HESAS

JCI and ESM Reference Matrix

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Message from the chairman

It is vividly evident that the world witnessed the worst public health and economic crisis due to COVID-19 pandemic. This inevitably mobilized the international community to act seriously and swiftly. However, the mortalities and morbidities induced by healthcare-acquired infections (HAI) are equally fatal, but the international community did not act similarly. Consequently, we are continuously and chronically suffering from HAI.

The current intervention for HAI is merely based on passively-set standards and enforcing these standards via regulatory agencies such as the centre for disease control and prevention (CDC), joint commission international (JCI), ministries of health, and other regulatory agencies. To efficiently address HAI, we inevitably need to mobilize the international community because HAI traverses a multitude of epistemological dimensions, requiring multidisciplinary tacit knowledge, and mandates active international collaboration. Besides, we believe that we can efficiently traverse deeply into the root-causes and solution landscapes by automating the entire healthcare environmental services and infection control within healthcare institutions using the latest advancements in computational epistemology, computational infection control models, computational epidemiological models, artificial intelligence, machine learning, distributed ledger technology, collective intelligence, cognitive technologies, internet of things, ubiquitous technologies, intelligent micro-measurement frameworks, artificial life, evidence-based program implementation, patient-centric care, strategy anchored execution, and symbiotic healthcare ecosystem services. Consequently, we developed these open standards that were tailored from diverse international standards to promote the automation of healthcare environmental services and infection control processes and best practices.

The Healthcare Environmental Services Operational Map (HESOM) and other standards were developed to efficiently leverage multidisciplinary experts and practitioners to contribute towards the eradication of HAI-induced mortalities and morbidities. Using ReXcels research and innovation environment, we cultivate collective intelligence by bringing together these multidisciplinary experts to iteratively develop these standards and adaptively support the innovation of computational technology that automates the execution and enforcement of these standards. As such, we cordially invite you to use these documents and participate actively in the further development of these standards to significantly reduce HAI-induced mortalities, morbidities, and their enormous negative economic externalities.

Hamid Adem
Interim Chairman, and Chief R&D Officer

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Patient Centered Standards

1 Patient Centered Standards

1.1 International Patient Safety Goals (IPSG)

JCI Standards	EMS Process	Description	Automation
IPSG.1 Identify Patients Correctly	Hospital Management system	Hospital management system provides EMR, Patient ID to ensure that the patient is correctly and reliably identified as the person for whom the service or treatment is Intended.	
IPSG.2 Improve Effective Communication	Hospital information system coordination	Hospital information system coordination ensures that effective correct and reliable communication is established with the organization.	
IPSG.3 Improve the Safety of High-Alert Medications	Human resource management	Human resource process ensures that qualified people handle the job for which they have proper credential, experience and authorization, include use of high alert medication. Proper training would ensure that errors do not occur due to staff are not properly oriented to the patient care unit.	

IPSG.4 Ensure Correct-Site, Correct-Procedure, Correct-Patient Surgery	Hospital information system coordination	Hospital information system comprises of operation theatre and surgery module, which records pre surgery observation, and facilitate the correct procedure and correct patient surgery.	
IPSG.5 Reduce the Risk of Health Care – Associated Infections	• Housekeeping process • Waste Management process	• Housekeeping process ensure that the premises remains clean and free from infections to ensure HIA are minimized. Waste management process ensures that • Environmental impact of waste generation treatment & disposal is minimized and controlled, such that, a safer and a hygienic work environment is provided to hospital employees, patients and visitors.	

	• Infection control coordination	• Infection control coordination process ensures that all the infection control efforts are well collaborated thorough the organization.	
IPSG.6 Reduce the Risk of Patient Harm Resulting from Falls	OSH management	OSH management process ensures that • Work related injuries and diseases are prevented as per health and safety acts.	

1.2 Access to Care and Continuity of Care (ACC)

1.2.1 Admission to the Organization

JCI Standards	EMS Process	Description	Automation
ACC.1 Patients are admitted to receive inpatient care or registered for outpatient services based on their identified health care needs and the organization's mission and resources.	Hospital management System	Hospital management system provides inpatient and outpatient module to support identification of required health care need.	
ACC.1.1 The organization has a process for admitting inpatients and for registering outpatients.	Hospital management System	Hospital Management system provides capability to register patient via	

• **ACC.1.1.1** Patients with emergent, urgent, or immediate needs are given priority for assessment and treatment. • **ACC.1.1.2** Patient needs for preventive, palliative, curative, and rehabilitative services are prioritized based on the patient's condition at the time of admission as an inpatient to the organization. • **ACC.1.1.3** The organization considers the clinical needs of patients when there are waiting periods or delays for diagnostic and/or treatment services		inpatient and outpatient modules. Hospital Management system supports emergency procedures via causality and emergency management module. Hospital Management system supports waiting delays management via queuing and appointment management modules	
ACC.1.2 At admission as an inpatient, patients and families receive information on the proposed care, the expected outcomes of that care, and any expected cost to the patient for the care.	Hospital Management System	Hospital management system provides information on the patients care, and expected billings information.	
ACC.1.3 The organization seeks to reduce physical, language, cultural, and other barriers to access and delivery of services.	Voice of customer	VOC process ensures that all customer experiences are taken into account and reflected upon via changes	

		in the processes to ensure that the processes are more direct and easy for customer.	
ACC.1.4 Admission or transfer to or from units providing intensive or specialized services is determined by established criteria.	Hospital Management System	Hospital management system records all the clinical data and mode of treatment of the patient, irrespective of the location of the patient.	

1.2.2 Continuity of Care

JCI Standards	EMS Process	Description	Automation
ACC.2 The organization designs and carries out processes to provide continuity of patient care services in the organization and coordination among health care practitioners.	Hospital information system coordination	Hospital information system coordination aims at providing coordination between various departments and information systems to ensure continuity of patient care.	
ACC.2.1 During all phases of inpatient care, there is a qualified individual identified as responsible for the patient's care.	HR Management	HR management processes ensure that only qualified personals are given the job responsibility they are qualified to handle.	

1.2.3 Discharge, Referral, and Follow-Up

JCI Standards	EMS Process	Description	Automation
ACC.3 There is a policy guiding the referral or discharge of patients.	Hospital Management system	Hospital Management system provides a module for discharge as well as module for patient referrals.	
ACC.3.1 The organization cooperates with health care practitioners and outside agencies to ensure timely and appropriate referrals.	Hospital Management system	Hospital Management system facilitate the referral requirements via patient referral system to ensure timeliness and appropriateness.	
ACC.3.2 The clinical records of inpatients contain a copy of the discharge summary. • **ACC.3.2.1** The discharge summary of inpatients is complete.	Hospital Management system	Hospital Management system provides capability to generate up to date clinical report of all the inpatients for any situation (discharge or transfer)	
ACC.3.3 The clinical records of outpatients receiving continuing care contain a summary of all known significant diagnoses, drug allergies, current medications, and any past surgical procedures and hospitalizations.	Hospital Management system	Hospital Management system provides outpatient module which provides capability of summarizing all known significant diagnosis, drug allergy, current medication, past record etc.	
ACC.3.4 Patients and, as appropriate, their families are	Hospital information system coordination	Hospital information system coordination provides	

given understandable follow-up instructions.		capability to answer any queries, and request and also providing follow up instructions.	
ACC.3.5 The organization has a process for the management and follow-up of patients who leave against medical advice	Infection control Coordination	Infection control coordination process performs post discharge techniques to follow up on patients	

1.2.4 Transfer of Patients

JCI Standards	EMS Process	Description	Automation
ACC.4 Patients are transferred to other organizations based on status and the need to meet their continuing care needs.	Hospital information system coordination	Hospital information system coordination provides means to transfer the patients and coordinating with other organizational information systems.	
ACC.4.1 The referring organization determines that the receiving organization can meet the patient's continuing care needs.	Hospital information system coordination	Hospital information system coordination provides capability of handling referrals to ensure that all the prior requirements are met to handle patient transfer.	
ACC.4.2 The receiving organization is given a written summary of the patient's clinical	Hospital information system coordination	Hospital information system coordination provides capability of handling	

condition and the interventions provided by the referring organization.		referrals to ensure that all the prior requirements are met to handle patient transfer.	
ACC.4.3 During direct transfer, a qualified staff member monitors the patient's condition.	Hospital information system coordination	Hospital information system coordination identifies all the requirements for the transfer inclusive of human resources.	
ACC.4.4 The transfer process is documented in the patient's record.	Hospital information system coordination	Hospital information system coordination updates and records all the patients vital information and update patient information data.	

1.2.5 Transportation

JCI Standards	EMS Process	Description	Automation
ACC.5 The process for referring, transferring, or discharging patients, both inpatients and outpatients, includes planning to meet the patient's transportation needs.	Hospital management system	Hospital management system comprises of Ambulance service management to ensure that patients transportation needs are well met.	

1.3 Patient and Family Education (PFE)

JCI Standards	EMS Process	Description	Automation
PFR.1 The organization is responsible for providing processes that support patients' and families' rights during care.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes honoring families right in the due course of treatment.	
PFR.1.1 Care is considerate and respectful of the patient's personal values and beliefs. • **PFR.1.1.1** The organization has a process to respond to patient and family requests for pastoral services or similar requests related to the patient's spiritual and religious beliefs.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes honoring families and patients request.	
PFR.1.2 Care is respectful of the patient's need for privacy.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities wellection, which includes honoring patients request.	
PFR.1.3 The organization takes measures to protect patients' possessions from theft or loss.	Security Coordination	Security Coordination process ensures that all the	

		belonging of the patients are secured.	
PFR.1.4 Patients are protected from physical assault.	Security Coordination	Security Coordination process ensures that patients physical safety on the premises.	
PFR.1.5 Children, disabled individuals, the elderly, and other populations at risk receive appropriate protection.	Security Coordination	Security Coordination process ensures that patients physical safety on the premises.	
PFR.1.6 Patient information is confidential	Security Coordination	Security Coordination process ensures that the patients information is kept confidential and available to only those who need to access it.	
PFR.2 The organization supports patients' and families' rights to participate in the care process.	Human Resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes honoring right of patients and families to participate in care process.	
PFR.2.1 The organization informs patients and families, in a method and language they can understand, about the process of how they will be told	Human Resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which	

of medical conditions and any confirmed diagnosis, how they will be told of planned care and treatment, and how they can participate in care decisions, to the extent they wish to participate. • **PFR.2.1.1** The organization informs patients and families about how they will be told about the outcomes of care and treatment, including unanticipated outcomes, and who will tell them		includes honoring right of patients and families to participate in care process, and how and where can they get information about the outcome or care and treatment.	
PFR.2.2 The organization informs patients and families about their rights and responsibilities related to refusing or discontinuing treatment. **PFR.2.3** The organization respects patient wishes and preferences to withhold resuscitative services and to forgo or to withdraw life-sustaining treatments. **PFR.2.4** The organization supports the patient's right to appropriate assessment and management of pain. **PFR.2.5** The organization supports the patient's right to	Human Resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes informing patients and families about their rights to refuse treatment and care.	

respectful and compassionate care at the end of life.			
PFR.3 The organization informs patients and families about its process to receive and to act on complaints, conflicts, and differences of opinion about patient care and the patient's right to participate in these Processes.	Customer Complaints Management	Customer complaints management allows patients and families to report complaints about the health care.	
PFR.4 Staff members are educated about their roles in identifying patients' values and beliefs and protecting patients' rights.	Human resource management	HR management process appoints roles and responsibilities to each staff and performs training session to ensure that the staffs are well acquainted with their roles towards patients care and rights.	
PFR.5 All patients are informed about their rights and responsibilities in a manner and language they can understand	Voice of customers	VOC process ensures that all customer experiences are taken into account and reflected upon via changes in the processes, which include taken into account language preferences.	

1.3.1 Informed Consent

JCI Standards	EMS Process	Description	Automation
PFR.6 Patient informed consent is obtained through a process defined by the organization and carried out by trained staff in a language the patient can understand.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well , which includes procedure for asking consent of the patients wherever deemed necessary	
PFR.6.1 Patients and families receive adequate information about the illness, proposed treatment(s), and health care practitioners so that they can make care decisions.	Hospital Information system coordination	Hospital information system coordination provides capability to answer any queries, and request and also providing follow up instructions.	
PFR.6.2 The organization establishes a process, within the context of existing law and culture, for when others can grant consent.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well and ask for consent of the patients wherever deemed necessary	
PFR.6.3 General consent for treatment, if obtained when a patient is admitted as an inpatient or is registered for the	Human resource management	HR management process provides training to the staff to ensure that they can perform their job	

first time as an outpatient, is clear in its scope and limits.		responsibilities well, which includes procedure for asking consent of the patients wherever deemed necessary	
PFR.6.4 Informed consent is obtained before surgery, anesthesia, use of blood and blood products, and other high-risk treatments and procedures. • **PFR.6.4.1** The organization lists those categories or types of treatments and procedures that require specific informed consent.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes procedure for asking consent of the patients wherever deemed necessary	

1.3.2 Research

JCI Standards	EMS Process	Description	Automation
PFR.7 The organization informs patients and families about how to gain access to clinical research, clinical investigation, or clinical trials involving human subjects.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes procedure for asking consent of the patients wherever deemed necessary	

PFR.7.1 The organization informs patients and families about how patients who choose to participate in clinical research, investigation, or clinical trials are protected.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes procedure for informing patients wherever deemed necessary	
PFR.7.1 The organization informs patients and families about how patients who choose to participate in clinical research, investigation, or clinical trials are protected.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes procedure for informing patients wherever deemed necessary	
PFR.9 The organization has a committee or another way to oversee all research in the organization involving human subjects.	Service Strategy and planning process	Service strategy and planning process involves senior management in performing researches.	

1.3.3 Organ Donation

JCI Standards	EMS Process	Description	Automation
PFR.10 The organization informs patients and families about how to choose to donate organs and other tissues.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which	

		includes procedure for informing patients wherever deemed necessary	
PFR.11 The organization provides oversight of the harvesting and transplantation of organs and tissues.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes procedure for informing patients wherever deemed necessary	

1.4 Assessment of Patients (AOP)

JCI Standards	EMS Process	Description	Automation
AOP.1 All patients cared for by the organization have their health care needs identified through an established assessment process.	Nutrition Services Process	Nutrition service process identifies the type of nutritional need based on the assessment of patient health. Housekeeping process provides more stringent infection control for the high risk patient.	
AOP.1.1 The organization has determined the scope and content of assessments, based on applicable laws and	ES Policy Architecture	All the services of the organization comply in totality to the KSA and international applicable laws.	

regulations and professional standards.			
AOP.1.2 Each patient's initial assessment(s) includes an evaluation of physical, psychological, social, and economic factors, including a physical examination and health history.	Human resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization, and that includes performing patients assessment as per international standards.	
AOP.1.3 The patient's medical and nursing needs are identified from the initial assessments and recorded in the clinical record. AOP.1.3.1 The initial medical and nursing assessment of emergency patients is based on their needs and conditions.	Human resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization, and that includes performing patients assessment as per international standards	
AOP.1.4 Assessments are completed in the time frame prescribed by the organization. • **AOP.1.4.1** The initial medical and nursing assessments are completed within the first 24 hours after the patient's admission as an inpatient or earlier as indicated by the patient's condition or hospital policy.	Service level management	Service level management process ensures that all the service commitments made by the organization are upheld and closed monitored to ensure quality of service.	

AOP.1.5 Assessment findings are documented in the patient's record and readily available to those responsible for the patient's care. • **AOP.1.5.1** The initial medical assessment is documented before anesthesia or surgical treatment.	Hospital management system	Hospital management system coordination updates and records all the patients' vital information and diagnostic data to ensure that it is readily available to all those who need the information.	
AOP.1.6 Patients are screened for nutritional status and functional needs and are referred for further assessment and treatment when necessary.	Nutrition Service process	Nutrition service process screens patients for nutritional status and allocates relevant profile based on their nutrition requirement.	
AOP.1.7 All inpatients and outpatients are screened for pain and assessed when pain is present.	HR management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes procedure for screening for pin.	
AOP.1.8 The organization conducts individualized initial assessments for special populations cared for by the organization.	HR management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes initial patient assessments.	

AOP.1.9 Dying patients and their families are assessed and reassessed according to their individualized needs.	HR management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes patient assessments.	
AOP.1.10 The initial assessment includes determining the need for additional specialized assessments.	HR management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes identifying additional assessments if required.	
AOP.1.11 The initial assessment includes determining the need for discharge planning.	HR management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes identifying need for discharging patients.	
AOP.2 All patients are reassessed at intervals based on their condition and treatment to determine their response to treatment and to plan for continued treatment or discharge.	HR management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which includes reassessing patient to identify the line of treatment.	

JCI Standards	EMS Process	Description	Automation
AOP.3 Qualified individuals conduct the assessments and reassessments.	Human resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	
AOP.4 Physicians, nurses, and other individuals and services responsible for patient care collaborate to analyze and to integrate patient assessments. AOP.4.1 The most urgent or important care needs are identified	Hospital management system	This processes provide platform for coordination and collaboration to integrate all the patient assessment.	

1.4.1 Laboratory Services

JCI Standards	EMS Process	Description	Automation
AOP.5 Laboratory services are available to meet patient needs, and all such services meet applicable local and national standards, laws, and regulations.	Hospital Management system	Hospital Management system comprises of Laboratory information management modules which ensures that the laboratory service are able to meet patient needs.	
AOP.5.1 A laboratory safety program is in place, followed, and documented.	OSH process, maintenance process	OSH process ensures that the organization remains safe.	

		Maintenance process further ensures that all critical infrastructure such as fire alarms, fire suppression system etc are well maintained to ensure safer environment.	
AOP.5.2 Individuals with proper qualifications and experience administer the tests and interpret the results.	Human resource management	HR management process ensures that only qualified people are appointed to perform job responsibilities.	
AOP.5.3 Laboratory results are available in a timely way as defined by the organization. • **AOP.5.3.1** There is a process for reporting critical results of diagnostic tests.	Service level management	Service level management process ensures that the all the commitment made by the organizations are enforced and monitored.	
AOP.5.4 All equipment used for laboratory testing is regularly inspected, maintained, and calibrated, and appropriate records are maintained for these activities.	Maintenance Management	Maintenance management process ensures that all the equipment are regularly maintained, and audited to ensure continuity of service.	
AOP.5.5 Essential reagents and other supplies are regularly available and evaluated to ensure accuracy and precision of results.	Inventory Management	Inventory management process identified various lead times and ensures to make the inventories available within the required time.	

AOP.5.6 Procedures for collecting, identifying, handling, safely transporting, and disposing of specimens are followed. .	Hospital management system Waste Management Process:	Hospital management system provides laboratory information system which facilitates process for identifying, handling of specimen. Waste Management Process is responsible for proper waste Disposal.	
AOP.5.7 Established norms and ranges are used to interpret and to report clinical laboratory results.	Standards management	Standard management process enforces use of well accepted measures as per the industry standard.	
AOP.5.8 A qualified individual(s) is responsible for managing the clinical laboratory service or pathology service.	Human resource Management	HR management processes ensures that qualified people are always selected as per the job requirement.	
AOP.5.9 Quality control procedures are in place, followed, and documented. • **AOP.5.9.1** There is a process for proficiency testing.	Quality Process	Quality process is well documented and monitored via various assurance processes.	
AOP.5.10 The organization regularly reviews quality control results for all outside sources of laboratory services.	Outsourcing Performance management	Outsourcing performance management process monitors the performance of the outsourced services	

		to ensure they are up to mark.	
AOP.5.11 The organization has access to experts in specialized diagnostic areas when necessary	Service strategy and planning	Service strategy and planning is responsible of formulating partnership with other organizations to facilitate specialized diagnostic.	

1.4.2 Radiology and Diagnostic Imaging Services

JCI Standards	EMS Process	Description	Automation
AOP.6 Radiology and diagnostic imaging services are available to meet patient needs, and all such services meet applicable local and national standards, laws, and regulations.	Service strategy and planning	Service strategy and planning process ensures that organization provides all the service which are required by the patients. Furthermore, the services are as advised by KSA regulations.	
AOP.6.1 Radiology and diagnostic imaging services are provided by the organization or are readily available through arrangements with outside sources	Outsourcing management	Outsourcing management process ensures services outsourced are well handled.	
AOP.6.2 A radiation safety program is in place, followed, and documented.	OSH management	OSH management process ensures that the environment remains	

		feasible and apt for working and free from all environmental hazards.	
AOP.6.3 Individuals with proper qualifications and experience perform diagnostic imaging studies, interpret the results, and report the results.	Human resource management process	HR process ensures that all the staff members are qualified to perform the job responsibilities entrusted to them.	
AOP.6.4 Radiology and diagnostic imaging study results are available in a timely way as defined by the organization.	Service Level Management	Service level management ensures all the vital services are available in the time allocated and promised by the organization.	
AOP.6.5 All equipment used to conduct radiology and diagnostic imaging studies is regularly inspected, maintained, and calibrated, and appropriate records are maintained for these activities.	Maintenance Management	Maintenance management process ensures that all the equipments are regularly inspected and maintained, and maintenance records are audited to ensure continuity of service.	
AOP.6.6 X-ray film and other supplies are regularly available.	Inventory Management	Inventory management process identified various lead times and ensures to make the inventories/ suppliers available within the required time.	
AOP.6.7 A qualified individual(s) is responsible for managing the	Human resource Management	HR process ensures that all the staff members are	

diagnostic radiology and imaging services.		qualified to perform the job responsibilities entrusted to them.	
AOP.6.8 Quality control procedures are in place, followed, and documented.	Quality Process	Quality process is well documented and monitored via various assurance processes.	
AOP.6.9 The organization regularly reviews quality control results for all outside sources of diagnostic services.	Outsourcing Performance management	Outsourcing performance management process monitors the performance of the outsourced services to ensure they are up to mark.	
AOP.6.10 The organization has access to experts in specialized diagnostic areas when needed	Service strategy and planning	Service strategy and planning is responsible of formulating partnership with other organizations to facilitate specialized diagnostic.	

1.5 Care of Patients (COP)

1.5.1 Care Delivery for All Patients

JCI Standards	EMS Process	Description	Automation
COP.1 Policies and procedures and applicable laws and regulations guide the uniform care of all patients.	ES Policy Architecture	All the services of the organization comply in totality to the KSA and	

		international applicable laws.	
COP.2 There is a process to integrate and to coordinate the care provided to each patient.	Service coordination and strategy	Service coordination strategy and planning process ensures that all the units, department are well coordinated with each other.	
COP.2.1 The care provided to each patient is planned and written in the patient's record. .	Hospital information system coordination	Hospital information system coordination updates and records all the patients' vital information and diagnostic data.	
COP.2.2 Those permitted to write patient orders write the order in the patient record in a uniform location.	Hospital Management system	Hospital management system ensures that only authorized people are given access to write to the patients record.	
COP.2.3 Procedures performed are written into the patient's record.	Hospital information system coordination	Hospital information system coordination updates and records all the patients vital information and diagnosis.	
COP.2.4 Patients and families are informed about the outcomes of care and treatment, including unanticipated outcomes	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well , which includes procedure for informing and guiding	

		patients wherever deemed necessary	

1.5.2 Care of High-Risk Patients and Provision of High-Risk Services

JCI Standards	EMS Process	Description	Automation
COP.3 Policies and procedures guide the care of high-risk patients and the provision of high-risk services.	Housekeeping management	Housekeeping management process takes into account special care that needs to be done to the high risk patients.	
COP.3.1 Policies and procedures guide the care of emergency patients.	Housekeeping management	Housekeeping management process takes into account special care that needs to be done to the high risk patients.	
COP.3.2 Policies and procedures guide the use of resuscitation services throughout the organization.	Maintenance management	Maintenance management process ensures that all the utilities and equipment needed for recovery service are always readily available.	
COP.3.3 Policies and procedures guide the handling, use, and administration of blood and blood products.	Hospital management system	Hospital management system comprises of blood bank module which ensures that the blood is properly managed and handled.	

COP.3.4 Policies and procedures guide the care of patients on life support or who are comatose.	ES Policy Architecture, Human resource management	• All the services of the organization comply in totality to the KSA and international applicable laws.	
COP.3.5 Policies and procedures guide the care of patients with communicable diseases and immune-suppressed patients.		• HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	
COP.3.6 Policies and procedures guide the care of patients on dialysis.			
COP.3.7 Policies and procedures guide use of restraint and the care of patients in restraint.			
COP.3.8 Policies and procedures guide the care of elderly patients, disabled individuals, children, and populations at risk for abuse			
COP.3.9 Policies and procedures guide the care of patients receiving chemotherapy or other high risk medications			

1.5.3 Food and Nutrition Therapy

JCI Standards	EMS Process	Description	Automation
COP.4 A variety of food choices, appropriate for the patient's nutritional status and consistent with his or her clinical care, is regularly available.	Nutrition Production Management	Nutrition production management process ensures that different menus are provided to patients regularly.	
COP.4.1 Food preparation, handling, storage, and distribution are safe and comply with laws, regulations, and current acceptable practices	Nutrition Production Management	Nutrition production management process ensures that Food preparation, handling, storage, and distribution are safe	
COP.5 Patients at nutrition risk receive nutrition therapy.	Nutrition service management	Nutrition service management process performs patient nutrition profiling to match the nutrition needs of the patient.	

1.5.4 Pain Management

JCI Standards	EMS Process	Description	Automation
COP.6 Patients are supported in managing pain effectively	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, which	

		includes procedure for managing patients pain.	

1.5.5 End-of-Life Care

JCI Standards	EMS Process	Description	Automation
COP.7 The organization addresses end-of-life care. **COP.7.1** Care of the dying patient optimizes his or her comfort and dignity	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well, and show more care towards the patients who are approaching end of life.	

1.6 Anesthesia and Surgical Care (ASC)

1.6.1 Organization and Management

JCI Standards	EMS Process	Description	Automation
ASC.1 Anesthesia services (including moderate and deep sedation) are available to meet patient needs, and all such services meet applicable local and national standards, laws, and regulations and professional standards.	Service strategy and planning	Service strategy and planning process ensures that organization provides all the services which are required by the patients. Furthermore, the services are as advised by KSA regulations.	

| ASC.2 A qualified individual(s) is responsible for managing the anesthesia services (including moderate and deep sedation). | Human resource Management | HR process ensures that all the staff members are qualified to perform the job responsibilities entrusted to them. | |

1.6.2 Sedation Care

JCI Standards	EMS Process	Description	Automation
ASC.3 Policies and procedures guide the care of patients undergoing moderate and deep sedation.	Human resource Management	HR process ensures that all the staff members are well trained to handle the job responsibility given to them.	

1.6.3 Anesthesia Care

JCI Standards	EMS Process	Description	Automation
ASC.4 A qualified individual conducts a preanesthesia assessment and preinduction assessment.	Human resource Management	HR process ensures that all the staff members are well trained to handle the job responsibility given to them.	
ASC.5 Each patient's anesthesia care is planned and documented in the patient's record.	Hospital management system	Hospital management system records all the treatment details for each patient.	
ASC.5.1 The risks, benefits, and alternatives are discussed with the patient, his or her family, or	Human Resource management	HR management process provides training to the staff to ensure that they can	

those who make decisions for the patient.		perform their job responsibilities well , which includes procedure for informing and seeking consent patients and families wherever deemed necessary	
ASC.5.2 The anesthesia used and anesthetic technique are written in the patient record.	Hospital management system	Hospital management system records all the treatment details for each patient.	
ASC.5.3 Each patient's physiological status during anesthesia is continuously monitored and written in the patient's record.	Hospital management system	Hospital management system records all the treatment details for each patient.	
ASC.6 Each patient's postanesthesia status is monitored and documented, and the patient is discharged from the recovery area by a qualified individual or by using established criteria.	Human Resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	

1.6.4 Surgical Care

JCI Standards	EMS Process	Description	Automation
ASC.7 Each patient's surgical care is planned and documented based on the results of the assessment.	Human Resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	
ASC.7.1 The risks, benefits, and alternatives are discussed with the patient and his or her family or those who make decisions for the patient.	Human resource management	HR management process provides training to the staff to ensure that they can perform their job responsibilities well , which includes procedure for informing and guiding patients wherever deemed necessary	
ASC.7.2 There is a surgical report or a brief operative note in the patient's record to facilitate continuing care.	Hospital Management system	Hospital management system comprises of operation theater module which stores all the vital information in the patient's record.	
ASC.7.3 Each patient's physiological status is continuously monitored during and immediately after surgery and written in the patient's record.	Hospital Management system	Hospital management system comprises of operation theater module which stores all the vital surgical and diagnostic	

		information in the patient's record.	
ASC.7.4 Patient care after surgery is planned and documented	Hospital Management system	Hospital management system comprises of operation theater module which stores all the vital surgical and diagnostic information in the patient's record.	

1.7 Medication Management and Use (MMU)

1.7.1 Organization and Management

JCI Standards	EMS Process	Description	Automation
MMU.1 Medication use in the organization complies with applicable laws and regulations and is organized to meet patient needs	ES Policy Architecture	All the services of the organization comply in totality to the KSA applicable laws.	
MMU.1.1 An appropriately licensed pharmacist, technician, or other trained professional supervises the pharmacy or pharmaceutical service.	Human resource Management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	

1.7.2 Selection and Procurement

JCI Standards	EMS Process	Description	Automation
MMU.2 An appropriate selection of medications for prescribing or ordering is stocked or readily available.	Inventory Management	Inventory management process ensures that important or life saving medications are always available.	
MMU.2.1 There is a method for overseeing the organization's medication list and medication use	Inventory management	Inventory management process ensures that the medications consumption is properly monitored and aptly used.	
MMU.2.2 The organization can readily obtain medications not stocked or normally available to the organization or for times when the pharmacy is closed.	Supplier Management	Supplier Management contains two or more supplier details which can provide the required medications.	

1.7.3 Storage

JCI Standards	EMS Process	Description	Automation
MMU.3 Medications are properly and safely stored.	Maintenance management	Maintenance management identifies logistic requirements for all the supplies storage.	
MMU.3.1 Organization policy supports appropriate storage of	Nutrition Service process	Nutrition production process ensures that the	

medications and applicable nutrition products.		food are well stored as per the requirement of the food.	
MMU.3.2 Emergency medications are available, monitored, and safe when stored out of the pharmacy.	Logistics Management	Logistics Management process ensure that identifies lead time for the supplies are well met. This process also takes into account degree of freedom for requested supplies.	
MMU.3.3 The organization has a medication recall system	Hospital management system	Hospital management system comprises of pharmacy module which provides capability of recalling the medication if required.	

1.7.4 Ordering and Transcribing

JCI Standards	EMS Process	Description	Automation
MMU.4 Prescribing, ordering, and transcribing are guided by policies and procedures.	Human resource management	All the staff are training to provide prescription as per the organizational policy.	
MMU.4.1 The organization defines the elements of a complete order or prescription and the types of orders that are acceptable for use.	Hospital management system	Hospital management system comprises of pharmacy module which ensures standardized format of prescriptions throughout the organization	

MMU.4.2 The organization identifies those qualified individuals permitted to prescribe or to order medications.	Human resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	
MMU.4.3 Medications prescribed and administered are written in the patient's record.	Hospital management system	Hospital management system comprises of pharmacy module which ensures that the medications are updated to the patient's record.	

1.7.5 Preparing and Dispensing

JCI Standards	EMS Process	Description	Automation
MMU.5 Medications are prepared and dispensed in a safe and clean environment.	Housekeeping Management	Housekeeping management process ensures that the pharmacy remains free from infection.	
MMU.5.1 Medication prescriptions or orders are reviewed for appropriateness.	Human resource management	HR management provides training to staff to ensure that they countercheck the medications prescriptions with the senior before providing to the patients.	
MMU.5.2 A system is used to dispense medications in the	Hospital management system	Hospital management system comprises of pharmacy module which	

right dose to the right patient at the right time.		ensures that right dose is provided to the patients, records the dosage prescribed.	

1.7.6 Administration

JCI Standards	EMS Process	Description	Automation
MMU.6 The organization identifies those qualified individuals permitted to administer medications.	Human resource management	HR management process ensures that qualified people handle the job for which they have proper credential, experience and authorization.	
MMU.6.1 Medication administration includes a process to verify the medication is correct based on the medication order.	Human resource management	HR management process ensures that staff are well trained and observe all the processes required by their job.	
MMU.6.2 Policies and procedures govern medications brought into the organization for patient self-administration or as samples	ES policy Architecture	This process ensures that the organizational processes complies to the international and national standards.	

1.7.7 Monitoring

JCI Standards	EMS Process	Description	Automation
MMU.7 Medication effects on patients are monitored	Hospital management system	Hospital management system records all the medications and diagnosis results in the patient record.	
MMU.7.1 Medication errors, including near misses, are reported through a process and time frame defined by the organization	Service quality Management	Service quality management process ensures that a service degradation report is formulated and investigated upon.	

1.8 Patient and Family Education (PFE)

JCI Standards	EMS Process	Description	Automation
PFE.1 The organization provides education that supports patient and family participation in care decisions and care processes	Hospital management system process Human resource management	• Hospital management system process provides a means to responding to requests. • HR management process provides training to the staff to ensure that they can perform their job responsibilities well , which includes procedure for informing and seeking consent patients and families	

		wherever deemed necessary	
PFE.2 Each patient's educational needs are assessed and recorded in his or her record.	Hospital management system	Hospital management system stores and records all the vital patient information, including background and educational needs.	
PFE.2.1 The patient's and family's ability to learn and willingness to learn are assessed	Knowledge management Process	Organization knowledge management process ensures that knowledge is well shared with the patients and the families.	
PFE.3 Education and training help meet patients' ongoing health needs	Knowledge management Process	Organization knowledge management process evaluates the knowledge gap and identifies blue prints to meet the gaps.	
PFE.4 Patient and family education includes the following topics, related to the patient's care: the safe use of medications, the safe use of medical equipment, potential interactions between medications and food, nutritional guidance, pain management, and rehabilitation techniques	Knowledge management Process	Organization knowledge management process encompasses all the vital information which needs to be imparted to the patients and families.	

PFE.5 Education methods include the patient's and family's values and preferences and allow sufficient interaction among the patient, family, and staff for learning to occur.	Knowledge management Process	Organization knowledge management process identifies the means and methods of knowledge sharing.	
PFE.6 Health professionals caring for the patient collaborate to provide education.	Knowledge management Process	Knowledge management Process identifies knowledge sponsors which are responsible to disseminate knowledge.	

Health Care Organization Management Standards

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2.1 Quality Improvement and Patient Safety (QPS)

JCI Standards	EMS Process	Description	Automation
QPS.1 Those responsible for governing and managing the organization participate in planning and measuring a quality improvement and patient safety program.	Service Quality Management	Quality improvement is achieved directly via lean six sigma approach incorporated in the process.	
QPS.1.1 The organization's leaders collaborate to carry out the quality improvement and patient safety program.	Quality Coordination Process	Collaboration of staff is achieved via quality coordination processes which ensure quality efforts are well coordination throughout the organization.	
QPS.1.2 The leaders prioritize which processes should be measured and which improvement and patient safety activities should be carried out.	Service Level Management	Service level management process identifies the core important processes (based on service requirement) and the performance metrics which should be achieved.	
QPS.1.3 The leaders provide technological and other support to the quality improvement and patient safety program.	Service Quality Management	Service quality management processes ensure use of various technological aids (atp-detectors, various sampling techniques) in order to	

		support the quality improvement.	
QPS.1.4 Quality improvement and patient safety information is communicated to staff.	Service Quality Management	The service quality reports are generated and provided to the staff on need to know basis.	
QPS.1.5 Staff are trained to participate in the program.	ES Staffing process	The staff are training prior commencement of their jobs (via orientation) in the organization.	

2.1.1 Design of Clinical and Managerial Processes

JCI Standards	EMS Process	Description	Automation
QPS.2 The organization designs new and modified systems and processes according to quality improvement principles.	Hospital management system	Hospital management system is built using various quality principles (waste minimization, reduce variation etc.) to ensure that quality is the utmost goal of the organization.	
QPS.2.1 Clinical practice guidelines, clinical pathways, and/or clinical protocols are used to guide clinical care.	Standards Management	Standard management process ensures that the organization health practices remain up to date	

		and in line with the best practices.	

2.1.2 Data Collection for Quality Measurement

JCI Standards	EMS Process	Description	Automation
QPS.3 The organization's leaders identify key measures in the organization's structures, processes, and outcomes to be used in the organization wide quality improvement and patient safety plan.	All ESM processes	All ESM processes comprise of KPI and CTQ which ensure that all the processes contribute to the overall organization wide quality improvement.	
QPS.3.1 The organization's leaders identify key measures for each of the organization's clinical structures, processes, and outcomes	All ESM processes	All ESM processes comprise of KPI and CTQ which ensure that all the processes contribute to the overall organization wide quality improvement.	
QPS.3.2 The organization's leaders identify key measures for each of the organizations managerial structures, processes, and outcomes	All ESM processes	All ESM processes comprise of KPI and CTQ which ensure that all the processes contribute to the overall organization wide quality improvement.	
QPS.3.3 The organization's leaders identify key measures for each of the International Patient Safety Goals	All processes	All processes identify key performance measures of KPI, CTQ and quality requirements to ensure.	

2.1.3 Analysis of Measurement Data

JCI Standards	EMS Process	Description	Automation
QPS.4 Individuals with appropriate experience, knowledge, and skills systematically aggregate and analyze data in the organization.	Service quality management Quality Management	Aggregation of data is automated and based on the state of the art algorithms.	
QPS.4.1 The frequency of data analysis is appropriate to the process being studied and meets organization requirements.	NA	The data analysis frequency is based on the type of KPI/ CTQ for each relevant quality process and data accumulation is done to meet the KPI/ CTQ requirement.	
QPS.4.2 The analysis process includes comparisons internally, with other organizations when available, and with scientific standards and desirable practices	Standards Management	Standard management process ensures that the organization results are in line with the best practices	
QPS.5 The organization uses an internal process to validate data	All assurance processes	ESM assurance processes ensure data validation. Besides, all the processes comprise of data quality attributes to ensure the validity and authenticity of data.	

QPS.5.1 When the organization publishes data or posts data on a public Web site, the leaders of the organization ensure the reliability of the data.	Security Coordination Process	The security coordination processes ensure that all the information remain authentic, and all actions commit only if they have proper authorization	
QPS.6 The organization uses a defined process for identifying and managing sentinel events.	Security Coordination process	Security Coordination process ensure that the environmental services information and assets are: • Protected against unauthorized modification • Accessible to only those who have right • Trusted and free from corruption.	
QPS.7 Data are analyzed when undesirable trends and variation are evident from the data.	Coordination Anomaly Management	This process identifies data trend and variation and any possible anomaly prior to its happening.	
QPS.8 The organization uses a defined process for the identification and analysis of near-miss events.	Coordination Anomaly Management	Coordination anomaly process identifies near miss event via Various techniques such as: • Neural Networks • K –nearest neighbor • Cluster Analysis • Vector Machine	

2.1.4 Improvement

JCI Standards	EMS Process	Description	Automation
QPS.9 Improvement in quality and safety is achieved and sustained.	Service Quality Management	Service quality management monitors the overall process performance via KPI and CTQs.	
QPS.10 Improvement and safety activities are undertaken for the priority areas identified by the organization's leaders.	Service Level Management	Service level management process identifies the priority areas for the organization based on the service level requirement.	
QPS.11 An ongoing program of risk management is used to identify and to reduce unanticipated adverse events and other safety risks to patients and staff	Risk Management	Risk management process ensure that risk are identified control and mitigated.	

2.2 Prevention and Control of Infections (PCI)

2.2.1 Program Leadership and Coordination

JCI Standards	EMS Process	Description	Automation
PCI.1 One or more individuals oversee all infection prevention and control activities. This individual(s) is qualified in	Infection management	• Infection management process establishes roles and responsibilities to the infection management	

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infection prevention and control practices through education, training, experience, or certification.	ES staffing	team to ensure that all the infection related activities are accounted for. Furthermore, infection management training plan ensures that the individuals remain well trained. • ES staffing process verifies credential of the candidate to ensure that they are apt for the responsibility entrusted to them.	
PCI.2 There is a designated coordination mechanism for all infection prevention and control activities that involve physicians, nurses, and others as based on the size and complexity of the organization.	Infection control coordination	Infection control coordination process ensures that all the involved staff (nurse, cleaners, doctors, etc.) are well coordinated for infection prevention.	
PCI.3 The infection prevention and control program is based on current scientific knowledge, accepted practice guidelines, applicable laws and regulations, and standards for sanitation and cleanliness.	Infection Management Standard Management process	• Infection management process lists out the various standards it complies to. • Standard management process ensures that the infection management practice remains up to date with the new and current infection control techniques.	

PCI.4 The organization's leaders provide adequate resources to support the infection prevention and control program.	Finance Management	Finance management process ensures that all the adequate funding is provided to the process as per the budget.	

2.2.2 Focus of the Program

JCI Standards	EMS Process	Description	Automation
PCI.5 The organization designs and implements a comprehensive program to reduce the risks of health care–associated infections in patients and health care workers	Housekeeping Management	Housekeeping management process ensures that: • Risk of HAI is controlled via proper cleaning and that • PPE is used by the staff to safe guard themselves from infections.	
PCI.5.1 All patient, staff, and visitor areas of the organization are included in the infection prevention and control program.	Housekeeping Management	Housekeeping management process ensures that all the vital areas (wards, pantry, toilets etc.) are kept infection free	
PCI.6 The organization uses a risk-based approach in establishing the focus of the health care–associated infection prevention and reduction program.	Housekeeping Management	Housekeeping management provides more stringent infection control procedures for more risk prone areas (e.g. terminal cleaning)	

PCI.7 The organization identifies the procedures and processes associated with the risk of infection and implements strategies to reduce infection risk.	Housekeeping Management Waste management	Housekeeping management process identifies various strategies that can be used to ensure infection control. Waste management process identifies various mechanisms (waste segregation, waste containment, and waste disposal) to ensure that the wastes don't cause any detrimental effect on patient or staff.	
PCI.7.1 The organization reduces the risk of infections by ensuring adequate equipment cleaning and sterilization and the proper management of laundry and linen. • **PCI.7.1.1** There is a policy and procedure in place that identifies the process for managing expired supplies and defines the conditions for reuse of single use devices when laws and regulations permit. **PCI.7.2** The organization reduces the risk of infections through proper disposal of waste.	Laundry Management Waste Management Waste quality Control	Laundry Management process ensures management, handling and laundering of soiled linen to minimize infection risk and to foster cleanliness. All the wastes are managed via the waste management process. Waste quality control process ensure that waste management is strictly observed.	

PCI.7.3 The organization has a policy and procedure on the disposal of sharps and needles.	Waste Management	The waste management process comprises of waste disposal which identified the various means and method via which waste disposal can be done based on the type of waste.	
PCI.7.4 The organization reduces the risk of infections in the facility associated with operations of the food service and of mechanical and engineering controls.	Waste Management	The waste management process comprises of waste disposal which identified the various means and method for disposal of sharps and needles.	
PCI.7.5 The organization reduces the risk of infection in the facility during demolition, construction, and renovation.	Hygiene Management	Hygiene management process monitors chemical, biological and physical hazards.	

2.2.3 Isolation Procedures

JCI Standards	EMS Process	Description	Automation
PCI.8 The organization provides barrier precautions and isolation procedures that protect patients, visitors, and staff from communicable diseases and protects immunosuppressed patients from acquiring	Housekeeping Management	Housekeeping management process provides different cleaning mechanism for isolated patient wards to ensure that are adequately and intensely protected from infection.	

infections to which they are uniquely prone			

2.2.4 Barrier Techniques and Hand Hygiene

JCI Standards	EMS Process	Description	Automation
PCI.9 Gloves, masks, eye protection, other protective equipment, soap, and disinfectants are available and used correctly when required	Housekeeping Management	Housekeeping management makes it compulsory to use PPE (personal protective equipment) wherever necessary.	

2.2.5 Integration of the Program with Quality Improvement and Patient Safety

JCI Standards	EMS Process	Description	Automation
PCI.10 The infection prevention and control process is integrated with the organization's overall program for quality improvement and patient safety	Infection quality management	Infection quality management process is a part of overall organization quality management.	
PCI.10.1 The organization tracks infection risks, infection rates, and trends in health care–associated infections.	Service quality Management	• Service quality management process uses mechanism such as water sampling, air sampling etc to ensure that the infection	

	Infection quality management	symptoms are well monitored. • Infection quality management process monitors the infection trends and rates.	
PCI.10.2 Quality improvement includes using measures related to infection issues that are epidemiologically important to the organization	Infection quality management	Infection quality management process monitors the infection trends and rates of all the epidemiologically important processes.	
PCI.10.3 The organization uses risk, rate, and trend information to design or to modify processes to reduce the risk of health care–associated infections to the lowest possible levels.	Service quality Management	Service quality management process uses mechanism such as water sampling, air sampling etc. to ensure that the infection symptoms are well monitored and if required triggers an alert to relevant persons to reduce the risk for health care.	
PCI.10.4 The organization compares its health care–associated infection rates with other organizations through comparative databases.	Standards management process	Standards management process identifies that the infection rates comparisons of the organization with other health care providers.	
PCI.10.5 The results of infection prevention and control measurement in the	Infection management process and Service quality management.	Infection management process and service quality management process	

organization are regularly communicated to leaders and staff.		provides reporting capability whereby the status is provided to the relevant people.	
PCI.10.6 The organization reports information on infections to appropriate external public health agencies.	Standards management process	Information can be seeked via standard management process, by requesting standards management committee	

2.2.6 Education of Staff about the Program

JCI Standards	EMS Process	Description	Automation
PCI.11 The organization provides education on infection prevention and control practices to staff, physicians, patients, families, and other caregivers when indicated by their involvement in care	Housekeeping Management	Housekeeping management process provides training and awareness to staff and patients to ensure they are well informed on ways of infection control.	

2.3 Governance Leadership, and Direction (GLD)

2.3.1 Governance of the Organization

JCI Standards	EMS Process	Description	Automation
GLD.1 Governance responsibilities and accountabilities are described in	Standard Management, All processes, ES policy Architecture	Standard management process ensures that the organization comply to	

bylaws, policies and procedures, or similar documents that guide how they are to be carried out.		industry standards, government regulations and quality standards. All processes have responsibilities assigned to them. ES policy Architecture process ensures that all the policies formulated are based on the law and regulation pertaining to that policy	
GLD.1.1 Those responsible for governance approve and make public the organization's mission statement.	Customer strategy and planning	Customer strategy and planning is responsible for customer interface and making public organizational related information.	
GLD.1.2 Those responsible for governance approve the policies and plans to operate the organization.	ES policy architecture.	All the policies, standards, plans, and guidelines are approved by senior management.	
GLD.1.3 Those responsible for governance approve the budget and allocate the resources required to meet the organization's mission.	Finance Process	Finance process is responsible for the budget allocation.	
GLD.1.4 Those responsible for governance appoint the	HR management	All the appointments are approved by senior management.	

organization's senior manager(s) or director(s).			
GLD.1.5 Those responsible for governance approve the organization's plan for quality and patient safety and regularly receive and act on reports of the quality and patient safety program.	Quality Management process	Quality management process is approved by senior management	

2.3.2 Leadership of the Organization

JCI Standards	EMS Process	Description	Automation
GLD.2 A senior manager or director is responsible for operating the organization and complying with applicable laws and regulations	Standard Management	Senior management is responsible for establishing standards management capability.	
GLD.3 The organization's leaders are identified and are collectively responsible for defining the organization's mission and creating the plans and policies needed to fulfill the mission.	ES policy Architecture	ES policy Architecture process ensures that all the policies, standards, plans, and guidelines are created and approved by senior management.	
GLD.3.1 Organization leaders plan with community leaders and leaders of other	Standards Management	Standards management process ensures that the organization is at par with	

organizations to meet the community's health care needs.		the health care industry standards.	
GLD.3.2 The leaders identify and plan for the type of clinical services required to meet the needs of the patients served by the organization.	Service strategy and planning	The senior management identifies the new clinical services required to meet the needs of the patients.	
GLD.3.2.1 Equipment, supplies, and medications recommended by professional organizations or by alternative authoritative sources are used	Supplier Management	Supplier management process identifies pool of recommended suppliers for current and future medication needs.	
GLD.3.3 The leaders provide oversight of contracts for clinical or management services. • **GLD.3.3.1** Contracts and other arrangements are monitored as part of the organization's quality improvement and patient safety program. • **GLD.3.3.2** Independent practitioners not employed by the organization have the right credentials for the services provided to the organization's patients.	• Outsourcing performance management, • Supplier management • HR Management	• All the outsourced services are monitored to ensure their performance remains up to mark. • Supplier contracts are re-evaluated before their expiration to ensure they remain up to mark. All staff credential are validated prior their appointment.	
GLD.3.4 The medical, nursing, and other leaders are educated	ES staffing	All the staff are property trained in all the aspects	

in the concepts of quality improvement.		quality management via their orientation program.	
GLD.3.5 Organization leaders ensure that there are uniform programs for the recruitment, retention, development, and continuing education of all staff.	HR Management	HR management process comprises of staff recruitment, staff development, training and welfare program.	
GLD.4 Medical, nursing, and other leaders of clinical services plan and implement an effective organizational structure to support their responsibilities and authority	All processes	All processes comprises of roles and responsibility for each activity.	

2.3.3 Direction of Departments and Services

JCI Standards	EMS Process	Description	Automation
GLD.5 One or more qualified individuals provide direction for each department or service in the organization.	All processes	All processes have a senior role associated with the management and supervision of the process.	
GLD.5.1 The directors of each clinical department identify, in writing, the services to be provided by the department. • **GLD.5.1.1** Services are coordinated and integrated within the department or service and with other	Service strategy and planning Service coordination and planning	Senior Management formulate Service strategy and planning process and thus identifies the current services available. Service coordination and planning process ensures that the services are well	

departments and services		coordination with other departments.	
GLD.5.2 Directors recommend space, equipment, staffing, and other resources needed by the department or service.	ES staffing, Inventory management	ES staffing, and inventory management process provides means of forecasting anticipated requirements by the organization.	
GLD.5.3 Directors recommend criteria for selecting the department or service's professional staff and choose or recommend individuals who meet those criteria.	HR management	HR management processes establishes criteria for selection of candidate based on the inputs from senior management.	
GLD.5.4 Directors provide orientation and training for all staff of the duties and responsibilities for the department or service to which they are assigned.	ES staffing	ES staffing provides orientation to the staff prior their appointments. The orientation comprises of various trainings which can be provided by experts.	
GLD.5.5 Directors monitor the department's or service's performance as well as staff performance	HR performance, Service quality management	HR performance process is responsible for monitoring the performance of staff. Whereas service quality management process is responsible for quality monitoring or services.	

2.3.4 Organizational Ethics

JCI Standards	EMS Process	Description	Automation
GLD.6 The organization establishes a framework for ethical management that ensures that patient care is provided within business, financial, ethical, and legal norms and that protects patients and their rights	Human resources Management	HR management ensures that organization ethics are inculcated in the staff via various professional development trainings.	
GLD.6.1 The organization's framework for ethical management includes marketing, admissions, transfer, discharge, and disclosure of ownership and any business and professional conflicts that may not be in patients' best interests.	Human resources Management	HR management ensures that organization ethics are inculcated in the staff via various professional development trainings.	
GLD.6.2 The organization's framework for ethical management supports ethical decision making in clinical care and nonclinical services	Human resources Management	HR management ensures that organization ethics are inculcated in the staff via various professional development trainings.	

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2.4 Facility Management and Safety (FMS)

2.4.1 Leadership and Planning

JCI Standards	EMS Process	Description	Automation
FMS.1 The organization complies with relevant laws, regulations, and facility inspection requirements.	Maintenance Management	The maintenance management process requires regular auditing to ensure regulatory obligations are well met.	
FMS.2 The organization develops and maintains a written plan(s) describing the processes to manage risks to patients, families, visitors, and staff.	Risk Management	Risk management process identifies and management all risk to patients, visitor and staff.	
FMS.3 One or more qualified individuals oversee the planning and implementation of the program to manage the risks in the care environment.	ES staffing	ES staffing process ensures that the qualified people are kept for the risk management program.	
FMS.3.1 A monitoring program provides data on incidents, injuries, and other events that support planning and further risk reduction	Risk Management	Risk management process identifies all types of risk (operational, physical etc.)	

2.4.2 Safety and Security

JCI Standards	EMS Process	Description	Automation
FMS.4 The organization plans and implements a program to provide a safe and secure physical environment.	Service Quality Management	Service quality management process identifies procedures to verify air sampling, water sampling and environmental sampling.	
FMS.4.1 The organization inspects all patient care buildings and has a plan to reduce evident risks and to provide a safe physical facility for patients, families, staff, and visitors	Maintenance Management	Maintenance management process performs periodic maintenance to ensure human safeguard and reduce evident risk.	
FMS.4.2 The organization plans and budgets for upgrading or replacing key systems, buildings, or components based on the facility inspection and in keeping with laws and regulations	Maintenance Management	Maintenance management process performs structural maintenances, utility maintenances and protective system maintenances to also performs regular internal audits to ensure that facility is always up to date.	

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◩ 2.4.3 Hazardous Materials

JCI Standards	EMS Process	Description	Automation
FMS.5 The organization has a plan for the inventory, handling, storage, and use of hazardous materials and the control and disposal of hazardous materials and waste	Waste management	Waste management process provides means and methods for the safe disposal of hazardous materials.	

◩ 2.4.4 Disaster Preparedness

JCI Standards	EMS Process	Description	Automation
FMS.6 The organization develops and maintains an emergency management plan and program to respond to likely community emergencies, epidemics, and natural or other disasters.	Risk management	Risk management process takes into account risks that can arise due to nature and environment.	
FMS.6.1 The organization tests its response to emergencies, epidemics, and disasters	Risk Management	Risk management process identifies how the risk can be mitigated.	

2.4.5 Fire Safety

JCI Standards	EMS Process	Description	Automation
FMS.7 The organization plans and implements a program to ensure that all occupants are safe from fire, smoke, or other emergencies in the facility	Maintenance management	Maintenance management process encompasses thorough preventive maintenance fire suppression and water suspension system to ensure that all occupants are safe from fire and smoke.	
FMS.7.1 The plan includes prevention, early detection, suppression, abatement, and safe exit from the facility in response to fires and non-fire emergencies.	Maintenance management	Maintenance management process comprises of maintenance management plan which highlights how reliability, availability and maintenance would be conducted for each protective systems.	
FMS.7.2 The organization regularly tests its fire and smoke safety plan, including any devices related to early detection and suppression, and documents the results.	Maintenance Management	Maintenance management process is totally responsible for the quality assurance of protective devices and systems.	
FMS.7.3 The organization develops and implements a plan to limit smoking by staff and	OSH management process	OSH process highlights environmental control in its policy.	

patients to designated non–patient care areas of the facility			

2.4.6 Medical Equipment

JCI Standards	EMS Process	Description	Automation
FMS.8 The organization plans and implements a program for inspecting, testing, and maintaining medical equipment and documenting the results.	Maintenance Management	Maintenance management process can be used to maintain health care equipment.	
FMS.8.1 The organization collects monitoring data for the medical equipment management program. These data are used to plan the organization's long-term needs for upgrading or replacing equipment.	Inventory Management	Supplier management process perform trend analysis and forecasting capability to ensure the major equipments are always available.	
FMS.8.2 The organization has a product/equipment recall system	Supplier Management	Supplier management records the contact details of all the suppliers.	

2.4.7 Utility Systems

JCI Standards	EMS Process	Description	Automation
FMS.9 Potable water and electrical power are available 24 hours a day, seven days a	Maintenance Management	Maintenance management process ensures that	

week, through regular or alternate sources, to meet essential patient care needs.		utilities are always available at the premises.	
FMS.9.1 The organization has emergency processes to protect facility occupants in the event of water or electrical system disruption, contamination, or failure	Maintenance Management	Maintenance management provides reactive management in case of an maintenance breakdown.	
FMS.9.2 The organization tests its emergency water and electrical systems on a regular basis appropriate to the system and documents the results.	Maintenance Management	Maintenance management process is responsible to ensure the system reliability is always maintained.	
FMS.10 Electrical, water, waste, ventilation, medical gas, and other key systems are regularly inspected, maintained, and, when appropriate, improved.	Maintenance Management	Maintenance management process performs regular period audits to ensure that all the vital systems are always available to the organization	
FMS.10.1 Designated individuals or authorities monitor water quality regularly.	Service Quality Management	Service quality management process comprises of water sampling techniques.	
FMS.10.2 The organization collects monitoring data for the utility system management program.	Maintenance management and inventory management	• Maintenance management process can provide data for utility system management.	

These data are used to plan the organization's long-term needs for upgrading or replacing the utility system.		• Inventory management process can be used to forecast the need for utility related systems	

2.4.8 Staff Education

JCI Standards	EMS Process	Description	Automation
FMS.11 The organization educates and trains all staff members about their roles in providing a safe and effective patient care facility	HR management	HR management is responsible to training the staff to ensure all organizational staff are adequately trained to provide safe and effective patient care facility	
FMS.11.1 Staff members are trained and knowledgeable about their roles in the organization's plans for fire safety, security, hazardous materials, and emergencies.	ES staffing	All staff are introduced to organization processes and safety related requirement in their orientation program.	
FMS.11.2 Staff are trained to operate and to maintain medical equipment and utility systems.	HR management	HR management process ensures that staff's skills are well developed to handle medical equipments.	
FMS.11.3 The organization periodically tests staff knowledge through	Organization Knowledge Management	Organization Knowledge management process ensures that the staff	

| demonstrations, mock events, and other suitable methods. This testing is then documented | | knowledge is measured and evaluated. | |

2.5 Staff Qualifications and Education (SQE)

JCI Standards	EMS Process	Description	Automation
SQE.1 Organization leaders define the desired education, skills, knowledge, and other requirements of all staff members.	ES staffing	ES staffing establishes job description, desired skill sets and roles and responsibilities of all the staff members.	
SQE.2 Organization leaders develop and implement processes for recruiting, evaluating, and appointing staff as well as other related procedures identified by the organization.	HR management	HR management process comprises of process of recruiting, evaluating and appointing staff.	
SQE.3 The organization uses a defined process to ensure that clinical staff knowledge and skills are consistent with patient needs.	Knowledge Management HR management	Knowledge management process ensures that organizational knowledge is well preserved and properly disseminated to various sections of the organization. HR management ensures that the staff skills match the needs of the patients	

		via training and development.	
SQE.5 There is documented personnel information for each staff member.	Human resource management	Human resource management processes records and stores all the vital information pertaining to each staff.	
SQE.6 A staffing plan for the organization, developed collaboratively by the leaders, identifies the number, types, and desired qualifications of staff.	Human resource management ES staffing	• Human resource process comprises of human resource planning techniques (labor requirement forecast) to identify the number of desired profiles. • ES staffing comprises of staffing requirement projection activity which anticipates staff via forecasting as well as request by department leaders.	
SQE.6.1 The staffing plan is reviewed on an ongoing basis and updated as necessary.	ES staffing	Staffing requirement are automated. This involves establishing staff requirement based on previous patterns and trends of staffing. This takes into consideration, regular and seasonal demand, retraction rate	

2.5.1 Orientation and Education

JCI Standards	EMS Process	Description	Automation
SQE.7 All clinical and nonclinical staff members are oriented to the organization, the department, or unit to which they are assigned and to their specific job responsibilities at appointment to the staff.	ES Staffing	ES staffing process provides adequate orientation to the staff prior their appointment.	
SQE.8 Each staff member receives ongoing in-service and other education and training to maintain or to advance his or her skills and knowledge.	HR Management	HR management process comprises of training and development activity to ensure staff members receive ongoing training.	
SQE.8.1 Staff members who provide patient care and other staff identified by the organization are trained and can demonstrate appropriate competence in resuscitative techniques.	HR Management	HR management process comprises of training and development activity to ensure staff members receive ongoing training.	
SQE.8.2 The organization provides facilities and time for staff education and training.	HR management	Training is a part and parcel of each staff's job responsibility. HR management process performs perform appraisal and identifies the training need for each particular staff, and ensure that their	

		skill requirements are adequately met.	
SQE.8.3 Health professional education, when provided within the organization, is guided by the educational parameters defined by the sponsoring academic program.	HR management	HR management process can provide internal as well as external training to the employees as per the requirement. Each training has a set of guiding objectives to ensure that the purpose of training is well met.	
SQE.8.4 The organization provides a staff health and safety program	OSH management HR management	• OSH management process ensures that the staff work in a hygienic and safe environment. • HR management process provides health care to the staff.	

2.5.2 Medical Staff

2.5.2.1 Determining Medical Staff Membership

JCI Standards	EMS Process	Description	Automation
SQE.9 The organization has an effective process for gathering, verifying, and evaluating the credentials (license, education, training, competence, and experience) of those medical	HR management	HR management has a strict background checking process to ensure the credentials of the staff are correct.	

staff permitted to provide patient care without supervision			
SQE.9.1 Leadership makes an informed decision about renewing permission for each medical staff member to continue providing patient care services at least every three years.	HR management	All the appointments have terms and conditions which are periodically reviewed, and also staff is reexamined to ensure that they always match the requirements.	

2.5.3 The Assignment of Clinical Privileges

JCI Standards	EMS Process	Description	Automation
SQE.10 The organization has a standardized objective, evidence-based procedure to authorize all medical staff members to admit and to treat patients and to provide other clinical services consistent with their qualifications	HR management	The entire staff members have their roles and responsibilities mentioned in their job descriptions.	

2.5.4 Ongoing Monitoring and Evaluation of Medical Staff Members

JCI Standards	EMS Process	Description	Automation
SQE.11 The organization uses an ongoing standardized process to evaluate the quality and safety of the patient	HR management	HR management monitors the performance of the staff via performance appraisal activity.	

services provided by each medical staff member			

2.5.5 Nursing Staff

JCI Standards	EMS Process	Description	Automation
SQE.12 The organization has an effective process to gather, to verify, and to evaluate the nursing staff's credentials (license, education, training, and experience).	HR management	HR management has a strict background checking process to ensure the credentials of the staff are correct.	
SQE.13 The organization has a standardized procedure to identify job responsibilities and to make clinical work assignments based on the nursing staff member's credentials and any regulatory requirements.	ES Staffing	ES staffing process comprises of identifying desired qualification (regulatory, credentials etc), desired skill set pertaining to job responsibility.	
SQE.14 The organization has a standardized procedure for nursing staff participation in the organization's quality improvement activities, including evaluating individual performance when indicated	Coordination quality management, Service quality management	All organization staff (doctors, nurses, cleaners) are a part of organization lean six sigma quality management process.	

2.5.6 Other Health Care Practitioners

JCI Standards	EMS Process	Description	Automation
SQE.15 The organization has a standardized procedure to gather, to verify, and to evaluate other health professional staff members' credentials (license, education, training, and experience).	HR management	HR management has a strict background checking process to ensure the credentials of the staff are correct.	
SQE.16 The organization has a standardized procedure to identify job responsibilities and to make clinical work assignments based on other health professional staff members' credentials and any regulatory requirements.	ES Staffing	ES staffing process comprises of identifying desired qualification (regulatory, credentials etc.), desired skill set pertaining to job responsibility.	
SQE.17 The organization has an effective process for other health professional staff members' participation in the organization's quality improvement activities	Coordination quality management, Service quality management	All organization staffs (doctors, nurses, cleaners) are part of organization lean six sigma quality management process.	

2 Health Care Organization Management Standards

2.6 Management of Communication and Information (MCI)

2.6.1 Communication with the Community

JCI Standards	EMS Process	Description	Automation
MCI.1 The organization communicates with its community to facilitate access to care and access to information about its patient care services	Customer expectation management	Customer expectation management process comprises of identifying the expectation of community the organization interacts with, and communicating the services to them.	

2.6.2 Communication with Patients and Families

JCI Standards	EMS Process	Description	Automation
MCI.2 The organization informs patients and families about its care and services and how to access those services.	Customer relationship management	CRM process comprises of customer retention strategy that aims at retention and increasing relationship with the customer on one to one basis. This involves provide information to the customer on its service.	
MCI.3 Patient and family communication and education are provided in an understandable format and language.	Voice of customer	VOC process ensures that all customer experiences are taken into account and reflected upon via changes in the processes.	

2.6.3 Communication Between Practitioners Within and Outside of the Organization

JCI Standards	EMS Process	Description	Automation
MCI.4 Communication is effective throughout the organization.	Hospital information system coordination	Hospital information system coordination is responsible for effective communication throughout the organization.	
MCI.5 The leaders ensure that there is effective communication and coordination among those individuals and departments responsible for providing clinical services.	Service coordination planning and strategy	Service coordination planning and strategy process ensures that the coordination between different departments remains smooth and up to date.	
MCI.6 Information about the patient's care and response to care is communicated among medical, nursing, and other health care practitioners during each staffing shift and between shifts.	Hospital Management System	Hospital management system provides various modules such as nursing and ward management which provides integrated information about staff shifts and nursing.	
MCI.7 The patient's record(s) is available to the health care practitioners to facilitate the communication of essential information.	Hospital management system	Hospital management system provides correct and authentic information about patients to those who have an access to it.	

MCI.8 Information related to the patient's care is transferred with the patient	Hospital management system	Hospital management system tracks the patients with the patient ID and as such all the information remains intact with the patient wherever he is transferred.	

2.6.4 Leadership and Planning

JCI Standards	EMS Process	Description	Automation
MCI.9 The organization plans and designs information management processes to meet internal and external information needs.	Service strategy and planning	Service strategy and planning process ensure that all the services planned are designed properly and supported by the right processes and information systems.	
MCI.10 Information privacy and confidentiality are maintained.	Security coordination	Security coordination process ensures that all vital information in the organization remains confidential.	
MCI.11 Information security, including data integrity, is maintained.	Security coordination	Security coordination process ensures that data integrity is always maintained of all the vital information in the organization.	

MCI.12 The organization has a policy on the retention time of records, data, and information.	Security coordination	Security coordination process ensure that all the compliance need for information are observed, which takes into consideration regulatory retention time as per KSA relevant rules and regulation.	
MCI.13 The organization uses standardized diagnosis codes, procedure codes, symbols, abbreviations, and definitions.	All processes	All the ESM processes comprises of procedures, definition and abbreviation sections such that standardization is observed at the organization.	
MCI.14 The data and information needs of those in and outside the organization are met on a timely basis in a format that meets user expectations and with the desired frequency.	Standard Management process	Standard management process can be utilized to provide information related to organization on approval of governance group.	
MCI.15 Appropriate clinical and managerial staff participate in selecting, integrating, and using information management technology.	Service strategy and planning	The service strategy and planning process is undertaken by senior management to ensure that all the vital service are properly supported by information technology.	
MCI.16 Records and information are protected from loss,	Security Coordination	Security coordination process ensures that the	

destruction, tampering, and unauthorized access or use		records are always available to the authorized staff.	
MCI.17 Decision makers and other appropriate staff members are educated and trained in the principles of information management.	HR Management	HR management ensures that the staff members are all trained to meet their job responsibilities	
MCI.18 A written policy or protocol defines the requirements for development and maintenance of internal policies and procedures and a process for managing external policies and procedures.	Standard Management	Standard management process establishes internal standards and also monitors external standards to ensure that internal standards remain consistent with the international community.	
	ES Policy architecture	Es policy architecture process defines and reviews the process for policy development.	

2.6.5 Patient Clinical Record

JCI Standards	EMS Process	Description	Automation
MCI.19 The organization initiates and maintains a clinical record for every patient assessed or treated	Hospital Management System	Hospital Management system record and maintains all the clinical record for all patients ever treated or assessed.	

MCI.19.1 The clinical record contains sufficient information to identify the patient, to support the diagnosis, to justify the treatment, to document the course and results of treatment, and to promote continuity of care among health care practitioners.	Hospital Management System	Hospital management system comprises of all the diagnostic information needed for each and every patient.	
• **MCI.19.1.1** The clinical record of every patient receiving emergency care includes the time of arrival, the conclusions at termination of treatment, the patient's condition at discharge, and follow-up care instructions.	Hospital Management System	Hospital management system comprises of all the diagnostic information including treatments, follow-up, and registration and discharge information for each and every patient.	
MCI.19.2 Organization policy identifies those authorized to make entries in the patient clinical record and determines the record's content and format.	Hospital Management System	Hospital management system provides access only to those who are authorized.	
MCI.19.3 Every patient clinical record entry identifies its author and when the entry was made in the record.	Hospital Management System	Hospital Management System records the entry as well as its author with date and time.	
MCI.19.4 As part of its performance improvement activities, the organization regularly assesses patient	Hospital information system coordination	Hospital information system coordination process identifies any anomalies in the patient records and	

clinical record content and the completeness of patient clinical records		sends alerts to the concerned person.	

2.6.6 Aggregate Data and Information

JCI Standards	EMS Process	Description	Automation
MCI.20 Aggregate data and information support patient care, organization management, and the quality management program.	Service quality Management	All data is aggregated to perform trending and forecasting.	
MCI.20.1 The organization has a process to aggregate data and has determined what data and information are to be regularly aggregated to meet the needs of clinical and managerial staff in the organization and agencies outside the organization	Service quality management	Service quality management provides sampling techniques to identify the correct population and sample to meet the clinical and managerial requirement of the organization.	
MCI.20.2 The organization has a process for using or participating in external databases	Standard Management	Standard management process is responsibility to make relationships with the other organization to enable using and participating in external databases.	
MCI.21 The organization supports patient care, education,	Standard Management	Standard management process monitors the	

research, and management with timely information from current sources.		research, regulation, industry happening and other information, to ensure that the organization remains up to date.	