EMRAM

HIMSS SOLUTION

Electronic Medical Record Adoption Model

Achievement Assessment Report

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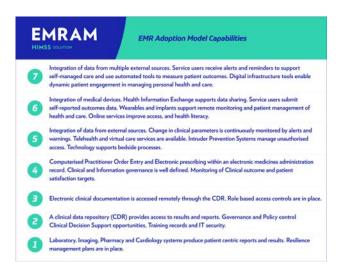
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Electronic Medical Record Adoption Model

Model Description

The EMRAM is an eight stage Maturity Model (0-7), starting at Stage 0 and working towards the pinnacle of demonstrating organization-wide effective use of EMR technology driving improved outcomes at each stage. The stages have requirements in five focus areas:

- Data Capture & Health Information Exchange
- Patient Engagement
- Healthcare Analytics & Outcomes Measurement
- Resilience Management
- Clinical User Adoption

The focus areas and criteria statements represent a spectrum of capabilities needed to advance the effective use of EMR technology, optimizing operations and patient engagement outcomes.

Purpose

The HIMSS Electronic Medical Record Adoption Model (EMRAM) measures clinical outcomes, patient engagement and clinician use of EMR technology to strengthen organizational performance and health outcomes across patient populations. The internationally applicable EMRAM incorporates methodology and algorithms to score a whole hospital, including inpatient, outpatient and day-case services provided on the hospital campus. EMRAM scores hospitals around the world relative to their digital maturity, providing a detailed road map to facilitate adoption and begin a digital transformation journey towards aspirational outcomes.

Measuring evidence-based data at each stage, organizations use EMRAM to optimize digital work environments, improve performance and financial sustainability, build a sustainable workforce, and support an exceptional patient experience. Leveraging information digitally improves patient safety, quality and experience of care, and clinician satisfaction by reducing errors, length of stay and duplicate orders, and streamlining the access and use of data to inform care delivery.

Improve Patient Safety

Evaluate and improve patient safety by optimizing your EMR implementation to meet the needs of the care team and provide access to data and critical information when and where it is needed.

Increase Patient Satisfaction

Engage with patients and clinicians to manage overall health and wellness. Improve communication, improve productivity and efficiency, reduce the risk of errors in care delivery and strengthen patient engagement and experience. Enhance care delivery by having the right information at the right time for both the patient and the clinician, while improving communication between the care team and the patient or guardian.

Support Clinicians

An effective EMR is one that is designed for the distinct uses of the clinicians who work with it. The EMRAM ensures the workflow and content in the digital tool meets the needs of the clinical teams while monitoring compliance with approved standards.

Secure Data

Effective hospital policies and governance support and strengthen data integrity, data security is a critical component of a high performing work environment supported by an EMR . The EMRAM guides the organization in policymaking for the appropriate use and protection of the data the EMR stores and the level of access available to clinician teams, patients, and others within the organization.

Methodology

Using a Likert Scale scoring methodology, the assessment responses are tabulated to derive accomplishment for each stage, and against the overall model. To achieve a given stage an organization must fulfill the minimum requirements and score 70% or better for overall accomplishment for that stage and all previous stages.

To achieve EMRAM Stage 6 the organization must be scored at EMRAM Stage 6 and successfully pass a formal validation process by a HIMSS reviewer team.

EMRAM Stage 7 can be achieved if the hospital has been validated successfully as EMRAM Stage 6 and can demonstrate that it has achieved aspirational, evidence-based clinical outcomes, meaningful patient engagement strategies and exceptional performance outcomes. A formal validation process with subject matter experts selected by HIMSS is required.

To be assessed against EMRAM a healthcare organization completes an evaluation. This evaluation is composed of a list of requirement statements, taking an hour to complete. The organization completes the evaluation by self-assessing their performance against each requirements statement using the Likert scale noted here:

- **Not Enabled -** The capabilities referenced in the criteria statement are not typically or rarely available
- **Minimally Enabled -** The capabilities referenced in the criteria statement are available in a limited manner
- **Somewhat Enabled -** The capabilities referenced in the criteria statement are available roughly half the time
- **Mostly Enabled -** The capabilities referenced in the criteria statement are generally available most of the time
- **Fully Enabled -** The capabilities referenced in the criteria statement are almost always or always available

Opportunity Highlighting

The analysis below uses highlighting to identify current standing and various ways to strengthen and improve your EMRAM score. These are the colors used:

- **Red highlights** indicate the EMRAM stages in baseline achievement sections of the report where the minimum criteria are not met, and in the opportunities sections the minimum requirements that must be met.
- **Yellow highlights**, reserved for baseline achievement sections of the report, show that minimum requirements are met but the 70% threshold of an EMRAM stage has not yet been achieved.
- **Green highlights**, reserved for baseline achievement sections of the report, show that minimum requirements and the 70% threshold of an EMRAM stage have been achieved.
- **Blue highlights**, reserved for opportunity sections of the report, show criteria on the next stage in which the 70% threshold of the current overall EMRAM stage is not met.
- **Purple highlights**, reserved for opportunity sections of the report, show criteria on the next stage in which the 70% threshold of the current focus area stage is not met.

Software Applications

Application	Availability	Vendor	EHR Integration
Clinical Data Repository/EMR	Live and Operational	SELF-DEVELOPED	Not Applicable
Cardiology Information System	Live and Operational	DENDRITE CLINICAL SYSTEMS	Stand-alone - integration
Radiology Information System	Live and Operational	SELF-DEVELOPED	EMR/CDR-module (part of suite)
Computerized Practitioner Order Entry (CPOE)	Live and Operational	SELF-DEVELOPED	EMR/CDR-module (part of suite)
Clinical Documentation	Live and Operational	SELF-DEVELOPED	EMR/CDR-module (part of suite)
Physician Documentation	Live and Operational	SELF-DEVELOPED	EMR/CDR-module (part of suite)
Laboratory Information System	Live and Operational	INTERSYSTEMS CORPORATION	Stand-alone - integration
Pharmacy Management System	Live and Operational	WELLSKY	Stand-alone - integration
Electronic Medication Administration Record (eMAR)	Live and Operational	CAREFLOW MEDICINES MANAGEMENT LTD	Stand-alone - integration
Radiology PACS	Live and Operational	FUJIFILM MEDICAL SYSTEMS INC.	Stand-alone - integration
Cardiology PACS	Live and Operational	CHANGE HEALTHCARE	Stand-alone - integration
Enterprise Image Repository/Vendor Neutral Archive (VNA)	Live and Operational	Wabalogic	Not Applicable
Anti-Virus/Anti-Malware Software	Live and Operational	MICROSOFT CORPORATION	Not Applicable
Encryption	Live and Operational	MICROSOFT CORPORATION	Not Applicable
Intrusion Detection & Prevention System/IDPS	Live and Operational	CISCO SYSTEMS INC.	Not Applicable
Mobile Device Management	Live and Operational	MICROSOFT CORPORATION	Not Applicable
Security Risk Assessment Reporting Tool	Live and Operational	TENABLE NETWORK SECURITY	Not Applicable
Barcoding	Live and Operational	OMNICELL	Not Applicable
RFID	Live and Operational	IDOX HEALTH	Not Applicable

Key Hospital Figures and Performance Indicators

Performance Indicator	
Inpatient Beds	800
Inpatient Episode per annum	--
Outpatient Attendances per annum	--
Annual Operating Expense	--
Annual IT Operating Expense	--
Annual IT Capital Expense	--
Stationary Workstations	--
Mobile Workstations	--
Staff	--
Physicians	--
Registered Nurses	--
Registered Allied Health Professionals	--
On-site IT Staff	--
Support IT Staff (at the group/trust/health system level)	--
Support IT Staff (at external organizations)	--
Users supported by IT	--
Annual Operatiing Revenue	--
Capital Expense	--
Emergency Services Provided	--
Primary Service Provided	General Medical
Is this a university organization?	No

Baseline Achievement

Executive Summary

The Electronic Medical Record Adoption Model (EMRAM) score is derived by comparing the accomplishments of the healthcare organization against the EMRAM. The overall score represents the organizations' overall progress towards healthcare organization electronic medical record maturity. Stages not represented in an area are identified by N/A in the scoring tables below.

Assessment Overview

The scoring in the following table is based on information collected via the HIMSS EMRAM online self-assessment. Any stage 6 or 7 achievements listed in this section are approximated and require a review by a HIMSS Digital Advisor (validation). If your Stage Achievement is a 6 or 7, a HIMSS associate will contact you to discuss the next steps in your digital transformation journey. You can also contact us at customerservice@himssanalytics.org

Stage Achievement	1	Highest stage according to the online self-assessment
Percent Achievement	66%	% accomplishment against EMRAM model
Stage 7	58%	Stage not achieved
Stage 6	65%	Stage not achieved
Stage 5	71%	Stage not achieved
Stage 4	75%	Stage not achieved
Stage 3	77%	Stage not achieved
Stage 2	73%	Stage not achieved
Stage 1	92%	Stage achieved

Color Legend
Stage criteria achieved
70% of stage criteria not met
Minimum requirements not met

Breakdown by Focus Area

Stage	Data Capture & Health Information Exchange	Patient Engagement	Healthcare Analytics & Outcomes Measurement	Resilience Management	Clinical User Adoption
Stage Achievement	1	4	1	5	2
Percent Achievement	78%	58%	64%	69%	55%
Stage 7	70%	45%	62%	34%	35%
Stage 6	59%	70%	74%	66%	42%
Stage 5	94%	59%	83%	79%	45%
Stage 4	85%	75%	75%	85%	60%
Stage 3	75%	N/A	75%	95%	73%
Stage 2	45%	N/A	37%	85%	100%
Stage 1	94%	N/A	75%	85%	100%

N/A refers to stage not represented in area for assessment scoring.

Data Capture & Health Information Exchange

The organization has the capability to exchange clinical data and information with patients, external organizations, and specialized health teams (rehabilitation facilities, long term care facilities), even if there are no external organizations that have the same EMR capability. In this case, the lack of actual information exchange alone will not prevent the organization from achieving a Stage. The capability is proven by demonstrating that the organization can produce Continuity of Care Record (CCR) or Consolidated Clinical Document Architecture (C-CDA) or similar documents. Organizations must share patient records with patients and care providers across the journey of care (with the consent of the patient).

Stage Achievement	1	
Percent Achievement	78%	
Stage 7	70%	Stage not achieved
Stage 6	59%	Stage not achieved
Stage 5	94%	Stage achieved
Stage 4	85%	Stage achieved
Stage 3	75%	Stage not achieved
Stage 2	45%	Stage not achieved
Stage 1	94%	Stage achieved

Color Legend
Stage criteria achieved
70% of stage criteria not met
Minimum requirements not met

Opportunities

Stage	EMRAM Criteria	Your Performance
7	HIM: Outside records are scanned upon admission or according to policy, e.g., medication history, discharge summary, latest lab values, etc.	Mostly Enabled
7	Imaging: Imaging specialists from radiology and cardiology use structured templates to document their findings.	Fully Enabled
7	Imaging: External images can be ingested directly into the Image Archive (or similar application) to facilitate easy access for clinicians.	Fully Enabled
7	Imaging: Clinicians can access images from remote locations through a secure online connection (if permitted by policy).	Fully Enabled
7	Imaging: Medical Imaging results are communicated digitally to clinicians in all patient care settings.	Mostly Enabled
7	Imaging: All images and waveforms are captured and managed digitally (e.g., CT, MRI, Ultrasound, Digital Radiography, Intravascular US, Coronary Angiogram, ECGs).	Mostly Enabled
7	Any discrete data generated from structured templates is normalized to standard / controlled medical vocabulary (e.g., LOINC, SNOMED, ICD-10) for all Clinician documentation.	Somewhat Enabled
7	Medical device data is fully integrated into the EMR in all critical care areas.	Not Enabled
7	A bi-directional information exchange interface with patients where patients can access their personal health data, can report outcomes, can access clinician teams to support self-management of care.	Mostly Enabled
7	Social determinants of health (e.g., housing, education, welfare, working conditions, food security, geography and location) are supported by digital tools and technologies which aim to reduce inequalities and ensure inequalities are minimized or eliminated. Predictive analytics tools are examined for bias toward any community affected by social determinants of health and equity and equality are prioritized.	Somewhat Enabled
7	Data integration has resulted in improvements in care delivery and patient outcomes including reduced ancillary consumption from eliminating unnecessary or duplicate tests.	Fully Enabled
7	The capacity to integrate data from multiple external sources of clinical data (e.g., patient reported data, external organizations, referring MD's, mobile digital tools for virtual care delivery) into the organization's data repository for tracking, monitoring progress, risks analyses for individual patients, and patient populations.	Somewhat Enabled
7	Integration of clinical data with referring and admitting medical staff is supported across the organization. Referring and admitting medical staff have access to the following patient data: access to consultant reports, patient reported outcomes/progress data, lab results, medication profile, allergy status, clinical order management data, surgical/procedure records, imaging reports, medication record alerts, allergy alerts, other.	Mostly Enabled
7	Data from external sources is fully enabled and integrated into the EMR and is available for clinical decision support, both as alerts and background processes.	Somewhat Enabled
7	Data from external sources is fully enabled and integrated into the EMR to offer seamless workflow for clinicians accessing complete patient records from external organizations or sources of data.	Mostly Enabled
7	A bi-directional information exchange interface with a national patient database in countries where national repositories exist.	Fully Enabled
6	Medical devices are integrated into EMR (e.g., monitoring devices).	Not Enabled
6	All specimen collections are documented in the EMR. Lab receipt of specimens is electronically documented.	Fully Enabled
6	Clinically relevant documents are scanned and available in Clinical Data Repository within 24 hours.	Somewhat Enabled
6	HIE enables Structured or Coded Data from external sources to be integrated into the Clinical Data Repository, an icon is used to indicate external data is available for clinician teams.	Fully Enabled
5	Care teams offer/provide telehealth (e.g., telephone based monitoring, care navigation) to support patient tele-monitoring, consultation and treatment both prior to admission and post discharge.	Fully Enabled
5	Organizations are able to contribute to national and regional data repositories (e.g., IDs, name, address etc.) to identify which care providers have delivered what type of services to a certain patient.	Fully Enabled
5	Bidirectional interfaces are in place to external HIE and external registries for both inbound and outbound updates.	Mostly Enabled
5	Secure texting in place between clinicians to enable team communications and collaboration.	Fully Enabled
5	The electronic (automated/digital) system continuously monitors one or more clinical indicators to track each patient's health status, including but not limited to, vital signs and laboratory values in order to automatically alert care team members about risks of patient health status deterioration.	Fully Enabled
5	Tracking timeliness of nursing care (e.g., timed medication orders) to examine workflow efficiency, productivity, and care quality by ward, shift and individual nurses.	Mostly Enabled
5	Rapid response events and code events have a defined documentation strategy to accurately document care interventions.	Fully Enabled
5	HIE enables results from external sources to be integrated into the Clinical Data Repository, an icon is used to indicate external data is available for clinician teams.	Fully Enabled
4	HIE is available to clinical teams from external sources (i.e. medications, problem lists, discharge summaries, etc.). Patient data is available only by searching across a National Exchange, State or Regional or Other.	Fully Enabled
4	A log of all medications ordered as well as what meds have been administered (eMAR) for the patient is maintained in a patient centric manner and available across the hospital network.	Mostly Enabled

Stage	EMRAM Criteria	Your Performance
3	Infrastructure for bedside point of care scanning (of medications, blood, etc.) is installed in all locations.	Mostly Enabled
3	Prescriptions are reviewed and verified by a Pharmacist.	Mostly Enabled
3	Computerized orders are implemented with basic clinical decision support functions (i.e. duplicate orders, medication interactions, etc.).	Mostly Enabled
3	Clinicians have remote access to patient records/patient data/reports (if allowed by policy).	Mostly Enabled
3	Clinicians access external data sources for educational and training purposes.	Mostly Enabled
2	Clinicians access results and images through the CDR (Pictures and scans, lab results).	Mostly Enabled
2	Clinical Data Repository (CDR) is in place as a single repository (may be compiled as a single vendor solution or multiple software modules acting as a single repository).	Minimally Enabled
1	Pharmacy utilizes interactive alerts for medication safety (i.e. duplicate orders, drug interactions, dose errors, etc.).	Fully Enabled
1	90%+ Lab (clinical chemistry, microbiology, molecular, etc.) are stored as structured and discrete data and can be leveraged for trending analysis or clinical decision support features.	Fully Enabled
1	90%+ Lab results are stored in a patient centric manner and available across the hospital network.	Fully Enabled
1	90%+ Non-DICOM images are stored in a patient centric manner and available across the hospital network.	Somewhat Enabled
1	90%+ DICOM images are stored in a patient centric manner across the hospital network.	Fully Enabled
1	Cardiology Information System - Requests are manually or electronically entered into the Cardiology system. Reports are matched with the requests and distributed to the ordering physician.	Fully Enabled
1	Pharmacy Information System - Prescriptions are manually or electronically entered into the Pharmacy system in order to update the stock control inventory.	Fully Enabled
1	Radiology Information System - Requests are manually or electronically entered into the Radiology system. Reports are matched with the requests and distributed to the ordering physician.	Fully Enabled
1	Laboratory Information System - Requests are manually or electronically entered into the laboratory system. Results are matched with the requests and distributed to the ordering physician.	Fully Enabled

Color Legend
Areas for overall EMRAM Stage improvement
Areas for Focus Area Stage improvements
Minimum requirement gap up to EMRAM Stage 7

Patient Engagement

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Patient Engagement is defined as meeting and delivering on individual patient needs, values, and personalized health goals by offering patient's choice of care delivery--including digitally enabled, virtual care visits, telehealth, and/or digitally enabled self-management. Each of these types of care delivery models vary widely across global health systems, but each of these care delivery options engage patients to a varying degree.

Digitally enabled care is defined as offering care options that offer meaningful engagement between providers and patients, supported by robust digitally enabled care environments whereby patient engagement is dynamic, offers patients choice in how they engage and connect with provider teams, and enable data driven decision making. Patient engagement considers a range of digital options (e.g. online tools, handheld devices) for access to care anywhere approaches, or apps that enable on-demand health and wellness care support.

Stage Achievement	4	
Percent Achievement	58%	
Stage 7	45%	Stage not achieved
Stage 6	70%	Stage achieved
Stage 5	59%	Stage not achieved
Stage 4	75%	Stage achieved
Stage 3	N/A	Not Applicable
Stage 2	N/A	Not Applicable
Stage 1	N/A	Not Applicable

Color Legend
Stage criteria achieved
70% of stage criteria not met
Minimum requirements not met

Opportunities

Stage	EMRAM Criteria	Your Performance
7	Prior to patient discharge personalized, structured, and documented care plans are reviewed with the patient and/or associated on-going care facilitators (family members, guardian, or discharged-to care provider) that define personal health goals defined by individual patients in coordination with their care team, informed by their needs, values, and unique life circumstances taking into consideration social determinants of health (SDOH).	Not Enabled
7	Using digital apps and online portal patients have real time access to data flows to inform progress towards health goals, offer detailed documentation of care pathway/plan, products used in care (e.g., implants, drugs) to inform decisions to manage their health and wellness.	Mostly Enabled
7	Secure messaging with clinician teams during inpatient admission is available to meaningfully connect patients to their care team during hospitalization.	Not Enabled
7	Patients can use digital tools/technologies to connect, in real-time, to clinical systems and provider teams, (e.g., with a "point person"/ primary provider/navigator) that they can seek guidance about their health, report outcomes, seek information about care processes during inpatient admissions, and during transitions to outpatient care.	Mostly Enabled
7	Organization evaluates digital tools and technologies (e.g., wearables, devices, applications) for ease of use for patients, and rates of utilization.	Somewhat Enabled
7	Digital tools and infrastructure track and trace care processes, and products used in care, linked to individual outcomes and progress toward patient health and wellness goals, for all inpatient care settings.	Minimally Enabled
7	Adverse event reporting is automated (e.g., identifies lot and batch number of individual products to enable global traceability to the vendor), linked to individual patients who report adverse outcomes, track potential risk of adverse outcomes, to support rapid intervention to improve quality and safety outcomes in all care settings.	Not Enabled
7	Personalized digital tools, technologies and platforms (e.g., virtual, online in real time, wearables) support consumer self-management of their health and wellness, and meaningful access to care providers when and where needed using secure messaging/communication.	Mostly Enabled
7	Patients are able to report outcomes, provide feedback using digital tools during hospital admissions, for all inpatient programs.	Fully Enabled
7	Rates of patient reported outcomes (e.g., percent of patients using digital tools for self management who report health outcomes, adverse events, or engage provider teams using digital tools).	Somewhat Enabled
7	Rate of use (e.g., % of Patients) who use digital tools (e.g., mobile devices, smart phone apps, dashboards, tablets) for self management of care, and to report health outcomes is tracked and reported.	Somewhat Enabled
7	Prevalence of patients with chronic conditions accessing their health record across the organization (stated at a percent of patients in a chronic condition registry accessing their health record).	Minimally Enabled
6	Patients have online access to educational material specific to their imaging-related procedures or problems (e.g., example to inform them about potential risks or benefits of upcoming treatments or imaging procedures).	Mostly Enabled
6	Patients have online access to radiology and cardiology images created by the organization.	Not Enabled
6	Digital infrastructure tools are designed to support and build consumer health literacy, consumers are provided with the resources, knowledge, and necessary tools to be confident in self-management of their health and wellness.	Mostly Enabled
6	Patients receive alerts, reminders and notifications remotely, linked to care pathways/care plans to support patient self management decisions to advance progress towards health goals.	Mostly Enabled
6	Patient satisfaction is measured relative to ease of use of digital tools (e.g., mobile devices, smart phone apps, dashboards, tablets) for self management of care (denominator could be number of discharges per year, patient visits per year, etc.)	Minimally Enabled
6	Percent of Patients who select/use/access virtual care visits/telehealth appointments. Ability to report the number of virtual care visits over previous 12 months for all areas using virtual care.	Fully Enabled
6	Prevalence of patients accessing their health record across the organization is tracked and reported (stated at a percent of all active patients).	Fully Enabled
6	Secure messaging is offered to patients in support of communication between the patient and care provider teams.	Mostly Enabled
6	Patient-specific data collected from wearables, implants, or other digital devices is collected and transformed into knowledge and insights to inform patient and care giver decisions and management of their health and wellness.	Minimally Enabled
6	Patients can submit self-reported outcomes data and are able to update their personal health status data online (e.g., medication compliance, self-risk assessment, upload medically relevant images), and report progress with care pathways or therapies (e.g., patients can document that they performed the prescribed or recommended action).	Mostly Enabled
6	A patient portal is available for patients to access a subset of clinical data including discharge status, results, reports, current medication list, education tools/resources, etc.	Mostly Enabled
6	Patient satisfaction is measured using digital tools (e.g., devices, apps, web based portal) to profile the patient experience during hospitalization, discharge.	Fully Enabled
5	Patients are able to access their health records across multiple care programs or provider teams.	Mostly Enabled
5	Patients have access to digital tools for monitoring their health status including disease-specific telemonitoring devices (e.g., ECG, blood glucose, scales) for the following conditions: Diabetes, Hypertension, Heart Failure, Chronic Obstructive Pulmonary Disease (COPD), Kidney Failure.	Somewhat Enabled
5	Patients receive post discharge health maintenance reminders using automated notifications and alerts (e.g., patients are reminded of preventative actions such as wound care, follow up visits, and therapeutic appointments or medication re-orders or reminders).	Somewhat Enabled
4	Patients are provided with online access to standardized health related, non-personalized information (e.g., educational content, risk assessments, health education).	Mostly Enabled

Color Legend
Areas for overall EMRAM Stage improvement
Areas for Focus Area Stage improvements
Minimum requirement gap up to EMRAM Stage 7

Healthcare Analytics & Outcomes Measurement

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Health system performance is optimized when clinical and operational data are transformed into knowledge and insights that inform decisions focused on best possible outcomes for patients, and optimization of performance of the organization. Sustainable and verifiable improvements to health system performance require analytics and outcomes measures to track quality and safety outcomes for patients and operational performance outcomes for the organization. This includes--but is not limited to--clinical, operational, and financial outcomes and impact. Analytics tools are able to transform data into knowledge, wisdom and insights to inform decisions. Outcomes include quality, safety, efficiency, productivity and other operational performance outcomes.

Stage Achievement	1	
Percent Achievement	64%	
Stage 7	62%	Stage not achieved
Stage 6	74%	Stage achieved
Stage 5	83%	Stage not achieved
Stage 4	75%	Stage achieved
Stage 3	75%	Stage achieved
Stage 2	37%	Stage not achieved
Stage 1	75%	Stage achieved

Color Legend
Stage criteria achieved
70% of stage criteria not met
Minimum requirements not met

Opportunities

Stage	EMRAM Criteria	Your Performance
7	Medication error rates are reported routinely (ex. Quarterly, annually) to program teams to document trending.	Fully Enabled
7	Pharmacy: A critical review process for medication errors is well established, analyzed and reported to patient care units to inform practice interventions to strengthen medication safety and quality patient care for all patient are care teams.	Fully Enabled
7	Pharmacy: Medication errors analyses are reported to board level quality and safety committee to inform decisions to advance quality and safety across the organization.	Fully Enabled
7	Pharmacy: Medication errors are reported online, analytics track and trace medication errors linked to outcomes for patients across the organization, and reported to patient care settings regularly.	Fully Enabled
7	Pharmacy: Home or Alternative medications the patient brings from home or managed per established policy. In the event medications from home are permitted, are administered (by the nurse or the patient), the medications follow the same process as pharmacy dispensed medications.	Fully Enabled
7	Pharmacy: Nurses access prescribed medications at the bedside, with technology enabled verification of the correct medication, correct dose, correct patient, correct time, and correct route.	Not Enabled
7	Pharmacy: Technology is used to track and trace medications, received in bulk and then repackaged, maintaining the traceability from manufacturer to patient outcome is well defined and supported by some level of automation.	Somewhat Enabled
7	Pharmacy: Clinicians and/or pharmacists have the ability to override a medication prescription (e.g., deemed unsafe, inappropriate). All overrides are reviewed, and analyzed to identify trends or patterns related to factors contributing to overrides and then reported to leadership to inform quality and safety decisions relevant to override processes.	Minimally Enabled
7	Pharmacy: Modified orders or recommendations to modify orders are communicated to the Clinician who ordered the medication, and modification of orders are documented in the EMR for all patient care settings.	Mostly Enabled
7	Pharmacy: The medication profile (eMAR/EPMA) is automatically updated following prescribing and administering.	Fully Enabled
7	Pharmacy: Systems in place to reduce medication errors (wrong dose, route, time, mislabel if repackaged, wrong storage location, etc.) with harm and prescribing, administration, delivery.	Fully Enabled
7	Pharmacy: All medication orders are digitally verified by appropriate licensed professional prior to being dispensed.	Somewhat Enabled
7	Imaging: Enterprise Imaging is accomplished. Defined as "a set of strategies, initiatives and workflows implemented across a healthcare enterprise to consistently and optimally capture, index, manage, store, distribute, view, exchange, and analyze all clinical imaging and multimedia content to enhance the electronic health record.	Not Enabled
7	Imaging: The organization is able to demonstrate Clinical Decision Support Features for Radiology and Cardiology imaging that help to improve efficiency, safety, or quality of care.	Not Enabled
7	Imaging: Radiation doses are regularly monitored to ensure minimum dose per examination.	Fully Enabled
7	Imaging: Specialists have the option of using speech recognition for capturing imaging analysis and reporting.	Fully Enabled
7	Imaging: Important findings are captured as discrete data elements (e.g., size of a potentially malignant mass) and transferred automatically into reports.	Not Enabled
7	Imaging: The software enables the prioritization of radiology and cardiology imaging examinations/reviews based on urgency in order to minimize the turnaround time for reports.	Somewhat Enabled
7	Imaging: Authorized clinical users from the organization (inpatient and outpatient areas) can access and view radiology and cardiology images through their primary system.	Fully Enabled
7	Imaging: Non-DICOM images/videos are stored and digitally available for clinician access (e.g., images/videos in formats such as PDF, MPEG, JPEG, AVI, PNG, generated by devices like digital cameras, smartphones, endoscopes etc.).	Fully Enabled
7	Imaging: The electronic system supports the confirmation of image acquisition/examination completion and automated results delivery to the responsible clinician. (i.e. orders and results communication / status management).	Minimally Enabled
7	Imaging: All orders are exchanged and accessed electronically, whereby orders are verified prior to the patient undergoing the procedure.	Mostly Enabled
7	Blood Bank: Blood stored outside the blood bank is managed by the blood bank and associated standards applied to map the blood order to the patient and the blood product.	Fully Enabled
7	Blood Bank: If the blood needs to be repackaged (NICU) a process is in place to ensure the repackaging has the same identifies as the original product package.	Not Enabled
7	Blood Bank: The Blood Bank processes enable linkage of blood product administration to patient outcomes for all patient care areas. Ability to report the number of error without harm and errors with harm for the past 12 months.	Fully Enabled
7	Blood Bank: Technology is used to link the patient order to the right blood product (e.g., scan the blood product barcode, QR code, RFID tag, etc.). The rate of error of blood product matching to patient order is tracked for all patient care programs.	Fully Enabled
7	Laboratory: Technology is used to match the specimen/sample with the patient order (e.g., scanned upon receiving) to document timely processing of lab samples. The rate of "re-draws" (repetition of specimen collection due to delays e.g., delayed receipt of specimens, coagulation of blood specimens, inconclusive results) is tracked and monitored for quality improvements for all patient care programs.	Fully Enabled
7	Lab: Specimen/sample are identified and tracked at the point of collection using technology-enabled data capture (e.g., barcoded, QR coded, RFID tagged, etc.) at the processes at the point of collection.	Fully Enabled
7	Clinicians can access medical imaging reports and actual images from within the patient's EMR either natively or through a context aware link for all patient care programs.	Somewhat Enabled
7	Clinicians receive actionable alerts to enable proactive interventions to reduce risks.	Not Enabled
7	Structured templates use discrete data to drive CDS or order sets, and populates the CDR as discrete data for all patient care programs.	Not Enabled
7	Clinicians have input to the design and use of structured templates to document discharge summaries.	Mostly Enabled
7	Nursing risk assessments inform care delivery to ensure patients assessed at high risk receive preventive care to reduce risk and patients assessed at low risk receive care appropriate to low risk care needs. Care delivery is standardized to ensure risks are mitigated.	Mostly Enabled
7	Clinicians have input to the design and use of structured templates to document consult notes.	Fully Enabled
7	Clinicians have input to the design and use of structured templates to document history & physicals.	Fully Enabled
7	Clinicians have input to the design and use of structured templates to document operative notes for all procedures.	Fully Enabled
7	Clinicians use structured templates to document daily progress notes for all patient care programs.	Somewhat Enabled

Stage	EMRAM Criteria	Your Performance
7	Clinician documentation uses structured templates for all patient care programs to ensure complete, accurate documentation of Clinician's care for patients.	Somewhat Enabled
7	Evidence based order sets (self-developed or third-party developed specifically for this organization) are evaluated by clinician leaders for quality and safety outcomes, and to personalize pathways to support quality outcomes.	Mostly Enabled
7	Clinicians are able to enter orders remotely, unless not allowed by organization policy. Prevalence of remote Clinicians' order are:	Mostly Enabled
7	The organization has implemented Clinical Order Management for the entry of all patient care orders in all care delivery programs.	Fully Enabled
7	Nurses may chart resuscitation medications on paper, but document the medications administered in the eMAR record by the time the patient is transferred to another unit (e.g., ICU).	Fully Enabled
7	Ancillary clinical disciplines also chart in the system: pastoral care, occupational therapy, respiratory therapy, physiotherapy, social work, mental health teams, home care, long term care liaison staff.	Somewhat Enabled
7	Medication reconciliation processes occurs at admission, discharge and all unit level transfers, including reconciliation with home medications to be taken/resumed after discharge.	Fully Enabled
7	Nurses complete documentation in the EMR for all of the following: vital signs (verified by nurse if monitors are interfaced), flow sheets (fluid balance, blood administration), nursing notes, risk assessments, care plans-nursing diagnoses, electronic medication administration records (eMAR).	Somewhat Enabled
7	Medications are given in accordance with previously agreed group protocol clinical pathways or order sets. (e.g., simple analgesia, anticoagulants in VTE assessment, and pre-operative antibiotics.)	Fully Enabled
7	Medication errors are reported by members of the care team and monitored by clinician leadership (or quality and safety teams) routinely for all clinical programs to inform quality and safety initiatives related to medication safety.	Fully Enabled
7	All situations of overriding the eMAR are documented in all clinical settings with a discrete override justification required.	Fully Enabled
7	All medications administered to patients are verified in the eMAR at the point of care and automatically captured in the patient's medication profile is updated.	Mostly Enabled
7	At the bedside, all nurses use technology to identify the patient and the medicine (all medicine types) and in so doing create a match confirming at least 5 rights of medication administration. Alerts and warnings signify mismatch.	Not Enabled
7	A program is in place to track clinician use of the EMR to improve efficiency, reduce time and increase effectiveness.	Mostly Enabled
7	Histology/anatomical pathology is in place replacing glass specimen slides with information generated from digitized specimen slides.	Somewhat Enabled
7	Infant formula ordered in the NICU is scanned at bed side to verify the product matches the nutritional needs of the order prior to feeding.	Not Enabled
7	An anesthesia information system is live, in use, and interfaced with the EMR.	Mostly Enabled
7	Smart pumps are interfaced directly to the EMR using a bi-directional interface.	Not Enabled
7	Nursing assessments and care plans are supported by bedside scanning to automate data capture. (e.g., barcode or RFID scanning of blood glucose monitor, ABG machines, special mattress, infusion pumps, etc.)	Not Enabled
7	A Procedural Suite Time-Out process is in place to ensure patient safety.	Fully Enabled
7	Clinical Governance processes use data to manage workflow, content, alerts and the impact and burden of work on all members of clinical staff.	Not Enabled
7	Clinically relevant paper (e.g., EKG strip documentation, Code documentation) is scanned and available in the EMR within 24 hours from the time it was created.	Minimally Enabled
7	Data governance strategy is evaluated annually for privacy, security, and integrity of data to support tracking and monitoring patient outcomes for all clinical programs, and organizational performance.	Somewhat Enabled
7	There is executive agreement for a documented analytics strategy that enables and drives outcomes for all strategic programs.	Fully Enabled
7	Advanced analytics is used to track patient progress outcomes and proactively identify and inform decisions to reduce risks. Examples may include: Sepsis, Readmission risks based on vitals and/or lab results.	Not Enabled
7	Staff has access to self-service data presentation tools (e.g., report writers, department level dashboards, and personalized health pathway) that enable tracking health outcomes for patients and clinician teams.	Mostly Enabled
7	Demonstrated data mobilization strategy tracks outcomes related to quality, patient safety, and cost for all programs.	Not Enabled
7	Tracking patient outcomes informs decisions to personalize care delivery to strengthen patient's progress towards health goals and desired outcomes.	Somewhat Enabled
7	Data mobilization proactively identify risks to patients and provide automated alerts to cue clinician teams to intervene to reduce risks and strengthen outcomes.	Not Enabled
7	Data from external sources (e.g., patients – wearables, digital tools, professional society registries, health plan data, quality of work life data for staff, patient reported outcomes data) is mobilized and integrated into analyses to document patient level and program level outcomes to track performance.	Somewhat Enabled
7	Advanced data analytics is used to improve the clinical outcomes for patient suffering from one or more chronic condition.	Somewhat Enabled
7	Data is used to measure performance across all strategic platforms (ex quality improvement performance, cost impact improvement).	Mostly Enabled
7	Improved outcomes are documented in 3 case studies which are data driven, capturing clear definition of outcomes in the case, evidence of the importance and relevance of selected outcomes, and data that profiles the impact and value of case interventions for patients, for the workforce, and the organization when interventions to improve or strengthen performance are implemented.	Somewhat Enabled
6	Data management processes include strategies to strengthen validity (e.g., data are normalized to include the value and normal range for data, date standardization, etc.)	Mostly Enabled
6	Operational and Finance data is used to track the performance of clinical outcome indicators. E.g., The organization understands the cost and length of stay implications of reducing hospital acquired infection.	Mostly Enabled
6	Outcome-associated risks are tracked to inform quality and safety priorities within service improvement programs. (e.g., extended patient waiting times in the ER.)	Somewhat Enabled
6	Nurses and Allied Health professionals receive electronic alerts and warnings that prevent potential harm. (e.g., Change foley catheter, resite peripheral line, check central line dressing)	Not Enabled
6	Clinical Governance Committee is formed and works closely with Data Governance to optimize capture of clinical care outcomes to identify quality and safety priorities.	Fully Enabled
6	Analytics reports are available in a common repository and available to frontline staff as needed per access policy.	Fully Enabled
6	Analytics governance actively assesses Outcomes data for needed changes.	Mostly Enabled
6	Outcomes data quality is managed (timeliness, completeness and accuracy) by clinical, operational and financial leaders.	Somewhat Enabled
6	Readmission rates are monitored for all patient conditions (trend over a 12-month period.)	Fully Enabled
6	Rates of Never events/Sentinel events across the organization, and trend over a 12-month period. (e.g., wrong site surgery, administration of medication by wrong route, transfusion/transplant incompatibility).	Mostly Enabled
6	Rates of adverse events associated with high risk care processes are tracked for the following: anticoagulation errors/adverse events, insulin errors/adverse events, conscious sedation errors/adverse events, incorrect blood product use, antidote use, Intravenous medication errors/adverse events.	Mostly Enabled
6	Clinical errors that occur in specialist Ambulatory Services (e.g., dialysis, infusion centers) are electronically recorded and displayed as a 12 month rolling trend.	Fully Enabled
6	Rates of adverse events (medical error, all types) /patient day (inpatients), and trending over a 12-month period.	Mostly Enabled
6	Organization can report the rates of patient access to care based on type of access - telehealth, virtual visits, in person visits, or online services.	Mostly Enabled
6	Rates of patient access to provider appointments (e.g., Online, virtual, telehealth, in person) within 24 hours.	Mostly Enabled
5	Analytics governance has defined Outcomes data captured…numerators, denominators, multi-source data points resolved.	Mostly Enabled
5	The effectiveness of Order Sets, personalized templates and structured narrative is reviewed by a clinical governance committee.	Fully Enabled
5	Patient Satisfaction targets inform service improvement programs in each clinical area e.g., Surgery, Medicine, Inpatient, Outpatient.	Mostly Enabled
5	Clinical programs have established program target outcomes and report against those targets annually.	Mostly Enabled
4	Clinical governance committee has a process to assess the effectiveness of and compliance with order sets and clinical decision support guidance.	Mostly Enabled
4	Patient Satisfaction targets are identified for each clinical program, and or for specific patient populations segments e.g., inpatients, day cases, outpatients, emergency room.	Mostly Enabled
4	Clinical governance committee has a process in place to identify and measure clinical outcomes.	Mostly Enabled
3	Clinical governance committee continually assess the effectiveness of Clinical Decision Support opportunities.	Mostly Enabled
3	Activity reports are available at department, division and corporate levels. For example: Emergency Department, Division of Surgery, Hospital.	Mostly Enabled
2	Policy and Procedures to control document scanning are defined by committees. (Multi-disciplinary groups)	Not Enabled
2	Policy and Procedures to control bedside scanning are developed by multi-disciplinary groups.	Fully Enabled
2	Clinical decision support opportunities are defined by committees (Multi-disciplinary groups).	Somewhat Enabled
1	Departments are reporting on their own operational and financial performance.	Mostly Enabled

Color Legend
Areas for overall EMRAM Stage improvement
Areas for Focus Area Stage improvements
Minimum requirement gap up to EMRAM Stage 7

Resilience Management

HIMSS

Resilience Management deals with the protection of information technology against unauthorized access to, or modification of information--whether in storage, processing, or transit and against the denial of service attacks that prevent authorized users from accessing the network and systems, including those measures necessary to detect, document, and counter such threats. It also deals with the protection and maintenance of data confidentiality, integrity, availability, and accountability. The tools used to enable Resilience Management capabilities may include encryption, firewalls, single sign-on, spam/spyware filters, anti-virus/antimalware applications, etc.

Stage Achievement	5	
Percent Achievement	69%	
Stage 7	34%	Stage not achieved
Stage 6	66%	Stage not achieved
Stage 5	79%	Stage achieved
Stage 4	85%	Stage achieved
Stage 3	95%	Stage achieved
Stage 2	85%	Stage achieved
Stage 1	85%	Stage achieved

Color Legend
Stage criteria achieved
70% of stage criteria not met
Minimum requirements not met

Opportunities

Stage	EMRAM Criteria	Your Performance
7	Service interruptions that cause the creation of downtime documentation are measured by the number of downtime documents scanned into the EMR.	Not Enabled
7	A communication plan clearly outlines when to, or not to, implement downtime procedures.	Somewhat Enabled
7	The organization performs a simulated disaster event annually. The simulation must include downtime clinical documentation and recovery of data created during the downtime. This simulation does not affect the production environment.	Somewhat Enabled
7	Demonstrated long-term downtime processes describe what the organization does in the event of a downtime, informed by documented guidelines for extended downtimes.	Somewhat Enabled
7	Frequency of unscheduled outages are measured annually (i.e. has been measured over the past 12 months). An outage is determined when a clinician must resort to using paper to document care. That paper must then be scanned into the EMR and any orders backloaded.	Not Enabled
6	Simulated Disaster Recovery events are conducted and lessons learned are implemented into protocols to manage downtime.	Not Enabled
6	The organization manages clinical data integrity during and following a system outage by backloading clinical data into the EMR and the disposition of any clinically relevant paper.	Fully Enabled
6	Staff demonstrate awareness of downtime processes and available IT resources during downtimes. The organization evaluates the impact of downtime on staff and clinician teams.	Somewhat Enabled
6	Summary reports are available on a device on the wards / floors when the system is down – PC/workstations on a generator circuit or UPS and direct connected to a printer on a generator circuit or UPS.	Somewhat Enabled
6	Patient Data integrity is maintained during downtime using summary reports including patient allergies, medication profile, patient problem/diagnosis, department schedules, other.	Fully Enabled
6	Patient data is encrypted on the downtime PC and password protected.	Fully Enabled
6	Outages are standardized for both scheduled and unscheduled disruptions in information systems. Disruptions are defined (e.g., planned, unplanned), reported, and tracked by organizational leaders. A mature process is in place defining time interval before paper and recovery sequence.	Mostly Enabled
6	To maintain patient safety the IT Change Management process ensures that all new devices and software modifications are risk assessed and authorized for use by the clinical safety officer.	Somewhat Enabled
6	There is a process to effectively communicate system changes, based on impact and relevance, to all users. (Training if required is automatically scheduled and registries updated.)	Fully Enabled
6	Information assets (network devices, software, interfaces, etc.) are proactively managed across the enterprise. An assessment is performed annually to identify risks to the infrastructure. The risk assessment and any issues identified by monitoring are escalated.	Mostly Enabled
6	Staff understand the Business Continuity plan and participate in, at a minimum, a disaster drill that simulates an enterprise wide outage of all systems every 12 months.	Somewhat Enabled
6	Bring your own device policy is agreed, implemented and reviewed every 12 months.	Somewhat Enabled
5	Business Continuity policy contains Root Cause Analysis templates and lessons learned reports.	Mostly Enabled
5	IT Change Management - Changes are coordinated (non-emergency) across all platforms with regression testing.	Fully Enabled
5	Intruder Prevention Systems manage unauthorized access to the hospital network, servers and records.	Somewhat Enabled
5	A security policy is in place for devices that are reported as lost or stolen (i.e. phone, laptop, PCs, tablets, etc.).	Fully Enabled
4	Network Intruder detection system in place.	Fully Enabled
4	There is a plan in place to ensure that following an outage services can be fully restored.	Fully Enabled
4	A communication plan is in place for unscheduled downtime that describes who is to be notified, the scope of the outage and the possible duration of the outage.	Somewhat Enabled
4	IT Change Management - Change Advisory Board (CAB) has Root Cause Analysis for failed changes that were approved by the CAB in place.	Mostly Enabled
3	An annual program of scheduled outages is published and widely communicated. (To describe impact and duration.)	Mostly Enabled
3	IT Change Management - Change Advisory Board is defined and implemented to define changes that are to be reviewed by the CAB and those that are not. All changes that should be reviewed are approved by the CAB before the requested changes.	Fully Enabled
3	Role Based Access Control (appropriate access to information systems is based on staff role).	Fully Enabled
2	Communications associated with Business Continuity (the process of moving from Uptime to Downtime) are aligned with the organization's major incident plan.	Fully Enabled
2	A systematic methodology is agreed in consultation with key stakeholders in order to prioritize system recovery routines.	Somewhat Enabled
2	Change Management requests are classified as routine, standard and emergency and are made and available online. In order to obtain approval all requests for change must have a roll-back plan.	Fully Enabled
2	Annual training on the use of PHI and IT security is provided to all members of staff.	Fully Enabled
2	Policies for Appropriate Use and access to patient health information are in place.	Fully Enabled
1	Requests for change go through an approval process involving key clinical stakeholders.	Somewhat Enabled
1	Business Continuity plans are in place for each departmental / ancillary system.	Fully Enabled
1	Change Management requests are classified as routine, standard and emergency and are made and available online.	Fully Enabled

Color Legend
Areas for overall EMRAM Stage improvement
Areas for Focus Area Stage improvements
Minimum requirement gap up to EMRAM Stage 7

Clinical User Adoption

A single Electronic Medical Record / Clinical Data Repository is installed or other multiple data stores installed in such a way that users do not have to sign in to different systems.

The organization understands that multiple solutions are typically leveraged to form the EMR. Linkages from the Electronic Medical Record / Clinical Data Repository are context aware (i.e., patient does not need to be re-selected in each disparate data store). There is a controlled medical vocabulary to ensure systems are speaking the same language. Basic interoperability enabled by HL7 or other standards providing access to 95%+ of lab results, radiology and cardiology images and reports. This information is also available outside the organization.

Stage Achievement	2	
Percent Achievement	55%	
Stage 7	35%	Stage not achieved
Stage 6	42%	Stage not achieved
Stage 5	45%	Stage not achieved
Stage 4	60%	Stage not achieved
Stage 3	73%	Stage not achieved
Stage 2	100%	Stage achieved
Stage 1	100%	Stage achieved

Color Legend	
Stage criteria achieved	
70% of stage criteria not met	
Minimum requirements not met	

Opportunities

Stage	EMRAM Criteria	Your Performance
7	95%+ of procedures use a pre-procedure Time-Out/checklist process to ensure right patient/right procedure.	50-94%
7	95%+ of Human Milk administrations are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
7	95%+ of Blood Products are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
7	95%+ of Medications are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
7	95%+ of Specimen Collections are electronically identified (i.e. Barcode, RFID scanned) at the point of collection.	95-100%
6	50%+ of procedures use a pre-procedure Time-Out/checklist process to ensure right patient/right procedure.	50-94%
6	50%+ of Human Milk administrations are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
6	50%+ of Blood Products are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
6	50%+ of Medications are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
6	50%+ of Specimen Collections are electronically identified (i.e. Barcode, RFID scanned) at the point of collection.	95-100%
6	90%+ of Clinical Documentation is recorded as structured data (not free text) and available in the Clinical Data Repository.	1-25%
6	CPOE is implemented and adopted in >90%+ clinical programs.	75-89%
5	>25% of procedures use a pre-procedure Time-Out/checklist process to ensure right patient/right procedure.	50-94%
5	>25% of Human Milk administrations are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
5	>25% of Blood Products are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
5	>25% of Medications are electronically scanned (i.e. Barcode, RFID scanned) at the bedside prior to administration.	0%
5	>25% of Specimen Collections are electronically identified (i.e. Barcode, RFID scanned) at the point of collection.	95-100%
5	75%+ of Clinical Documentation is recorded as structured data (not free text) and available in the Clinical Data Repository.	1-25%
5	CPOE is implemented and adopted in >75%+ clinical programs.	75-89%
4	>50% of Clinical Documentation is recorded as structured data (not free text) and available in the Clinical Data Repository.	1-25%
4	CPOE is implemented and adopted in >50% clinical programs.	75-89%
3	>25% of Clinical Documentation is recorded as structured data (not free text) and available in the Clinical Data Repository.	1-25%
3	CPOE is implemented and adopted in >25% clinical programs.	75-89%
3	95%+ of DICOM and Non-DICOM images are stored and available through the CDR to clinicians.	50-94%
3	95%+ of Lab, Radiology and Cardiology reports are stored and available to clinicians in the Clinical Data Repository (CDR).	95-100%
2	50%+ of DICOM and Non-DICOM images are stored and available through the CDR to clinicians.	50-94%
2	50%+ of Lab, Radiology and Cardiology reports are stored and available to clinicians in the Clinical Data Repository (CDR).	95-100%
1	>25% of DICOM and Non-DICOM images are stored and available through the CDR to clinicians.	50-94%
1	>25% of Lab, Radiology and Cardiology reports are stored and available to clinicians in the Clinical Data Repository (CDR).	95-100%

Color Legend
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