	Free Text Fields

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
A6	Physical Examination		Free Text Field
A7	Others/Remarks		Free Text Field
B	Medication, Allergies and Vaccination History		
B1	Current Medications		Free Text Field
B2	OTC/self-medication		Free Text Field
B3	Traditional Medicines		Free Text Field
B4	Drug Allergies		Free Text Field
B5	Vaccination History		
B6	Others/Remarks		Free Text Field
C.	Personal History		
C1	Occupation	o Serviced Employee o Housewife o Student o Unemployed o Labourer o Retired o Others, ____	Radio button

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
C2	Smoking Status	o Never o Ex-Smoker o Occasional o Regular	Radio button
C3	Alcohol Consumption	o Never o Ex-Smoker o Occasional o Regular	Radio button
C4	Tobacco Chewing	o Never o Ex-Smoker o Occasional o Regular	Radio button
C5	Allergies/Adverse Reactions	o No o Yes, specify __	Radio button
C6	Stress Factors		Free Text Field
C7	Diet/Nutrition Assessment		Free Text Field
C8	Sleep Duration		Free Text Field
C9	Others/Remarks		Free Text Field
D	F		
D1	History of Chronic Diseases in Family	☐ Hypertension ☐ Cardiovascular Disease ☐ Diabetes Mellitus ☐ Others, _____	Checkbox

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
D2	Hereditary Conditions		Free Text Field
D3	Family History Relevant to Presenting Illness		Free Text Field
D4	Others/Remarks		Free Text Field

2. System Specific Assessment

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
A	Multi System Assessment		
A1	Date of Assessment		Calendar View, Date selection
A2	Cardiovascular System	☐ Breathlessness ☐ Palpitation ☐ Pain in legs on walking ☐ Swelling around ankles Notes _____	Checkbox
A3	Respiratory System	☐ Shortness of breath (exercise tolerance) ☐ Cough ☐ Chest pain while breathing or coughing ☐ Sputum production ☐ Blood in sputum Notes _____	Checkbox

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
A4	Gastrointestinal System	☐ Difficulty swallowing ☐ Pain during swallowing ☐ Nausea and vomiting ☐ Blood in vomitus ☐ Heartburn ☐ Pain abdomen ☐ Change in stool colour Notes _____	Checkbox
A5	Nervous System	☐ Headaches ☐ Dizziness / Fainting / Altered sensation ☐ Fits ☐ Visual disturbance ☐ Hearing problems (deafness, tinnitus) ☐ Memory and concentration changes Notes _____	Checkbox
B	Menstrual History		
B1	Menstrual History	o Yes o No	Radio Button If F1 is No, then F2-F7 disable
B2	Age of Menarche		Calendar View, Date selection
B3	Menstrual Status	o Regular o Irregular o Menopause	Radio Button
B4	Last Menstrual Period		Calendar View, Date selection

S. No.	Data Elements	Clinician's Response	Remarks for Vendors
B5	Flow	o Scanty o Regular o Heavy	Radio Button
B6	Painful	o Yes o No	Radio Button
B7	Others/Remarks		Free Text Field
C	Obstetric History		
C1	Obstetric History	o Yes o No o Unknown	Radio Button If G1 is No, then G2-G5 disable
C2	Number of Living Children		Numeric Field
C3	Number of Abortions		Numeric Field
C4	Number of Miscarriages		Numeric Field
C5	Number of Still-Births		Numeric Field
C6	Others/Remarks		Free Text Field

ANNEXURE C: Discharge Form Summary

This document serves as a standardized template for capturing patient discharge information. It provides a structured format to capture essential details about a patient's day-care stay, treatment, and condition at the time of discharge.

The template ensures consistency, clarity, and completeness of information shared with patients, caregivers, and follow-up healthcare providers, supporting effective continuity of care and adherence to post-discharge instructions.

Clinic's Logo / Name

- **Address:** [Add Clinic's Address Here]
- **Contact Information:** [Add Contact Information Here]

Patient Details

- Name: ..... [Patient Name]
- Age/Sex: ..... [Age and Gender]
- Patient ID / Medical Record Number: ..... [ID / Number]
- Date of Admission: ..... [Admission Date]
- Date of Discharge: ..... [Discharge Date]

Admission Details

- **Reason for Admission:**

.....

Clinical Summary

- .....
- [Include a concise summary of patient condition, diagnosis, treatment, and progress during the stay. Include major events, surgeries performed, and response to treatment.]

Treatment Provided

[Details of all treatments or surgeries performed, medication plans, diagnostic tests, and any special procedures.]

Discharge Condition

[Description of the patient's condition at the time of discharge.]

Prescribed Medications at Discharge

1. [Add medication name, dosage, frequency, and duration.]
2. [Add medication name, dosage, frequency, and duration.]

Follow-Up Instructions

1. Recommended Follow-Up: [Type of follow-up care required, e.g., outpatient care, specialist referral.]
2. Next Follow-Up Date: [Date or guidance on the timing of follow-up.]
3. Lifestyle/Dietary Instructions: [Add any specific instructions or changes required for recovery.]

Physician's Name and Signature:

- [Name of Discharging Physician]
- [Contact Information, if relevant]

Signature: _____

Patient Acknowledgment Signature:

I acknowledge that I have received and understood the above information.

Patient / Guardian Signature: _____

Date: [Date]

Disclaimer: The contents are sample references to aid understanding of the Standards and are not prescribed by NABH as mandatory practices. Clinics are encouraged to modify them as per their scope and practices. NABH is not liable for misinterpretation, erroneous use, or non-conformities during assessment due to unmodified use of these contents.

ANNEXURE D – Medico Legal Case Details

The checklist can include details like :

1. Preliminary Details: Date and Time of Examination, Patient Information: Patient's name, age, sex, address, and occupation; Identifying Person: Name and details of the person who brought the patient to the facility, and the person who identified the patient; Police Information: Date, time, and name of the police officer or person who brought the patient, along with the DDR/FIR number; Informed Consent: Documentation of consent; Identification Marks: At least two distinct identification marks.

2. Findings and Observations: History of Incident: A brief summary of the incident leading to the medico-legal case; Vital status of patient brought to clinic (Alive or dead)General Physical Examination: Include vital signs (temperature, pulse, respiration, blood pressure) and any other relevant observations from the general physical examination; Detailed Injury Description: Location, size, shape, color, and depth of each injury; Investigation results (pathological/ radiological) if any; Other Findings: Any other findings from the examination, such as wounds, bruises, abrasions, or other trauma; Evidence Collection: Any evidence collected, including fingerprints, clothing, evidence of any exposures viz. alcohol, organophosphates, semen or other forensic evidence.

ANNEXURE E: Sample Consent Form

A sample consent form for clinical trials can have the following language. This system shall have the capability to have this form printed. Once filled in appropriately, the form can be scanned and uploaded in the system.

PATIENT INFORMED CONSENT FORM

Patient identification number for this trial:

Title of project:

Name of Principal Investigator:

Tel.No(s).

The contents of the information sheet dated ..... (version)..... that was provided have been read carefully by me / explained in detail to me, in a language that I comprehend, and I have fully understood the contents. I confirm that I have had the opportunity to ask questions. The nature and purpose of the study and its potential risks / benefits and expected duration of the study, and other relevant details of the study have been explained to me in detail. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal right being affected. I understand that the information collected about me from my participation in this research and sections of any of my medical notes may be looked at by responsible individuals. I give permission for these individuals to have access to my records. I agree to take part in the above study.

(Signature / Left Thumb Impression)

Date and Place

Name of the Participant: _____

Son / Daughter / Spouse of: _____

Complete postal address: _____

This is to certify that the above consent has been obtained in my presence.

Signatures of the Principal Investigator

Date: Place:

1) Witness – 1 signature, with name and address

2) Witness – 2 signatures, with name and address

Source: (AIIMS Delhi)

Annexure F: Diet Template

Diabetologist Diet Plan Template for Patient Consultation (Free Text Box or Discrete Radio Button Option)

Section	Details to be Filled
Patient Information	Name, Age, Gender, Weight, Height, BMI, Diabetes Type (Type 1 / Type 2 / Gestational)
Medical History	Duration of diabetes, medications, insulin regimen, comorbidities (e.g., hypertension)
Dietary Preferences	Vegetarian / Non-Vegetarian / Vegan / Other; Allergies or intolerances
Lifestyle Details	Physical activity level, work schedule, sleep pattern
Nutrition Goals	Weight loss / Maintenance / Gain; Blood sugar control; Cholesterol management
Meal Timing	Usual mealtimes (Breakfast, Lunch, Dinner, Snacks)

Daily Meal Plan (Sample Format) (Free Text Box or Discrete Radio Button Option)

Meal	Time	Food Items	Portion Size	Carb Count (g)	Notes/Substitutes
Breakfast	8:00 AM	Oats with skim milk, boiled egg	1 cup + 1 egg	30	Can replace oats with poha
Mid-Morning Snack	10:30 AM	Apple slices with peanut butter	1 apple + 1 tbsp	20	Avoid if fasting glucose is high
Lunch	1:00 PM	Brown rice, dal, mixed vegetables	½ cup each	45	Add salad for fiber
Afternoon Snack	4:00 PM	Greek yogurt	¾ cup	15	Low-fat only
Dinner	7:30 PM	Grilled chicken, sautéed spinach	Palm-sized + 1 cup	30	Can replace chicken with paneer
Bedtime Snack	9:30 PM	Walnuts	5 pieces	5	Optional, if late-night hunger occurs

Monitoring & Follow-Up

Parameter	Target Range	Current Value	Next Review Date
Fasting Blood Sugar	80–130 mg/dL		
Postprandial Sugar	<180 mg/dL		
HbA1c	<7%		
Weight	As per goal		

Annexure G: Risk Assessment Tools for Allopathic Clinics

No.	Score	Definition	Inputs needed	Formula	Risk Classification	CMS Guide
1	**Body Mass Index (BMI)** **Mandatory**	Assesses underweight, overweight and obesity in adults	• Weight (kg) • Height (m)	BMI = [Weight (kg)] / [Height (m) × Height (m)]	< 18.5: Underweight 18.5 – 24.9: Normal 25 – 29.9: Overweight ≥ 30: Obese	The system shall allow structured capture of the input data required for calculation of the risk score. The system shall calculate the risk score automatically based on available input data. The system shall display the calculated risk score along with its corresponding risk category (e.g., 18-Underweight / 23-Normal / 30-Obese) and highlight abnormal/high-risk values. The system shall retain previous values with dates to support longitudinal tracking.
2	**Waist-to-Hip Ratio (WHR)** **Mandatory**	Assesses abdominal fat distribution to understand risk of cardiovascular and metabolic diseases	• Waist circumference (cm) • Hip circumference (cm) Sex	WHR = Waist circumference [cm] / Hip circumference [cm]	For men: ≤ 0.90: Low Risk > 0.90: High Risk For women: ≤ 0.85: Low Risk > 0.85: High Risk	The system shall allow structured capture of the input data required for calculation of the risk score. The system shall calculate the risk score automatically based on available input data. The system shall display the calculated risk score along with its corresponding risk category (e.g., 0.8-Low Risk/ 0.95 - High Risk) and highlight abnormal/high-risk values. The system shall retain previous values with dates to support longitudinal tracking.

No.	Score	Definition	Inputs needed	Formula	Risk Classification	CMS Guide
3	**WHO/ISH Risk Score – Southeast Asia Region** **Optional**	Assesses the 10-year risk of fatal/non-fatal cardiovascular events	• Age (in years) • Sex (male/female) • Systolic Blood Pressure (mmHg) • Smoking Status (yes/no) • Diabetes Status (yes/no) • Total Cholesterol (mmol/l), if available	WHO/ISH Risk Score is derived from WHO/ISH Risk Prediction Chart or app for Southeast Asia Region by looking up combination of input factors. WHO/ISH Chart: https://cdn.who.int/media/docs/default-source/cardiovascular-diseases/south-asia.pdf?sfvrsn=c5b0d9a3_2	< 10%: Low Risk 10% - < 20%: Moderate Risk 20% - < 30%: High Risk 30% - < 40%: Very High Risk ≥ 40%: Critical/Extremely High	The system shall allow structured capture of the input data required for calculation of the risk score. The system can provide dropdown menus or radio buttons to avoid manual entry errors, where applicable. The system shall calculate the risk score automatically based on available input data. The system shall display the calculated risk score along with its corresponding risk category (e.g., 10%-Low Risk / 20%-Moderate Risk / 30%-High Risk) and highlight abnormal/high-risk values. The system shall retain previous values with dates to support longitudinal tracking.
4	**CHA2DS2-VASc Score** **Optional**	Assesses risk of stroke in patients with atrial fibrillation (AF)	Score each input parameter as per the scale provided in parentheses: • Age <65 (0), 65-74 (+1), ≥75 (+2) • Sex: Female (+1), Male (0) • Congestive Heart Failure history: No (0), Yes (+1) • Hypertension history: No (0), Yes (+1) • Stroke/TIA/thromboembolism history: No (0), Yes (+2) • Vascular disease history: No (0), Yes (+1) • Diabetes history: No (0), Yes (+1)	CHA2DS2-VASc Score: Sum of scores for each input factor	0 - 1: Low Risk 2: Moderate Risk >2: High Risk	The system shall allow structured capture of the input data required for calculation of the risk score. The system can provide dropdown menus or radio buttons to avoid manual entry errors, where applicable. The system shall calculate the risk score automatically based on available input data. The system shall display the calculated risk score along with its corresponding risk category (e.g., 0-Low Risk / 1-Moderate Risk / 3-High Risk) and highlight abnormal/high-risk values. The system shall retain previous values with dates to support longitudinal tracking.

No.	Score	Definition	Inputs needed	Formula	Risk Classification	CMS Guide
5	**Ankle-Brachial Index (ABI)** **Optional**	Assesses the risk of developing Peripheral Artery Diseases (PAD)	• Systolic BP (SBP) at Ankle (dorsalis pedis or posterior tibial artery) (mmHg) • Systolic BP (SBP) at Arm (brachial artery) (mmHg)	ABI = [Ankle SBP (highest of 2 ankles SBP (mmHg))] / [Brachial SBP (highest of 2 arms SBP (mmHg))]	> 1.30: Non-compressible arteries 1.00 - 1.29: Normal 0.91 - 0.99: Borderline 0.41 - 0.90: Mild–Moderate PAD ≤ 0.40: Severe PAD	The system shall allow structured capture of the input data required for calculation of the risk score. The system shall calculate the risk score automatically based on available input data. The system shall display the calculated risk score along with its corresponding risk category (e.g., 1.00 - Normal / 0.5-Moderate / 0.3-Severe) and highlight abnormal/high-risk values. The system shall retain previous values with dates to support longitudinal tracking.

ANNEXURE H: Auto-Calculated Lab Parameters for Allopathic Clinics

No.	Calculated Test	Definition	Inputs needed	Formula	Unit	CMS Guide
1	**Total Cholesterol/High-Density Lipoprotein Ratio (TC HDL Ratio)** **Mandatory**	Calculates atherogenic lipid ratio	• Fasting Total Cholesterol - TC (mg/dL) • Fasting High Density Lipoprotein - HDL (mg/dL)	TC HDL Ratio = TC / HDL	No Unit	The system shall allow structured capture of the input data required for calculation of the output. The system shall calculate the output value automatically based on available input data. The system shall display the calculated lab test value along with its corresponding reference range and highlight abnormal values. The system shall retain previous values with dates to support longitudinal tracking.
2	**Low-Density Lipoprotein (LDL)** **Mandatory**	Calculates LDL cholesterol in cases where Triglyceride is <400 mg/dL	• Fasting Total Cholesterol - TC (mg/dL) • Fasting High Density Lipoprotein - HDL (mg/dL) • Fasting Triglycerides - TG (mg/dL)	LDL = TC – HDL – (TG / 5) (if TG < 400 mg/dL)	mg/dL	The system shall allow structured capture of the input data required for calculation of the output. The system shall calculate the output value automatically based on available input data. The system shall display the calculated lab test value along with its corresponding reference range and highlight abnormal values. The system shall retain previous values with dates to support longitudinal tracking.

No.	Calculated Test	Definition	Inputs needed	Formula	Unit	CMS Guide
3	**Triglyceride - High-Density Lipoprotein Cholesterol Ratio (TG HDL Ratio)** **Mandatory**	Calculates the ratio of triglycerides to HDL cholesterol	• Fasting High Density Lipoprotein - HDL (mg/dL) • Fasting Triglycerides - TG (mg/dL)	TG-HDL Ratio = TG / HDL	No Unit	The system shall allow structured capture of the input data required for calculation of the output. The system shall calculate the output value automatically based on available input data. The system shall display the calculated lab test value along with its corresponding reference range and highlight abnormal values. The system shall retain previous values with dates to support longitudinal tracking.
4	**Albumin-Creatinine Ratio (ACR)** **Optional**	Calculates urinary albumin excretion adjusted for creatinine concentration	• Urine albumin (mg/dL) • Urine creatinine (g/dL)	ACR = Urine albumin / Urine creatinine	mg/g	The system shall allow structured capture of the input data required for calculation of the output. The system shall calculate the output value automatically based on available input data. The system shall display the calculated lab test value along with its corresponding reference range and highlight abnormal values. The system shall retain previous values with dates to support longitudinal tracking.
5	**Aspartate Aminotransferase - Alanine Aminotransferase Ratio**	Calculates the ratio of liver enzymes AST to ALT	• Aspartate Aminotransferase AST (U/L)	AST-ALT Ratio = AST / ALT	No Unit	The system shall allow structured capture of the input data required for calculation of the output.

No.	Calculated Test	Definition	Inputs needed	Formula	Unit	CMS Guide
5	**(AST-ALT Ratio)** **Optional**	Calculates the ratio of liver enzymes AST to ALT	Alanine Aminotransferase ALT (U/L)	AST-ALT Ratio = AST / ALT	No Unit	The system shall retain previous values with dates to support longitudinal tracking.
6	**International Normalised Ratio (INR)** **Optional**	Standardized Prothrombin Time (PT) ratio Additional Sources: https://www.stoptheclot.org/faq/what-is-an-inr/	• Prothrombin Time of the patient PT (seconds) • Mean Normal PT for lab • ISI value	INR = (PTpat / PTnorm)ISI	No Unit	The system shall allow structured capture of the input data required for calculation of the output. The system shall calculate the output value automatically based on available input data. The system shall display the calculated lab test value along with its corresponding reference range and highlight abnormal values. The system shall retain previous values with dates to support longitudinal tracking.
7	**Estimated Glomerular Filtration Rate (eGFR)** **Optional**	Estimate of glomerular filtration rate Additional Sources: https://www.kidney.org/professionals/gfr_calculator	• Serum creatinine - Scr (mg/dL) • Age (years) • Sex	For men: eGFR = 142 × min(Scr/0.9, 1)–0.302 × max(Scr/0.9, 1)–1.2 × 0.9938Age For women: eGFR = 142 × min(Scr/0.7, 1)–0.241 × max(Scr/0.7, 1)–1.2 × 0.9938Age × 1.012	mL/min/1.73 m^2	The system shall allow structured capture of the input data required for calculation of the output. The system shall calculate the output value automatically based on available input data. The system shall display the calculated lab test value along with its corresponding reference range and highlight abnormal values. The system shall retain previous values with dates to support longitudinal tracking.

ANNEXURE I: Examples of Clinical Decision Support System in the Healthcare System

Sr. No.	Type	Medical History	Current Medication	Prescribed Medication	CDSS Alert	Description
1	Drug-drug Interaction	Patient has a history of hypertension and GERD (Gastroesophageal reflux disease).	Amlodipine 5mg once daily, Omeprazole 20mg once daily.	Prescribed with Clarithromycin for pneumonia.	Potential Serious Interaction: Alerts healthcare provider to potential adverse interactions between Amlodipine and Clarithromycin, which may cause increased risk of hypotension.	Monitor patients closely for signs of hypotension. Consider alternative antibiotics if interaction cannot be avoided.
2	Allergy Checking	Patient has a known allergy to penicillin.	None.	Prescribed with Amoxicillin for sinusitis.	Severe Allergy Alert: Flags Amoxicillin as potentially allergenic for the patient, reducing the risk of allergic reactions.	Avoid prescribing Amoxicillin to the patient. Consider alternative antibiotics.
3	Dosage Recommend ations	Patient is an elderly individual with renal impairment.	None.	Prescribed with Digoxin for atrial fibrillation.	Dosage Alert: Provides dosage recommendations for Digoxin based on age and renal function, reducing the risk of toxicity.	Adjust Digoxin dosage according to CDSS recommendations. Monitor for signs of toxicity.
4	Clinical Guidelines Adherence	Patient presents with acute myocardial infarction symptoms.	None.	Prescribed with aspirin and statin therapy.	Clinical Guideline Alert: Helps ensure adherence to evidence-based clinical guidelines for acute myocardial infarction treatment, improving patient outcomes.	Follow CDSS prompts and recommendations for aspirin and statin therapy initiation.
5	Diagnostic Assistance	Patient complains of chest pain and shortness of breath.	None.	Prescribed with ECG and cardiac enzymes.	Diagnostic Test Alert Assists healthcare providers in diagnosing acute coronary syndrome by suggesting diagnostic tests based on patient symptoms.	Order ECG and cardiac enzymes as recommended by CDSS. Interpret results promptly.

Sr. No.	Type	Medical History	Current Medication	Prescribed Medication	CDSS Alert	Description
6	Alerts for Abnormal Test Results	Patient has a history of diabetes mellitus.	Metformin 1000 mg twice daily.	Abnormal renal function test results.	Abnormal Test Results Alert: Generates alerts for healthcare providers when renal function test results indicate potential complications in patients with diabetes.	Investigate abnormal renal function test results further. Adjust Metformin dosage if necessary.
7	Decision Support for Ordering Tests	Patient presents with symptoms suggestive of pneumonia.	None.	Prescribed with chest X-ray.	Diagnostic Test Alert Provides guidance on ordering appropriate diagnostic tests, such as chest X-ray, based on patient symptoms and clinical presentation.	Order chest X-ray as recommended by CDSS. Interpret results in conjunction with clinical findings.
8	Clinical Documentation Assistance	Patient admitted with a diagnosis of congestive heart failure.	None.	Prescribed with ACE inhibitor and diuretic therapy.	Assists healthcare providers with clinical documentation by suggesting appropriate codes for congestive heart failure and prescribed medications.	Utilize CDSS suggestions to ensure accurate documentation of congestive heart failure diagnosis and prescribed medications.
9	Clinical Pathway Adherence	Patient admitted with community-acquired pneumonia.	None.	Prescribed with antibiotics and oxygen therapy.	Clinical Pathway Alert Supports adherence to clinical pathways for community-acquired pneumonia, ensuring standardized and effective treatment.	Follow clinical pathway recommendations for antibiotics and oxygen therapy initiation.

Sr. No.	Type	Medical History	Current Medication	Prescribed Medication	CDSS Alert	Description
10	Fall Risk Assessment	Elderly patient with a history of Parkinson's disease.	None.	Prescribed with Levodopa.	Assesses the patients through fall risk assessment tool in EMR based on age, mobility, and medical history, guiding implementation of appropriate fall prevention strategies.	Implement fall prevention strategies based on CDSS assessment. Monitor patient's mobility closely.
11	Pressure Ulcer Risk Assessment	Patient is bedridden with limited mobility.	None.	Prescribed with pressure-relieving mattress.	Assesses the patient's risk of developing pressure ulcers pressure ulcer risk assessment tool in EMR based on immobility, guiding preventive measures such as pressure-relieving support surfaces.	Implement preventive measures based on CDSS assessment. Ensure proper positioning and skin care.
12	Sepsis Screening and Early Detection	Patient presents with fever, tachycardia, and hypotension.	None.	Prescribed with blood cultures and antibiotics.	Sepsis Alert Helps healthcare providers screen for and detect early signs of sepsis based on clinical indicators, facilitating prompt intervention.	Act promptly on CDSS alerts indicating possible sepsis. Initiate appropriate management and monitoring.
13	Medication Reconciliatio n	Patient admitted from a long-term care facility.	Lisinopril 10mg once daily, Metoprolol 50mg twice daily.	Discrepancies in medication list between facilities.	Medication Reconciliation Alert Assists in reconciling the patient's medication list across transitions of care, identifying discrepancies and ensuring continuity of care.	Review and reconcile medication lists during transitions of care as recommended by CDSS.
14	Chronic Disease Management	Patient with poorly controlled diabetes mellitus.	Insulin glargine 20 units at bedtime.	Prescribed with additional oral hypoglycaemic agent.	Supports the management of diabetes mellitus by providing recommendations for optimizing treatment and monitoring.	Follow CDSS recommendations for optimizing treatment and monitoring of diabetes mellitus.

Note: The alerts and notifications mentioned in the annexure are only suggestive and need not be incorporated verbatim by the digital system.

References:

1. Sutton, R.T., Pincock, D., Baumgart, D.C. *et al.* An overview of clinical decision support systems: benefits, risks, and strategies for success. *npj Digit. Med.* **3**, 17 (2020). https://doi.org/10.1038/s41746-020-0221-y

2. Chen Z, Liang N, Zhang H, Li H, Yang Y, Zong X, Chen Y, Wang Y, Shi N. Harnessing the power of clinical decision support systems: challenges and opportunities. Open Heart. 2023 Nov 28;10(2): e002432.

Websites:

1. **National Institutes of Health (NIH):** The NIH provides resources and information on CDSS and its applications.
2. **Healthcare Information and Management Systems Society (HIMSS):** HIMSS offers resources and news on CDSS and other healthcare technologies.
3. **American Medical Informatics Association (AMIA):** AMIA is a professional organization focused on advancing medical informatics, including CDSS.

ANNEXURE J: List of High-Risk Medication

Definition-

High risk / alert medications can be defined as those drugs that have a heightened risk for adverse events or have heightened risk of catastrophic harm whenever there is an error. These drugs generally have a low therapeutic index.

Some examples of high-risk medications include:

Anti-infectives: Amphotericin, vancomycin, and aminoglycosides.

Potassium and concentrated electrolytes: Injectable electrolyte preparations, such as potassium chloride and magnesium sulphate.

Insulin: All insulins.

Narcotics and sedatives: All opioids, and sedatives such as benzodiazepines.

Chemotherapy agents: Cytotoxic chemotherapy.

Heparin and other anticoagulants: Heparins and all anticoagulants, including the New Oral Anticoagulants.

Lithium, methotrexate, amiodarone, and phenobarbital: These are also considered high-risk medications.

The list of high-risk medications may vary across healthcare settings.

Look-alike and sound-alike (LASA) medications are also included in high-risk medications.

Reference:
https://www.intmedsafe.net/wp-content/uploads/2018/04/5.-High-Alert-Medications-2018.pdf

Annexure K: Guidance for Monitoring of Medication Errors

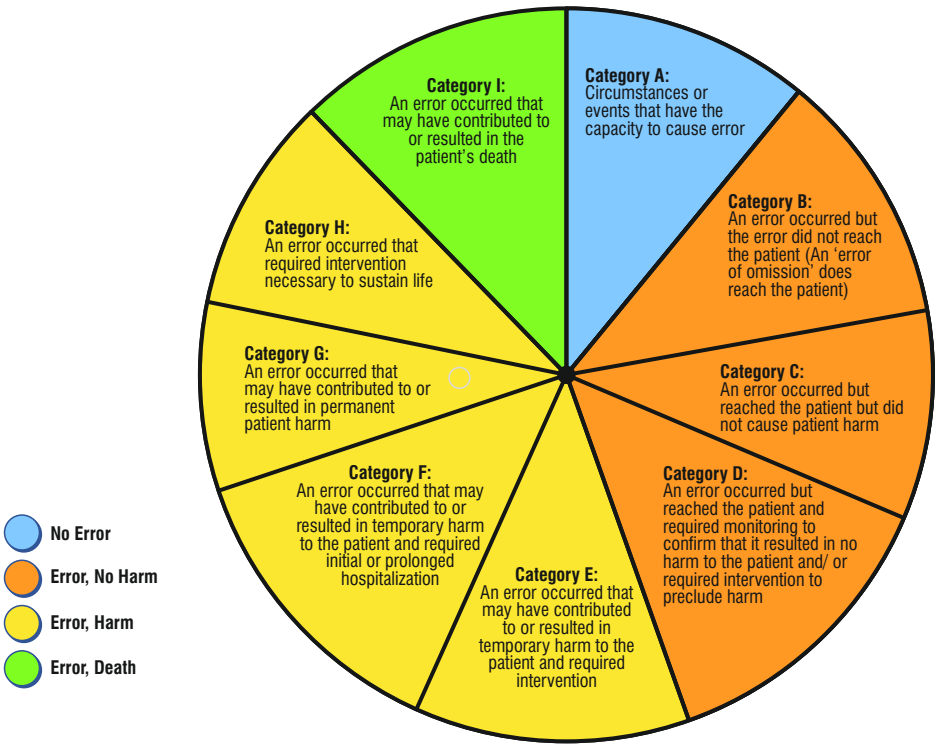
Definition: NCC-MERP (National Coordinating Council for Medication Error Reporting and Prevention) defines medication error as

"A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer. Such events may be related to professional practice, health care products, procedures and systems, including prescribing, order communication, product labelling, packaging and nomenclature, compounding, dispensing, distribution, administration, education, monitoring and use."

CATEGORIES OF MEDICATION ERROR

Level of Harm	Category of Error	Explanation of Events/ Error
NO ERROR	Category A	Circumstances or events that have the capacity to cause error
ERROR, NO HARM	Category B	An error occurred, but the error did not reach the patient (An “error of omission” does reach the patient.)
	Category C	An error occurred that reached the patient but did not cause patient harm.
	Category D	An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm
ERROR, NO HARM	Category E	An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention
	Category F	An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization
	Category G	An error occurred that may have contributed to or resulted in permanent patient harm
	Category H	An error occurred that required intervention necessary to sustain life
ERROR, DEATH	Category I	An error occurred that may have contributed to or resulted in the patient's death.

NCC MERP Index for Categorizing Medication Errors



Definitions

Harm
Impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting therefrom.

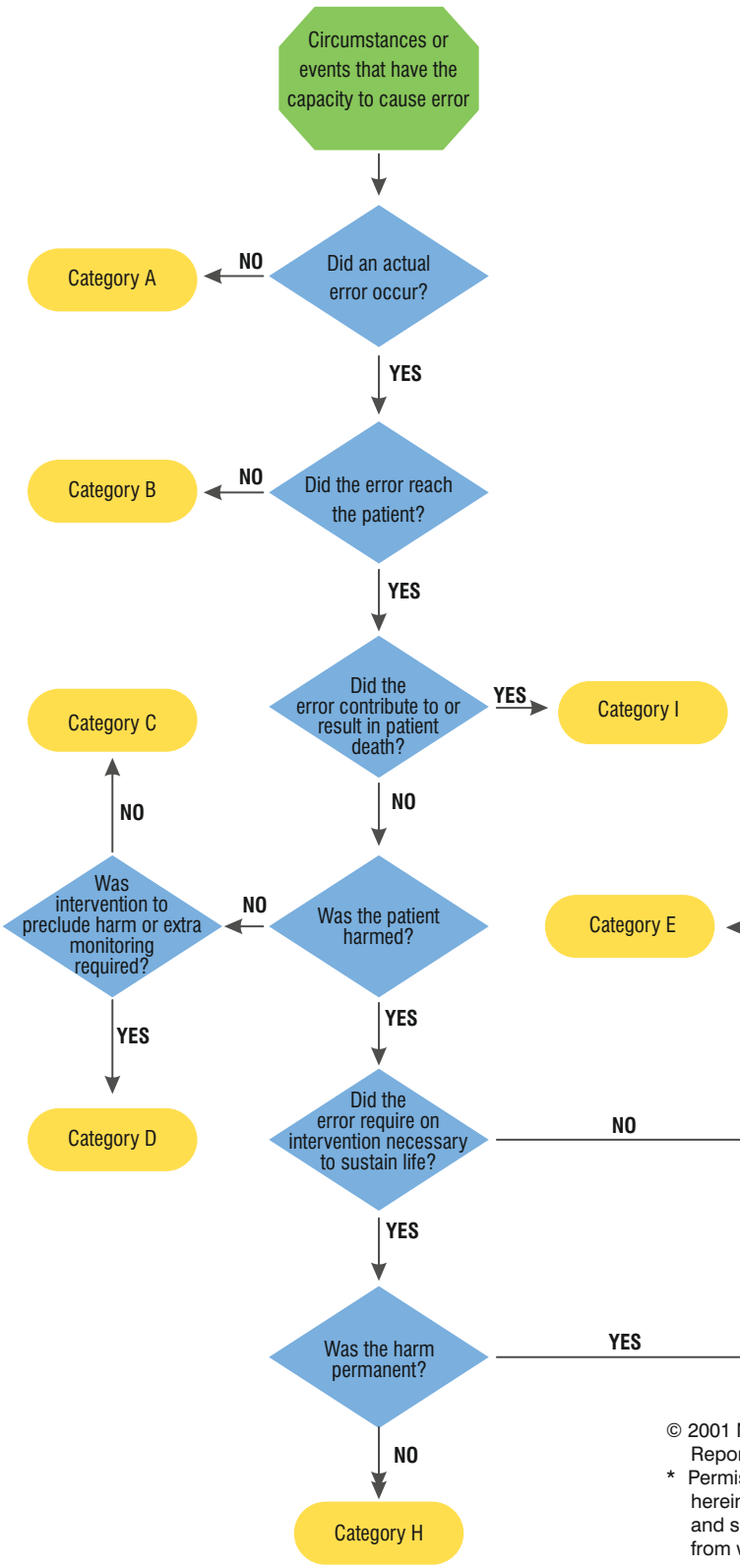
Monitoring
To observe or record relevant physiological or psychological signs.

Intervention
May include change in therapy or active medical/surgical treatment.

Intervention
Necessary to Sustain Life
Includes cardiovascular and respiratory support (e.g., CPR, defibrillation, intubatlion, etc.)

National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) index for categorizing medication errors. © 2001 National Coordinating Council for Medication Error Reporting and Prevention.

NCC MERP Index for Categorizing Medication Errors Algorithm



Harm
Impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting therefrom.

Monitoring
To observe or record relevant physiological or psychological signs.

Intervention
May include change in therapy or active medical/surgical treatment.

Intervention Necessary to Sustain Life
Includes cardiovascular and respiratory support (e.g., CPR, defibrillation, intubatlion, etc.)

***An error of omission does reach the patient.**

Algorithm developed by the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) for applying the NCC MERP index for categorizing medication errors. © 2001, National Coordinating Council for Medication Error Reporting and Prevention.

ANNEXURE L: Key Performance Indicators for Allopathic Clinics

The concept of performance in health services represents an instrument for bringing quality, efficiency, and efficacy together. Performance represents the extent to which set objectives are accomplished. Performance is a multidimensional one, covering various aspects, such as evidence-based practice (EBP), continuity and integration in healthcare services, health promotion, and orientation towards the needs and expectations of patients.

Key Performance Indicators (KPIs) help to systematically monitor, evaluate, and continually improve service performance. By themselves, KPIs cannot improve performance. However, they do provide “signposts” that signal progress toward goals and objectives as well as opportunities for improvement.

Well-designed KPIs should help the organization to do several things, including:

- Establish baseline information, i.e., the current state of performance
- Set performance standards and targets to motivate continual improvement
- Measure and report improvements over time
- Compare performance across geographic locations
- Benchmark performance against regional and international peers or norms
- Allow stakeholders to independently judge health sector performance.

Healthcare organizations are encouraged to capture all data, which involves clinical and support services. The data needs to be analysed, and risks, rates, and trends for all the indicators must be demonstrated for appropriate action.

The intent of the NABH KPIs is to have comprehensive involvement of the scope of services for which an institution has applied for the accreditation program. Standardized definitions for each indicator along with numerator and denominator, have been explained. Each Clinic can have the data set, analyse the data and appropriate correction, corrective, and preventive action can be formulated. Each institution can also design their own methodology of data collection, but a broad guidance note has been given to facilitate the organization's compliance. Guidance has also been provided to explain how the data could be captured from the system. In all instances where the system is unable to collate the numerator and/or

denominator, at a minimum the system should have a provision for manual entry of the numerator and denominator to ensure that the indicator value is calculated automatically. Further, there are a few indicators for which it may not be possible for the system to collate the data. For such indicators, a specific note has been provided in the guidance.

No.	KPI	Definition	Inclusion Criteria	Exclusion Criteria	Formula	Unit	Duration of reporting	Corresponding Objedtive	CMS Guide
1	Average Waiting Time Mandatory	The average time (in minutes) that patients wait between arrival at clinic (requisition form has been presented to the counter; it may or may not be the time of registration) till the time the concerned consultant begins the assessment/procedure	-	Emergency, Vaccination, Tele/video consults, cancelled or no-show appointments, consultations starting before the scheduled time	Total waiting time (in minutes) of all patients during the data collection period/ Number of patients consulted during the data collection period	Minutes per person	Month	AAC 2d	The system shall allow structured capture of the input data required for calculation of the indicator. The system shall calculate the indicator value automatically based on available input data. The system shall retain previous values with dates to support longitudinal tracking. In case of scheduled appointment patients, the time shall begin with the scheduled appointment time and end when the concerned consultant begins the assessment/procedure. For patients seen ahead of appointment time, the waiting time shall be taken as zero minutes. In cases, where the patient arrives after the appointment time, the arrival time will be taken as the start time. The denominator shall include the total number of patients consulted until midnight of the last day of the data collection period.

No.	KPI	Definition	Inclusion Criteria	Exclusion Criteria	Formula	Unit	Duration of reporting	Corresponding Objedtive	CMS Guide
2	Patient satisfaction index Mandatory	It is the degree to which the patient's expectations are fulfilled. It indicates the gap between expected and perceived characteristics of a service in the clinic.	All valid, completed patient-satisfaction surveys (digital or paper) during the data collection period submitted by patients within the reporting month	Any survey responses that are incomplete, submitted by non-patients (staff/vendors), or turned in outside during the data collection period	(Average Patient Satisfaction Score achieved in the data collection period / Maximum possible Patient Satisfaction Score) × 100	Percentage	Month	AAC 6a	The system shall allow structured capture of the input data required for calculation of the indicator. The system shall calculate the indicator value automatically based on available input data. The system shall retain previous values with dates to support longitudinal tracking.
3	Incidence of medication errors Optional	The rate at which preventable events occur that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of a healthcare professional, patient or consumer (ref: NCC-MERP)	All reported medication errors during the data collection period. (ref: NCC-MERP)	All exclusions as per the NCC-MERP (Annexure F)	(Total number of medication errors in the data collection period / Total number of opportunities in the data collection period) × 100	Percentage	Month and cumulative for the year	MOM 2c	The system shall allow structured capture of the input data required for calculation of the indicator. The system shall calculate the indicator value automatically based on available input data. The system shall retain previous values with dates to support longitudinal tracking. The methodology for data capture shall be as stated in NABH's document on medication errors (ref: NCC-MERP). It is preferred that the data is captured through the system for all sub-components of medication errors.

No.	KPI	Definition	Inclusion Criteria	Exclusion Criteria	Formula	Unit	Duration of reporting	Corresponding Objedtive	CMS Guide
3	Optional								Incidence may be calculated monthly or for other period, but will be reported cumulatively for the year, i.e., in the form of year to date. For example, in January it would be January data but in February it would be January + February data. In July, it would be data from January to July and so on so that by the end of the year the annual rate is obtained.
4	Rate of sharp injuries Mandatory	Frequency of accidental penetrating stab wound from a needle or other sharp object that may result in exposure to blood or other body fluids.	Documented needlestick or sharps injuries in the data collection period	Intentional use of needle or sharp objects for medical procedure Or Self-inflicted injuries	(Number of needlestick injuries in the data collection period / Number of Opportunities in the data collection period) x 100	Percentage	Month and cumulative for the year	COP 6d	The system shall allow structured capture of the input data required for calculation of the indicator. The system shall calculate the indicator value automatically based on available input data. The system shall retain previous values with dates to support longitudinal tracking. Rate may be calculated monthly or for other period, but will be reported cumulatively for the year, i.e., in the form of year to date. For example, in January it would be January data but in February it would be January + February data. In July, it would be data from January to July and so on so that by the end of the year the annual rate is obtained.

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