

DOH Standard for Acute Chest Pain (STEMI) Management In Abu Dhabi

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1. Standard Scope

This Standard applies to all licensed healthcare providers and professionals, both public and private, in the Emirate of Abu Dhabi with roles, responsibilities, or authorities that support the treatment, transport, and management of chest pain and Acute ST Elevation Myocardial Infarction (STEMI).

This Standard applies to and defines the service specifications, minimum requirements, and eligibility criteria for licensed Healthcare Providers designated as one of various levels of Acute Chest Pain Centers based on international best practices and evidence-based guidelines; for licensed prehospital patient transport services including EMS, and interfacility transfer ambulance services; for health insurers; for licensed rehabilitation medicine facilities and allied support services; and unified medical operations monitoring and management of Abu Dhabi STEMI Management System operations.

2. Definitions and Abbreviations

No.	Term / Abbreviation	Definition
2.1	Advanced Life Support (ALS)	A collection of life-saving techniques and skills that go beyond basic life support to help with circulation, breathing, and ventilation.
2.2	Ambulance	Any mode of transport operated by a licensed/authorized pre-hospital care service (PHCS), or agency utilized and equipped for clinical treatment of a person requiring medical monitoring, assessment, or treatment outside of a hospital setting.
2.3	Ambulance Service	The business of transporting and/or providing emergency and non-emergency medical care to the sick or injured by ambulance. Ambulance service is inclusive of emergency response, interfacility transfer, and standby.
2.4	Ambulance Service Provider	A healthcare provider engaged in the business of transporting and/or providing emergency and non-emergency medical care to injured or sick by ambulance, including but not limited to transport to or from healthcare facilities, from non-health institutions to healthcare facility, from home or roadside, or as a standby service.
2.5	American Heart Association (AHA)	Professional organization developing certification requirements for chest pain, stroke, and other cardiovascular related injuries.
2.6	Basic Life Support (BLS)	Basic Life Support, or BLS, generally refers to the type of care that first-responders, healthcare providers and public safety professionals provide to anyone who is experiencing cardiac arrest, respiratory distress or an obstructed airway. It requires knowledge and skills in cardiopulmonary resuscitation (CPR), using automated external defibrillators (AED) and relieving airway obstructions in patients of every age.
2.7	Capacity	A combination of all the strengths, attributes, and resources available within an organization, jurisdiction, society, or community that can contribute to managing and reducing the level of risk and strengthening resilience.
2.8	Center of Emergency Preparedness and Response (CEPAR)	A center in the Department of Health - Abu Dhabi, DoH overseeing the regulation of patient transport systems, Special Program Pathways, and emergency preparedness and response. CEPAR maintains independent authority over healthcare emergencies, and shares authority with the appropriate DOH sectors including Healthcare Facilities, Workforce, Payers, and Legal. It is the combination of all of these authorities that delineate the MDS. The regulatory authorities reside with CEPAR and each of the sectors and shall be enforced through them.
2.9	Centralized Registry Data Abstraction	Data aggregation and analysis of SPP registry and all additional outcomes and performance data across the entire Pathway to monitor standard and identify novel critical performance indicators, process improvements, and other significant findings.
2.10	Chest Pain Ready Center (CPRC)	A hospital with 24hr ED service which has the capability of offering ECG interpretation and intravenous thrombolysis but does not have a cardiac angiography suite or coronary care unit. Its thrombolysis protocol needs to be fully supported by a cardiology team either in-house or by telemedicine. A CPRC cannot admit STEMI patients; patients should be transferred to a PCPC (or CCPC if deemed necessary).

2.11	Comprehensive Chest Pain Center (CCPC)	A hospital that has 24hr service, equipment, expertise, and facilities to administer percutaneous coronary intervention (PCI), a mechanical means of treating heart attack patients. These centers provide a high quality, exceptional level of STEMI care through licensed trained professionals in cardiovascular disease across all associated disciplines including but not limited to cardiology with cardiovascular disease expertise, cardio-radiology, cardio-interventional, cardiovascular critical care and vascular cardiac surgery.
2.12	Comprehensive Stroke Center (CSC)	Comprehensive Stroke Center A tiering level of hospitals per the AHA for advanced management of stroke. In the context of STEMI, CSC's treat complications of STEMI management that may include brain hemorrhage due to thrombolysis treatment.
2.13	Data Discovery	Comprehensive data analytics using all the data available from operations to discover novel critical failure points, deficiencies, process improvement recommendations, and any other significant findings worthy of further investigation.
2.14	Department of Health (DOH)	The regulative body of the Healthcare Sector in the Emirate of Abu Dhabi, Established based on law No. (10) of 2018.
2.15	Emergency	A time-critical situation or state characterized by a clear and marked reduction in the abilities of people to sustain their normal living conditions, with resulting damage or risks to health, life, and livelihoods. A situation or state characterized by a clear and marked reduction in the abilities of people to sustain their normal living conditions, with resulting damage or risks to health, life, and livelihoods.
2.16	Get With The Guidelines (GWTG)	Data registries developed and provided by the American Heart/Stroke Association for QA and performance metrics of various treatment programs for heart disease and stroke management. They allow for international benchmarking and evidence-based performance improvement.
2.17	Health Liaison Officers (HLO)	Persons selected to ensure information flows between the emergency operations centers or coordination center at a local, district or state level, on Health agency operational capabilities and issues as they arise. For HEM, HLOs ensure information flows between the DOH Unified Medical Operations Command Center and healthcare providers and professionals to address health agency operational capabilities and issues as they arise.
2.18	Intra-arterial (IA)	Referencing the accessing of arteries for monitoring physiologic measurements, administration of medications, or accessing anatomic structures.
2.19	Intensive Care Unit (ICU)	A hospital ward equipped and staffed and specialized in advanced, technological monitoring and care for critically ill or injured patients
2.20	Key Performance Indicator (KPI)	Data element that is obtainable and reflective of quality and performance, can be tracked over time, and can be used to measure and drive QA and performance improvement of systems
2.21	Medical Direction System (MDS)	A system of physician-directed leadership, QA, administrative and medical oversight that provides professional and public accountability for medical care provided in the pre-hospital setting.
2.22	Medical Emergency	Injury or illness that occurs suddenly or unexpectedly and poses an immediate risk/threat to a person's life, limb, body function or long-term health
2.23	Medical Operations Command (MOC)	A combination of operational technicians and information management systems used to monitor and manage integrated systems, operations, events, and incidents
2.24	Off-line (Prospective and Retrospective) Medical Direction	Direction including the administrative promulgation and enforcement of accepted standards for out-of-hospital care accomplished through both prospective (e.g., training, testing and certification of providers, protocol development, operational policy and procedures development, and legislative activities), and retrospective methods (e.g., medical audit and review of care/ process improvement, direction of remedial education, and limitation of patient care functions)
2.25	On-line (Concurrent) Medical Direction	Direction provided directly to out-of-hospital providers by the medical director or designee, generally in an emergency, either on-scene or by direct voice communication by radio, telephone, or other means as technology develops, and including person-to-person communication of patient status, and orders to be carried

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2.26	Primary Chest Pain Center (PCPC)	These centers are equipped to offer 24/7 primary PCI services, ensuring that they have a cardiac catheterization team and an interventional cardiologist available at all times ¹² . This capability is crucial for the timely treatment of acute coronary syndrome (ACS) patients, particularly those experiencing ST-elevation myocardial infarction (STEMI) (Appendix I)
2.27	Quality Assurance (QA)	A cyclical process involving assessment leading to improvement, it is designed to objectively and systematically monitor and evaluate healthcare systems and services offered to stakeholders in accordance with pre-established standards and to resolve identified problems and pursue opportunities for improving services, leading to stakeholder's satisfaction. QA is a part of quality management system that includes quality controls and is focused on providing confidence that the quality requirements of healthcare systems will be fulfilled.
2.28	Special Program Pathways (SPP)	Components of the healthcare system required to manage time-critical healthcare emergencies and that require specific training, equipment, and availability. Systems to manage these must be patient-centered, highly reliable, always available 24/7, and optimized for each patient. SPPs often have internationally recognized accreditation/ certification/ verification organizations that develop and update treatment requirements and data registry sets that allow for performance benchmarking and that drive quality and process improvement.
2.29	ST-wave Elevation Myocardial Infarction (STEMI)	Electrocardiographic evidence of a large heart attack representing an often-reversible condition when treated in a timely manner.
2.30	Task Force (TF) for Special Program Pathways	A group of technical healthcare experts and program managers organized under the CEPAR and including internal DoH regulatory authorities and external stakeholders representing EMS, healthcare providers trained in the healthcare subspecialty of the SPP. The TF develops and updates policies and standards, reviews performance, and advises DoH on critical and relevant issues
2.31	Telehealth	The use of technology to enable a medical encounter between two parties for consultation, evaluation, treatment, transfer and any form of clinical care not described
2.32	Tiering	The process that sets and determines the discrete levels of specialized care capability and capacity within a specific type of hospital program. Tiering levels drive decision-making for such things as optimal destination hospital for specialized care and likely transfer of care.
2.33	Typing	The specific illness or injury requiring specialized care and equipment for effective and timely treatment. SPP Pathways are organized around those specialized care requirements. For example, Trauma, Burn, STEMI, Stroke, ECMO, Pediatrics, Maternity/ Labor, CBRNE, MCI define the type of Pathway, Program, Service, and System.
2.34	Unified Medical Operations Command Center (UMOC)	DoH operations center run by CEPAR that monitors, facilitates, and optimizes healthcare emergencies in Abu Dhabi.

3. Standard Requirements and Specifications

3.1. Acute Chest pain and STEMI Management is a time-critical health emergency captured as Special Program Pathways (SPP) in DOH Health Emergency Management (HEM). The Abu Dhabi STEMI/ Chest Pain Management System facilitates managing patients along their healthcare journey in a highly reliability operational system. Regulators shall implement systems and regulate programs in accordance with these program requirements established through regulation informed by international standards and best practices provided by objective, third-party accreditation/ certification/ verification requirements. The following actions shall be taken:

3.1.1. The Healthcare Facilities Sector shall ensure requirements set out are met through its regulatory powers and, where necessary, establish appropriate regulatory and performance measures to address current and future health system needs for maintaining and improving the Acute Chest Pain (STEMI) Management System and Programs through the following actions:

- 3.1.1.1. Ensure that all Licensed Acute Chest Pain (STEMI) Centers comply with Federal Law and DOH regulations.
- 3.1.1.2. Ensure each Licensed Acute STEMI Center has its own operational guidelines, policies and procedures.
- 3.1.1.3. Participate in STEMI Task Force activities
- 3.1.1.4. Implement JAWDA key performance indicators (KPI's) and other relevant performance measures (see Appendix II) to monitor their performance quarterly.
- 3.1.1.5. Manage licenses for STEMI/ PCI Management Facilities in accordance with regulations, accreditation/ certification requirements, and performance metrics.
- 3.1.1.6. Audit healthcare provider STEMI/ PCI Management Programs on a regular basis for compliance.
- 3.1.1.7. Determine the proper typing and tiering of the STEMI/ PCI Management System for distribution of healthcare resources for greatest efficiency and effectiveness of care.

3.1.2. Healthcare Payers shall ensure proper alignment of regulations with internationally recognized standards of care, best practices, and certification requirements to provide healthcare that is affordable, efficacious, and accessible.

3.1.3. Center of Emergency Preparedness and Response (CEPAR) shall ensure HEM and SPP program maintenance and sustainment to include support to the STEMI Task Force; integration of acute STEMI Management operations; oversee operations of the Unified Medical Operations Command Center (UMOC); provide regulatory oversight of HEM and SPP Programs including on-line and off-line medical direction of pre-hospital and specialized care, rehabilitation, and community support activities.

3.1.3.1. Task Forces shall be established and supported by CEPAR as per SPP program and standard requirements. They shall ensure the following:

- 3.1.3.1.1. Healthcare facilities are typed and tiered in accordance with their capability to provide necessary services to manage acute chest pain services 24 hr/day through a system network.
- 3.1.3.1.2. Tiering shall include Chest Pain Ready (CPRC), Primary Chest Pain Centers (PCPC), and Comprehensive Chest Pain Centers (CCPC) designated as the Abu Dhabi Chest Pain (STEMI) Management System and the network operations coordinated through UMOC.
- 3.1.3.1.3. UMOC support requirements for the STEMI Pathway System and Programs are developed and maintained including UMOC operational reports, STEMI SPP activation protocols, telemedicine and consulting protocols and systems, transfer and transport processes.
- 3.1.3.1.4. The integration with Rehabilitation Services for this SPP System, and system level.

- 3.1.3.1.5. QA and Performance Improvement Programs at the facility, provider.
- 3.1.3.2. **UMOC** shall provide the following:
- 3.1.3.2.1. Reports directed by the appropriate SPP Task Force for daily, weekly, monthly STEMI System performance, sentinel events including significant performance breaches, case management outcomes of interest.
- 3.1.3.2.2. Facilitation of Off-line and On-line Medical Direction as per the MDS standards and protocols.
- 3.1.3.2.3. Get With the Guidelines (GWTG) Central Registry data management support.
- 3.1.3.2.4. Organization and support of Hospital Liaison Officers (HLO) for integration and direct communication with healthcare providers.

3.2. Prehospital Emergency Medical Services (EMS) and Interfacility Transfer (IFT) Ambulance Transport

- 3.2.1. Emergency Medical Service (EMS) shall transport Chest Pain/ STEMI patients to the appropriate facility as per the latest DoH published EMS Chest Pain/ STEMI protocol and in coordination with the DOH Medical Operations Center (UMOC).
- 3.2.2. Healthcare facilities shall comply with the requirements of the UMOC (24/7) via the appropriate established protocols. Transferring facilities shall have an effective plan in place that ensures prompt response of the ground and/or air ambulance service to effect emergent interfacility transport (IFT) of a chest pain patient who requires emergency revascularization to a CCPC.
- 3.2.2.1. This IFT should be based on an emergency number system and not a “next-available ambulance” protocol.
- 3.2.2.2. If a transfer cannot be accomplished promptly, fibrinolysis shall be considered on the basis of the patient’s risk and duration of symptoms, followed by consideration of transfer to a PCI capable hospital. Required documentation must be done and provided.
- 3.2.3. Teleconsultation shall be available 24/7 and should be coordinated through the DOH Unified Medical Operations Command Center.

3.3. Healthcare Professionals shall staff the following roles and positions with appropriate qualifications for Chest Pain Ready Center (CPRC), Primary Chest Pain Center (PCPC), and Comprehensive Chest Pain Center (CCPC):

	CPRC	PCPC	CCPC
Workforce			
STEMI Program Director (or deputy/designee). The program director needs to have STEMI training and or certification in STEMI.	☐	☒	☒
STEMI trained ER physician	☒	☒	☒
Vascular surgeon with STEMI interest 24/7	☐	☐	☒
Telehealth trained consulting physician	☐	☒	☒
Telehealth coordinator (receiving and sending)	☒	☒	☒
Clinical educator	☒	☒	☒
STEMI coordinator	☒	☒	☒
Data entry and quality improvement team	☒	☒	☒
Physiotherapist	☐	☒	☒
Rehabilitation specialist	☐	☒	☒
Occupational therapist	☐	☒	☒
Cath Lab Radiological Technician	☐	☒	☒
Cath Lab Cardiovascular Technician	☐	☒	☒
Dietitian	☐	☒	☒
Critical nurse specialists	☐	☒	☒
Radiologist 24/7	☐	☐	☒

3.4. Healthcare Providers: Licensed Acute STEMI Center services provided in authorized healthcare facilities shall fulfill the following requirements:

3.4.1. Facilities seeking to be licensed as one of the STEMI Chest Pain Centers shall ensure the availability of the following infrastructural and diagnostic requirements:

	CPRC	PCPC	CCPC
Infrastructure			
Internal and external STEMI registry reported to the national database	☒	☒	☒
Electronic medical record system	☒	☒	☒
Professional education / Training program (section 9 for more details)	☒	☒	☒
STEMI Unit (appendix 2 for detailed requirements)	☐	☐	☒
Coronary Catheterization Laboratory staffed 24/7 (on call rota after hours)	☐	☒	☒
Rehabilitation services with coordination of post-acute care	☐	☒	☒
Community education	☐	☒	☒
Cardiac intensive Care Unit 24/7	☐	☒	☒
Cardio endovascular service coverage 24/7	☐	☐	☒
Research program (section 10 for more details)	☐	☐	☒
Telehealth / Tele radiology If necessary	☐	☐	☒
AHA Chest Pain Center Certification Infrastructure	CPRC	PCPC	CCPC
Protocols for triage, diagnosis, and treatment of STEMI Patients	☒	☒	☒
On Call Cardiac Cath Lab Coverage 24/7 regardless of emergency department (ED) diversion status	☐	☒	☒
Cardiac Cath Lab and Cardiologist Arrival within 30 minutes of STEMI activation	☐	☒	☒
Universal Acceptance of STEMI patients with triage plan for multiple simultaneous	☒	☒	☒
Interventional Cardiologist must meet the Department of Health (DOH), American College of Cardiology (ACC)/ American Heart Association (AHA) criteria for competency	☐	☒	☒
Facility must meet DOH/ACC/AHA Guidelines for PCI Institutional Volume Requirements	☐	☐	☒
Designated Chest Pain Coordinator and a recognized Medical Director/Physician Champion	☐	☒	☒
Quality Improvement Program with data collection should be in place	☒	☒	☒
Designated Multidisciplinary Team in place to track and improve STEMI patient Care throughout hospitalization.	☐	☒	☒
Standardized reperfusion strategy designating Primary PCI as the standard reperfusion strategy	☒	☒	☒
Protocol/Process for facilitating rapid IFT transfer to the most appropriate Comprehensive Chest Pain Center	☒	☒	☐
Fibrinolytic Therapy Reperfusion Pathway for lytic eligible patients when the system cannot achieve transfer for PCI reperfusion times	☒	☒	☐
Diagnostic Requirements:			
Computed tomography (CT) 24/7	☐	☒	☒
Lab work - blood tests (results and analysis) within 45 min of patient arrival	☒	☒	☒
Multi-channel physiological monitoring (including cardiac rate, respiratory rate, and blood pressure)	☒	☒	☒
Electrocardiogram (ECG)	☒	☒	☒

Transthoracic echocardiography	☐	☒	☒
Transesophageal echocardiography	☐	☐	☒
Cardio thoracic and cardio interventional therapies	☐	☐	☒
Intra-arterial (IA) reperfusion therapy	☐	☐	☒
Carotid Doppler	☐	☐	☒

- 3.4.2. Provide a range of integrated acute STEMI surgical and non-surgical services and interventions, based on the STEMI center level, to support the safe and effective care of patients seeking treatment. These include but are not limited to:

	CPRC	PCPC	CCPC
Treatments			
Intravenous thrombolytics administration	☒	☒	☒
Advanced Diagnostics and Treatment including a catheterization lab	☐	☒	☒
Mechanical thrombectomy for STEMI patients	☐	☒	☒
Rehabilitation therapy (cardiac)	☐	☒	☒
Cardiothoracic and vascular surgical services including (available within 2 hours when deemed to be clinically necessary)	☐	☐	☒
Cardiac critical care (CCU) monitoring and management	☐	☒	☒
Respiratory therapy	☐	☒	☒

- 3.4.3. Have available and maintain all equipment, support, interventional needs and supplies necessary for treatment and patient care, according to DoH regulatory requirements and standards and as per updated international best practices.
- 3.4.4. The provider must deliver culturally and socially relevant patient education and information regarding the treatment and care (pre- and post-operation) in accordance with updated international best practices, and consistent with the DoH Patient Charter and relevant DOH policies. The plan of care is individualized and interdisciplinary with patient participation; patient informed consent must be sought and documented in accordance with Medical Liability law and legal requirements for consent.
- 3.4.5. Healthcare providers providing pharmacological, surgical, and non-surgical interventions for acute STEMI care shall ensure the following service and management system requirements:
- 3.4.5.1. Ensure equal access to all patients based on medical needs.
 - 3.4.5.2. Provide clinical services in accordance with the requirements of this Standard and all relevant DOH Standards and Procedures.
 - 3.4.5.3. Ensure and provide evidence that their practices reflect updated, international best practices to the relevant regulatory body.
 - 3.4.5.4. Report and submit e-Claims data in accordance with Chapter VI, DoH Healthcare Regulator Manual Version 1.0 on Data Management and as set out in DOH Data Standards and Procedures.
 - 3.4.5.5. Document and monitor quality and safety of clinical care and outcomes of interventions performed on patients, including through AHA Get With The Guidelines as the standard registry, and make these available to DOH for auditing as and when requested to do so.
 - 3.4.5.6. Provide records of JAWDA and other relevant indicators as specified in Appendix I to DoH inspectors.
 - 3.4.5.7. CCPC and PCPC shall maintain an international accreditation, such as the American Heart Association (AHA), and report the findings and results in their data registry to DoH. All hospitals with Emergency Rooms shall meet CPRC requirements.
 - 3.4.5.8. Follow the clinical and regulatory requirements of this Standard irrespective of provision of Licensed STEMI Center services to patients who opt not to use health insurance

coverage (pre-authorization for coverage and health insurance does not apply in this case).

3.4.5.9. CCPCs shall support DoH in developing and updating annually the relevant standardized evidence-based guidelines, protocols, and processes through the DoH SPP STEMI Task Force. These will be based on the STEMI SPP system of care, shall be applicable across the Emirate, and shall include the following:

3.4.5.9.1. Ensure Acute STEMI prevention, recognition, care, recovery, outpatient follow-up, rehabilitation, and survivor support are components of the program.

3.4.5.9.2. Ensure long term management, and secondary prevention based on internationally established guidelines (e.g: algorithms for management of thrombolytic-related complications, critical care pathways, clinical deterioration, death or adverse events review etc.).

3.4.6. Ensure operators who perform Primary PCI for STEMI maintain a minimum of 150 PCI procedures AND 36 Primary PCI procedures per year to maintain competency.

3.4.7. Depending on its corresponding level of care, a Licensed Acute STEMI Center shall be required to maintain volumes listed below:

	CPRC	PCPC	CCPC
PRIMARY PCI Requirement			
The American College of Cardiology Foundation (ACCF), Society for Cardiovascular and Angiography and Interventions (SCAI), and AHA institutional volume guidelines are specific to the minimum number of total PCI procedures and total Primary PCI procedures performed at the facility.	Low	Medium	High
STEMI Patients per year	Less than 200 PCIs annually/<36 Primary PCIs annually	200-400 PCIs annually/3 6-70 Primary PCIs annually	Over 400 PCIs annually/Over 70 Primary PCIs annually
Comprehensive Chest Pain Centers with <150 total PCI Procedures and/or less than at least 36 Primary PCI Procedures over the most recent 12 months	-	-	Provide Supplementa l support per Certification Requirement s

3.4.8. Based on the aforementioned levels of STEMI Centers, providers must be able to deliver the treatments, procedures and services needed to stabilize and manage STEMI patients without service availability gaps.

3.4.9. Timely transfer of patients to a higher level of care should be ensured when necessary (i.e. between CPRCs, PCPCs, and CCPCs). As per the local context, urban classification and best practices, referral and rerouting plans will be developed and published as part of the STEMI SPP pathway.

3.4.9.1. Ensure timeliness and continuity of care during patient transfers and address circumstances for not accepting transferred patients when on diversion.

3.4.9.2. Establish routing plans by EMS and IFT in partnership with the DOH UMOC.

3.4.9.3. Provide seamless care in partnership with other providers, including primary care providers and clinics, EMS, Interfacility transport ambulance services, emergency rooms,

and hospitals as required for holistic patient care; and provide emergency services without any interruption or ability to pay.

3.4.9.4. PCPCs and CCPCs shall accept all referred patients within the Emirate of Abu Dhabi that are deemed eligible for acute STEMI intervention/care.

3.4.10. CPRCs in remote areas shall leverage telemedicine and tele radiology to perform assessments and provide treatment to patients with symptoms of acute STEMI. Telemedicine and teleradiology services must be available 24/7 and STEMI criteria should be interpreted and acted upon within 10 minutes of ECG submission.

3.4.11. Enterprise Risk Management shall be established and maintained through regular coordination between STEMI Program Managers, Business Continuity Management, and Hospital Preparedness Program Management.

3.5. Key and Quality Performance Indicators (KPI, QPI):

3.5.1. Time metrics shall be established, monitored, gathered, and maintained in a database (and shared with DOH as requested) as a commitment to quality improvement. These data points will be used for operational decision-making supported by the UMO. STEMI Centers shall have regular meetings to review these metrics and put in place quality improvement measures.

EMS	Interfacility Transport Times	Care Treatment Times
1st ECG Date/Time	Arrival at First Hospital	1st ECG Date/Time
Destination Pre-arrival alert or notification	Date/Time of ED discharge/transfer out	Arrival at First Hospital
EMS Agency	Interfacility Transport Agency (intertrans)	Attending Arrival to Cath Lab
EMS Arrive on scene	Time from Arrival at First Hospital to Transfer Out (min) (Receiving Center/System of care) (Arrival to Door Out at First Facility)	Cath Lab Activation
EMS Departure	Time from Arrival to Transfer Out (min) (Referral Center)	Date/Time of initial troponin results
EMS Dispatch	Time From Transport Arrival to Discharge (Referral Center)	Destination Pre-arrival alert or notification
EMS First Medical Contact	Time From Transport Arrival to Transfer Out (Receiving Center)	EMS First Medical Contact
Non-EMS First Medical Contact	Time from Transport Request to Transport Arrival	First PCI Date/Time
Time from EMS Dispatch to EMS arrive on scene (min)	Transfer out	If subsequent ECG, Date/Time of positive ECG
Time from EMS FMC to Arrival (EMS FMC to Door)	Transferring Facility	Patient Arrival to Cath Lab
Time from EMS FMC to Destination Alert (min)	Transport Arrived Date/Time	Reason for PCI Delay
Time from EMS FMC to EKG	Transport requested	Team arrival to Cath Lab
Time from EMS Scene Arrival to Departure (min)		Thrombolytic infusion Date/time
		Time from Arrival at Cath Lab to PCI (Cath lab time)
		Time from Arrival at First Hosp to Primary PCI (min) (transferred patients)
		Time from Arrival to ECG

		date/time (min)
		Time from Arrival to Thrombolytic Infusion (min)
		Time from MOC contact to transfer initiation (min)
		Time from telehealth consult request to consultation (min)

3.6. Education:

- 3.6.1. Chest Pain Centers shall have an education policy including basic and advanced resuscitative skills. Healthcare Professional Education: Education requirements for staff and practitioners providing direct care to the individual receiving chest pain care must also include Acute Coronary Syndrome (ACS) education.
 - 3.6.1.1. Core STEMI Team members (ER physician, cardiologist, Cardio intensivist) must participate in 8 hours of STEMI specific training/ education per year.
 - 3.6.1.2. At least half of the credit applied toward the Continuing Education (CE) must be within the physician's specialty or area of practice.
 - 3.6.1.3. The CE dedicated to the STEMI related Specialties must be of Category 1.
 - 3.6.1.4. Non-core team members (anesthesiologist, rehabilitation specialists, others) must demonstrate 2 hours of training / education per year.
 - 3.6.1.5. All emergency department (ED) practitioners shall be educated on acute STEMI care protocol.
 - 3.6.1.6. All staff should be prepared to discuss their STEMI education on a yearly basis with a regulatory committee that includes physicians within cardio-interventional and endovascular specialty with fellowship training from a Tier 1 country.
 - 3.6.1.7. Comprehensive Chest Pain Centers should sponsor at least 1 educational event per year for the public/ community and at least 1 educational conference per year for other physicians internally or externally.

3.7. Clinical Research applicable to PCPC/ CCPSs:

- 3.7.1. To protect the rights, safety, and welfare of human subjects involved in medical and/or scientific research in the Emirate of Abu Dhabi, a Licensed Acute STEMI Center shall conduct any research in alignment with the DOH Standard on Human Subjects Research.
- 3.7.2. Participation in patient-centered research shall be approved by the appropriate Institutional Review Board (IRB).
- 3.7.3. Research shall be done under facility and / or university supervision or by an adjunct faculty in an academic institution.
- 3.7.4. Consider submission of abstracts using AHA GWTG data for participation in AHA sponsored scientific events.

3.8. Data Management:

- 3.8.1. Data Collection- Licensed Acute STEMI Centers shall submit clinical outcomes and specified registry data elements to a national database in alignment with DOH standard.
- 3.8.2. Implement JAWDA, GWTG-CAD, or other acceptable registry -track key performance indicators (KPI's) and other relevant performance measures (Appendix I) to monitor performance monthly.
- 3.8.3. The Clinical Program shall define staff responsible for collecting data and maintaining the database.
- 3.8.4. Defined data management staff should participate in continuing education annually.

3.9. Payment Mechanism:

3.9.1. Payment will follow current reimbursement methodologies as per current Claims & Adjudication rules.

4. Key stakeholder Roles and Responsibilities

- 4.1. Healthcare facilities sector ensure proper licensing, tiering, quality, and performance of healthcare facilities.
- 4.2. Healthcare Payers shall ensure accessibility and efficacious coverage for the treatment of emergency conditions.
- 4.3. CEPAR shall ensure reliability and systems integration across prehospital, hospital, rehabilitation care, and community-based services.
- 4.4. Emergency Medical Service (EMS) and patient transport services shall ensure timely and efficacious care of patients during transport.
- 4.5. Healthcare Providers shall ensure all regulatory and certification requirements are met for the provision of quality care and performance improvement.
- 4.6. Healthcare Professionals shall ensure maintenance of licensing, skills, experience, and knowledge.
- 4.7. Health Insurers shall ensure adequate coverage and payment services for necessary healthcare.

5. Monitoring and Evaluation

Monitoring of the Key Performance Measures of STEMI Centers will be done through various data systems including JAWDA, Muashir, American Heart Association "Get With the Guidelines Registry" certification standards, National Cardiology Data Registry (NCDR), and operational monitoring and reports developed through the UMOC.

6. Enforcement and Sanctions

DOH may impose sanctions in relation to any breach of requirements under this Standard in accordance with Chapter XI, Complaints, Investigations, Regulatory Action, and Sanctions - the DOH Healthcare Regulator Manual.

This standard applies to all licensed healthcare providers and professionals.

7. Relevant Reference Documents

No.	Reference Date	Reference Name	Relation Explanation/ Coding/ Publication Links
1	Dec 2023	Executive Council Resolution No. (235) of 2023, Regarding Additional Powers for the Department of Health	Authorities for DoH regarding regulatory oversight of ambulance services for Abu Dhabi. https://www.abudhabi.gov.ae/-/media/sites/adgov/gazettes/2023/en/11th-edition-english-2023.ashx
2	2011	Decree No. 2 of 2011: In Respect of the Establishment of the National Emergency, Crisis and Disasters Management Authority (NCEMA)	Establishment of CEPAR, As Amended by Federal Decree-Law No. (6) of 2013 And Federal Decree-Law No. (8) of 2015 Federal Law No. 2 of 2011 - NCEMA (2).pdf.aspx
2	June 2024	Policy for Health Emergency Management (HEM) in Abu Dhabi	Establishes governance for to ensure support and commitment for robust healthcare emergency and disaster preparedness and response in Abu Dhabi, https://www.doh.gov.ae/-/media/3FAA333EC7BA41429AC8987979B08500.ashx

3	May 2024	DOH Special Program Pathway (SPP) Standard in Abu Dhabi	Establishes and updates programs for type-specific healthcare systems that treat time-critical healthcare emergencies, https://www.doh.gov.ae/-/media/830FA18BF12749FC9203D92A8DBCCFCF.ashx
4	12 Jan 2024	Medical Direction System Standard	Authorities and requirements for medical directors overseeing EMS and patient transport systems, Special Program Pathways, and support to SPP Task Forces.
5	19 Dec 2023	Abu Dhabi Ambulance and EMS Standard	Authorities for patient transport services in Abu Dhabi. https://www.DoH.gov.ae/en/resources/standards
6	Feb 2024	EMS Clinical Protocols	Response protocols for EMS and Ambulance Services in Abu Dhabi. https://www.doh.gov.ae/-/media/CECB13E1AC3C4401B3DA00B01139E94C.ashx
7	Sep 2020	DoH Standard on Telemedicine	Authorities for telemedicine in Abu Dhabi. https://www.DoH.gov.ae/en/resources/standards
8	18 Dec 2023	Standard on Reporting Medical Errors & Suspected Quality Problems Related to Medicinal Products and Dietary Supplements	Authorities and requirements for reporting medical errors in the Abu Dhabi healthcare system. https://www.DoH.gov.ae/en/resources/standards
9	30 July 2018	DoH Standard for Clinical Complaints Management in Healthcare Facilities	Authorities and requirements for addressing complaints in the provision of care. https://www.DoH.gov.ae/en/resources/standards
10	16 Sep 2020	DoH Standard on Patient Healthcare Data Privacy	Authorities and requirements for handling patient data in the Abu Dhabi healthcare system. https://www.DoH.gov.ae/en/resources/standards
11	2 Feb 2019	Abu Dhabi-Healthcare Information and Cyber Security Standard	Authorities and requirements for handling patient data systems security in the Abu Dhabi healthcare system. https://www.DoH.gov.ae/en/resources/standards
12	2023	ELSO Extracorporeal Life Support Organization (ELSO)	ELSO Registry ECMO Extracorporeal Membrane Oxygenation https://asq.org/quality-resources/iso-9000#:~:text=ISO%209000%20is%20defined%20as%20a%20set%20of,can%20be%20applied%20to%20organizations%20of%20any%20size.
13	2023	STEMI and Stroke, American Heart Association International Certification	American Heart Association International Quality Improvement American Heart Association https://www.heart.org/en/professional/quality-improvement/healthcare-certification/stroke-certification
14	2023	CARF Accreditation and Certification	About certification - CARF International https://carf.org/accreditation/
15	2021;	The EMIRATES Framework:	Conceptual Framework for the Health Emergency Management

	2(1):003–011	Emergency Management Integrated Roadmap Aimed Towards Every Healthcare System, A conceptual Framework	model. https://doi.org/10.24911/SJEMed/72-1600102703
16	Aug 2024	DOH Standard for Critical Care Transport Services in Abu Dhabi	Standard of Critical Care Transport System in Abu Dhabi, https://www.doh.gov.ae/-/media/D5436743B0E648678504E479346B95AD.ashx
17	2024	National Cardiovascular Data Registry (NCDR)	<u>NCDR</u> , https://cvquality.acc.org/NCDR-Home
18	2024	Circular: STEMI and Stroke Special Program Pathway Data Registry Requirements and American Heart Association “Get With The Guidelines (GWTG)”	STEMI and Stroke Special Program Pathway Data Registry Requirements and American Heart Association “Get With The Guidelines (GWTG)” ; https://www.doh.gov.ae/-/media/8D59278657A7464785663E3802D6BBDA.ashx

8. Appendices

8.1 Appendix I - Minimum Requirements for a **Comprehensive Chest Pain Center (CCPC)**

CCPC: A dedicated, geographically clearly defined area or ward in a hospital, where acute STEMI patients are admitted and cared for by a multi-professional team (medical, nursing, and therapy staff) who have specialist knowledge, training, and skills in STEMI care with well-defined individual tasks, regular interaction with other disciplines, and STEMI leadership. This team shall coordinate STEMI care through regular (monthly recommended) multi-professional meetings.

Hardware:	Basic Monitoring Equipment	Specialized Monitoring Equipment
- Dedicated cardiology ward with minimum of 10 beds - Oxygen supply and equipment for suction - Dedicated, automatic backup generator power source and wiring	- ECG - Oxygen saturation - Noninvasive and ambulatory blood pressure measurement - Respiration - Body temperature	- Cardiac monitoring - ECG - Defibrillator 24-hour telemetry monitoring

8.2 Appendix II – Performance Indicators:

	CPCC	PCPC	CCPC
ACE-Inhibitor or Angiotensin Receptor Blocker (ARB) for LVSD at discharge	☐	☒	☒
Arrival at First Facility to Primary PCI ≤ 120 minutes		☐	☒
Aspirin at Discharge	☐	☒	☒
Beta-Blocker at Discharge	☐	☒	☒
Cardiac Rehabilitation Patient Referral from an Inpatient Setting	☐	☐	☒
ECG within 10 minutes of Arrival at this Receiving Center	☒	☒	☒
High-Intensity Statin at Discharge	☐	☒	☒
EMS First Medical Contact to Primary PCI ≤ 90minutes OR ≤ 120 Minutes when Transport Time is Prolonged		☐	☒
Primary PCI ≤ 90 minutes	☐	☐	☒
Time from FMC (at or Before ED Arrival at STEMI Referring Hospital) to Primary PCI at STEMI Receiving Facility Among Transferred Patients (Quality Plus Measures)	☐	☒	☒
Adult Smoking Cessation Advice	☐	☒	☒
Arrival to Thrombolytic within 30 minutes	☒	☒	☒
Aspirin at arrival -Percentage of ST-elevation Myocardial Infarction (STEMI) patients who receive aspirin within 24 hours before or after first medical contact (if arriving via EMS, Air, or Mobile ICU), or within 24 hours before or after hospital arrival (if arriving via privately owned vehicle)	☒	☒	☒
Arrival to Transfer to PCI Center within 45 minutes (Door In/ Door Out)	☒	☒	☐