

Policy Title: MOH Policy For Ambulance Pre-Activation of Emergency Resources for Critically Injured Patients.	
Policy Owner: MOH committee on hospital clinical services and policies.	Policy code: A-LD-005
Section location: General.	Effective date: 1/11/2025
Applies to: Emergency Departments, General Surgery Departments And Emergency Medical Services.	Revision date: 31/10/2027
Approvals:	Signature
Approved by: MOH committee on hospital clinical services and policies.	
Approved by: MOH Emergency Medical Services.	
Approved by: MOH Technical Directorate.	<i>د. نسوفه الشمري مديرة الإدارة الطبية وزارة الصحة</i>
Approved by: MOH Assistant Undersecretary of Technical Affairs. <i>د. عبدالرحمن المطيري وكيل وزارة الصحة المساعد للشؤون الفنية</i>	<i>[Signature] 27-10-2025</i>

1. Purpose:

- 1.1 There is an abundant amount of evolving evidence that pre-alerting resuscitation room services to coordinate trauma care improves readiness and quality outcomes.¹
- 1.2 This policy aims to apply a standardised, streamlined communication tool extending the Kuwait Ambulance Services ability to coordinate care with in- hospital teams for the injured patients targeting those who would benefit the most from timely effective resuscitation measures.

2. Policy Statements:

- 2.1 The ambulance service notification to the relevant respective in-hospital teams while the patient is in transport when certain high-risk injury mechanisms, physiological indicators, or other significant clinical factors are identified is a proactive approach which is essential to ensure the Ministry of Health hospitals are fully prepared to deliver timely, life-saving interventions upon the patient's arrival.
- 2.2 By adhering to the approach outlined, this policy aims to reduce the time to definitive care, improve patient outcomes, and maintain the highest standards of trauma care.
- 2.3 All relevant departments and personnel are expected to familiarize themselves with the pre-activation criteria and respond promptly when a pre-activation is initiated. Continuous education, review, and improvement of this policy will be undertaken to ensure it meets the evolving needs of trauma care.
- 2.4 The policy DOES NOT extend pre-activation to all trauma patients. However, it does provide strict criteria for when in hospital teams should be mobilised prior to patient arrival.
- 2.5 Pre-activation SHOULD NOT delay patient transport from the field/site to the hospital. The aim should be to arrive in the relevant resuscitation area as soon as possible.

3. Definitions:

- 3.1 **Mechanism of Injury:** The method by which damage to the body occurs, such as a fall, motor vehicle collision, or gunshot wound. Specific mechanisms of injury are used as criteria for pre-activation based on their association with severe or life and/or limb threatening injuries.
- 3.2 **Physiological Indicators:** Clinical signs that indicate the severity of a patient's condition, including vital signs such as blood pressure, heart rate, respiratory rate, and level of consciousness. Abnormal physiological indicators often trigger pre-activation.
- 3.3 **Most Responsible Physician (MRP):** Physician (consultant or designee) who has overall responsibility for directing and coordinating the care and management of a patient.
- 3.4 **Team Leader (TL):** Team Leader is the senior physician on duty who is responsible for ensuring smooth functioning in relation to the Emergency Room. The TL should assume the role of the most responsible physician (MRP) in the capacity of Trauma Team leader until such time that the Trauma Team Leader should arrive, assume responsibility of care and management of the patient and relieve him/her of being the MRP.
- 3.5 **Trauma Team Leader:** a physician of the rank of senior registrar or above assuming the role of MRP, responsible for coordinating and leading the resuscitation and management of injured patients.
- 3.6 **Resuscitation Room:** The designated room/area in the emergency department where patients who need resuscitation, urgent care, active intervention, and continuous critical care monitoring/intervention are allocated/directed.
- 3.7 **Trauma Bay:** A designated part of the resuscitation room/area dedicated (when available) to the receipt and treatment of injured patients.
- 3.8 **Trauma Team:** A multidisciplinary group of health care professionals, including surgeons, emergency physicians, anesthesiologists, nurses, and other relevant support staff, who are delegated and trained to the management of patients with severe injuries.
- 3.9 **Pre-Activation:** The process of notifying and preparing the trauma team, or emergency team leader, of a patient (meeting specific criteria indicative of severe injury or critical condition requiring trauma team activation or code trauma activation on arrival) who is en route, prior to the arrival to the emergency department. This ensures that the team and necessary resources are ready to provide immediate care.
- 3.10 **Pre-Activation Criteria:** A set of criteria upon which the pre-activation of Code Trauma in a health care facility is initiated. The criteria are based on mechanism, physical, anatomical and environmental factors.
- 3.11 **Kuwait Ambulance Services/Emergency Medical Services (EMS):** The ambulance services and first responders designated by the ministry of health for providing and provisioning field care and coordinated patient transport as well as aspects of pre-activation from the scene of the injury.
- 3.12 **Field Care Team:** The personnel designated by the EMS to care for injured patients at the scene. It is at their discretion that the pre-activations are triggered based on the pre-activation criteria listed below.
- 3.13 **ED:** Emergency Department.
- 3.14 **ER:** Emergency Room.
- 3.15 **BLS:** Basic Life Support.
- 3.16 **ACLS:** Advanced Cardiac Life Support.
- 3.17 **ATLS:** Advanced Trauma Life Support.
- 3.18 **PHTLS:** Prehospital Trauma Life Support.
- 3.19 **PALS:** Pediatric Advanced Life Support.

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3.20 **ALSO:** Advanced Life Support in Obstetrics.

4. Clinical Criteria for Pre-Activation:

4.1 Mechanism of Injury:

- 4.1.1 High-speed motor vehicle collisions (MVC) with significant vehicle damage.
- 4.1.2 Ejection from a vehicle.
- 4.1.3 Pedestrian struck by a vehicle.
- 4.1.4 Fall from height >20 feet (6 meters).
- 4.1.5 Penetrating trauma to the head, neck, torso, or groin.
- 4.1.6 Gunshot wounds, particularly to the head, neck, chest, or abdomen.
- 4.1.7 Explosion or blast injuries.
- 4.1.8 Death in the passenger seat of the same vehicle.

4.2 Physiological Criteria:

- 4.2.1 Systolic blood pressure <90 mmHg.
- 4.2.2 Respiratory rate <10 or >29 breaths per minute.
- 4.2.3 Glasgow Coma Scale (GCS) score <9.
- 4.2.4 Altered level of consciousness with suspected head injury.
- 4.2.5 Significant tachycardia (>120 bpm) or bradycardia (<50 bpm) with suspicion of trauma.
- 4.2.6 Need for airway management or intubation in the field.

4.3 Anatomic Criteria:

- 4.3.1 Open or depressed skull fracture.
- 4.3.2 Pelvic fractures.
- 4.3.3 Traumatic amputations.
- 4.3.4 Significant soft tissue injuries, including degloving or major burns.
- 4.3.5 Open pneumothorax or flail chest.

4.4 Special Considerations:

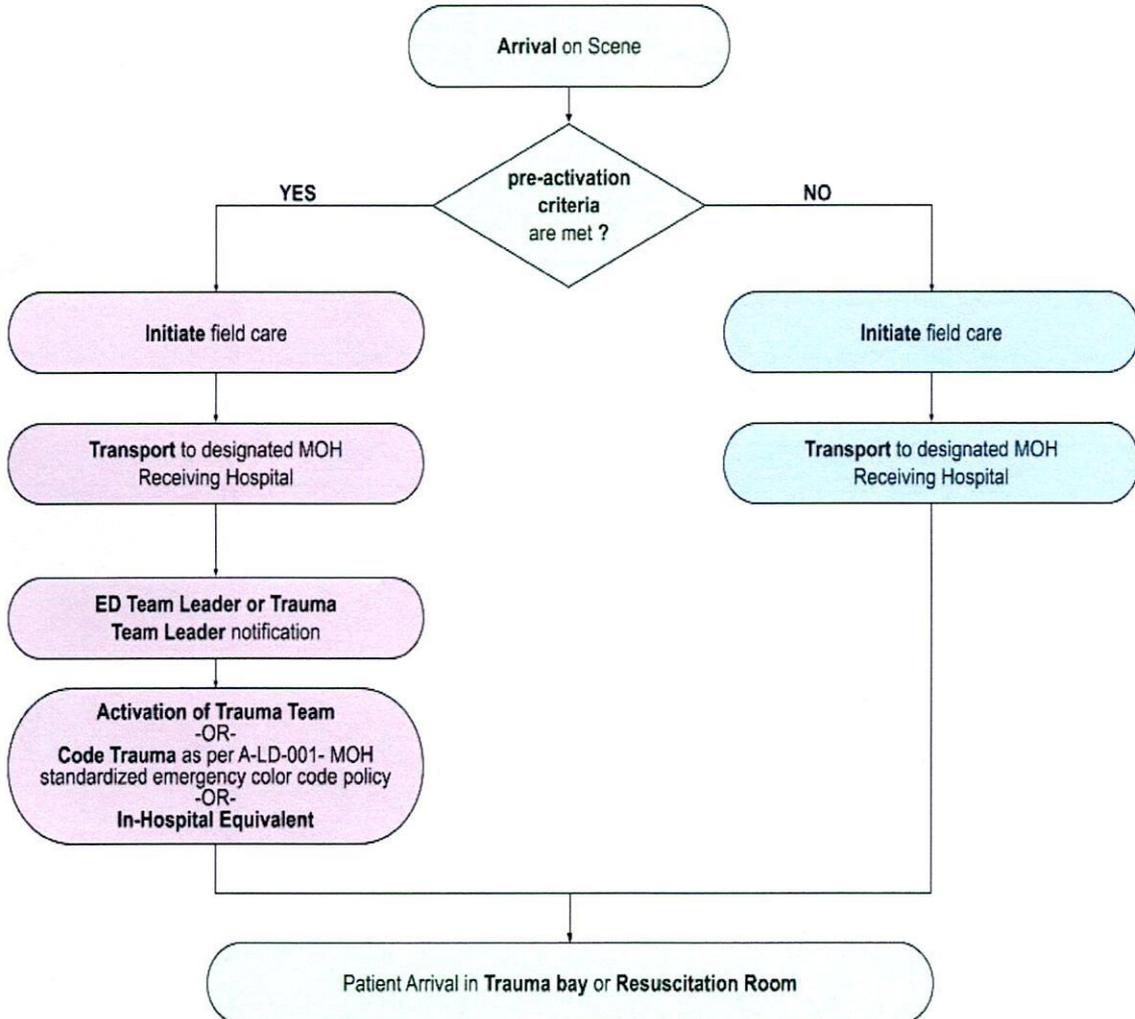
- 4.4.1 Pregnant trauma patients.
- 4.4.2 Trauma in elderly patients (>65 years) with significant comorbidities (diabetes, neurological disorders and cardiac diseases).
- 4.4.3 Any trauma in pediatric patients with high suspicion of significant injury.
- 4.4.4 EMS transporting 2 or more injured patients from the same site to the same recipient hospital emergency room.

4.5 Environmental Factors:

- 4.5.1 Patients exposed to extreme temperatures (hypothermia or hyperthermia).
- 4.5.2 Submersion injuries with potential for drowning.
- 4.5.3 Lightning strike or electrical injuries.
- 4.5.4 Chemical burns.

5. Pre-activation procedure:

PRE-ACTIVATION FLOWCHART



Anatomical	Mechanism	Physiological	Environmental	Other Special Considerations
<ol style="list-style-type: none"> 1. Open or depressed skull fracture. 2. Pelvic fractures. 3. Traumatic amputations 4. Significant soft tissue injuries, including degloving or major burns 5. Open pneumothorax or flail chest 	<ol style="list-style-type: none"> 1. High-speed motor vehicle collisions (MVC) with significant vehicle damage. 2. Ejection from a vehicle. 3. Pedestrian struck by a vehicle. 4. Fall from height >20 feet (6 meters). 5. Penetrating trauma to the head, neck, torso, or groin. 6. Gunshot wounds, particularly to the head, neck, chest, or abdomen. 7. Explosion or blast injuries. 8. Death in Passenger Seat 	<ol style="list-style-type: none"> 1. Systolic blood pressure <90 mmHg. 2. Respiratory rate <10 or >29 breaths per minute. 3. Glasgow Coma Scale (GCS) score <9. 4. Altered level of consciousness with suspected head injury. 5. Significant tachycardia (>120 bpm) or bradycardia (<50 bpm) with suspicion of trauma. 6. Need for airway management or intubation in the field. 	<ol style="list-style-type: none"> 1. Patients exposed to extreme temperatures (hypothermia or hyperthermia). 2. Submersion injuries with potential for drowning. 3. Lightning strike or electrical injuries. 4. Chemical burns. 	<ol style="list-style-type: none"> 1. Pregnant trauma patients 2. Trauma in elderly patients (>65 years) with significant comorbidities diabetes, neurological disorders and cardiac disease. 3. Any trauma in pediatric patients with high suspicion of significant injury. 4. Transport of 2 or more patients from the scene.

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5.1 Responsibilities Of The Field Team/first responders EMS:

- 5.1.1 Includes assessment, resuscitation and management of the injured patient(s) by the EMS staff, or other designated first responders in accordance with BLS/ATLS/PHTLS and or delegated official duties, responsibilities and training. Field management should not be delayed by the pre-activation process and standard EMS/Ambulance service policies should be adhered to at all times.
- 5.1.2 In cases where pre-activation criteria are met, the field notification process should be initiated WITHOUT compromising the safety or timeliness of field-to-hospital transport.
- 5.1.3 **Field Notification Process :**
 - 5.1.3.1 Upon identifying any of the pre-activation criteria, noted above, the EMS, or other designated first responders, must notify the receiving hospital resuscitation room or trauma center trauma bay and make contact with the ED Team Leader and/or the designated general surgery/trauma team leader. (Attached criteria flash card and hospital ER contact numbers).
 - 5.1.3.2 Information relayed to the facility ED team leader (and or the general surgery/trauma team leader), should include the patient's:
 - 5.1.3.2.1 Age.
 - 5.1.3.2.2 Gender.
 - 5.1.3.2.3 Mechanism of injury.
 - 5.1.3.2.4 Injuries Identified.
 - 5.1.3.2.5 Last vital signs (Glasgow Coma Scale, blood pressure, heart rate, respiratory rate and oxygen saturation).
 - 5.1.3.2.6 Any other relevant clinical details (e.g. pregnancy, possibility of evolving cerebrovascular accident etc.).
 - 5.1.3.2.7 Actions performed (e.g. airway secured, oxygen, IV lines etc.).
 - 5.1.3.2.8 Expected time of arrival.
 - 5.1.3.2.9 Updates if any change in status occur to the patient or expected time of arrival.

5.2 Responsibilities Of The Receiving Hospital:

- 5.2.1 All MOH Hospitals receiving EMS transfers of injured patients should ensure the central, local and regional EMS centres are provided with updated contact numbers of the site receiving the pre-activation call and information (e.g. ED team leader, designated general surgery/trauma team leader and ED triage front desk) of the recipient health care facility.
- 5.2.2 All MOH Hospitals receiving EMS transfers of injured patients should ensure those providing care to the injured patients received, are trained with BLS or ATLS or ACLS or PALS or ALSO standards of care and the relevant respective specialty training and operational policies (e.g. nursing, ER, surgical, anaesthesia etc.).
- 5.2.3 All MOH Hospitals receiving and EMS transfers of injured patients should ensure the care provided to the injured patients received, are in accordance with BLS/ATLS/ACLS/PALS/ALSO standards of care and the relevant respective specialty training and operational policies (e.g. nursing, ER, surgical, anaesthesia etc.).
- 5.2.4 In MOH Hospitals emergency departments receiving incoming trauma patients ,the following should be done:

- 5.2.4.1 Upon receiving the pre-activation notice, the designated team leader in the emergency department, should notify the required services as per code trauma in the MOH standardized emergency color code policy A-LD-001.
- 5.2.4.2 The team leader should serve as the MRP and trauma team leader until such time that the relevant services arrive; these may include general surgery/trauma surgery trauma team leader (who are to relieve the team leader as MRP), ICU and anesthesia as required by either the local hospital policy or the MOH standardized emergency color code policy A-LD-001
- 5.2.4.3 Other specialised services, such as obstetrics (in cases of pregnancy) or toxicology (in cases of radiation exposure or chemical burn) should also be notified accordingly.
- 5.2.5 **Responsibilities Of The Activated Receiving General Surgery/Trauma Team :**
- 5.2.5.1 Upon receiving the pre-activation notice, the trauma team leader will confirm the activation and ensure the trauma bay is prepared. This entails contacting the relevant services potentially required for the given case.
- 5.2.5.2 Ensure the availability of the necessary equipment, such as airway management tools and equipment, blood products, imaging and laboratory capabilities, as well as prior notification to the operating room when needed.
- 5.2.5.3 Specific roles (e.g., airway management, IV access, and imaging) will be assigned to team members in anticipation of the patient's arrival.
- 5.2.5.4 Other specialised services, such as obstetrics (in cases of pregnancy) or toxicology (in cases of radiation exposure or chemical burn) should also be notified accordingly. If necessary, other specialties (e.g., neurosurgery, orthopedics etc.) may be contacted to be on standby prior to the patient's arrival.

5.3 Communication:

- 5.3.1 Communication between the EMS, the ED team leader and or the recipient general surgery/trauma team, and other relevant departments should be maintained by whatever approved means (e.g. wireless radio transmission, dispatch, cellular, telemetry etc.) providing regular updates as the patient's condition evolves during transport.

6. Review and Continuous Improvement:

- 6.1 It should be aimed to conduct debriefing sessions (involving the ED and general surgery departments leadership or designees) locally and or centrally at the MOH on a weekly, monthly or quarterly basis , as seen fit and possible by the regional or central leadership, to assess the effectiveness of the pre-activation process.
- 6.2 Regular review and updates of the pre-activation criteria should be considered based on new evidence or changes in institutional capabilities every 2 years (earlier if deemed necessary) by the issuing committee.

7. References:

- 7.1 Coster, J. E. et al. Variation in ambulance pre-alert process and practice: cross-sectional survey of ambulance clinicians. *Emerg. Med. J.* 42, 14–20 (2024).

7.2 Newgard, C. D. et al. National guideline for the field triage of injured patients: Recommendations of the National Expert Panel on Field Triage, 2021. J. Trauma Acute Care Surg. 93, e49–e60 (2022).

7.3 Field triage Guidelines. ACS <https://www.facs.org/quality-programs/trauma/systems/field-triage-guidelines/>



MINISTRY OF HEALTH PRE-ACTIVATION CRITERIA

Anatomical	Mechanism	Physiological	Environmental	Other Special Considerations
<ol style="list-style-type: none"> 1. Open or depressed skull fracture. 2. Pelvic fractures. 3. Traumatic amputations 4. Significant soft tissue injuries, including degloving or major burns 5. Open pneumothorax or flail chest 	<ol style="list-style-type: none"> 1. High-speed motor vehicle collisions (MVC) with significant vehicle damage. 2. Ejection from a vehicle. 3. Pedestrian struck by a vehicle. 4. Fall from height >20 feet (6 meters). 5. Penetrating trauma to the head, neck, torso, or groin. 6. Gunshot wounds, particularly to the head, neck, chest, or abdomen. 7. Explosion or blast injuries. 8. Death in Passenger Seat 	<ol style="list-style-type: none"> 1. Systolic blood pressure <90 mmHg. 2. Respiratory rate <10 or >29 breaths per minute. 3. Glasgow Coma Scale (GCS) score <9. 4. Altered level of consciousness with suspected head injury. 5. Significant tachycardia (>120 bpm) or bradycardia (<50 bpm) with suspicion of trauma. 6. Need for airway management or intubation in the field. 	<ol style="list-style-type: none"> 1. Patients exposed to extreme temperatures (hypothermia or hyperthermia). 2. Submersion injuries with potential for drowning. 3. Lightning strike or electrical injuries. 4. Chemical burns. 	<ol style="list-style-type: none"> 1. Pregnant trauma patients 2. Trauma in elderly patients (>65 years) with significant comorbidities diabetes, neurological disorders and cardiac disease. 3. Any trauma in pediatric patients with high suspicion of significant injury. 4. Transport of 2 or more patients from the scene.

RESUSCITATION ROOM CONTACT NUMBERS

Amiri 22468869	MKH 25310410	Farwaniya 24892508	JAH 25305093	Adan 23966870
Jahra 24593938	Al Sabah Medical 24617208 24617209	Al Sabah Surgical 24617123 24617124	Kuwait Toxicology Center 1804774	Sabah Al Ahmad 23600162