

Facility-Based Mass Casualty Triage

Guidance Note

This guidance note accompanies the [WHO Academy Mass Casualty Management](#) course and provides further detail on the [Mass Casualty – Interagency Integrated Triage Tool](#). For more information on emergency unit triage used in routine conditions, please refer to the [Interagency Integrated Triage Tool](#). Further guidance is available from WHO on [Mass Casualty Management in Emergency Units](#).

INTRODUCTION

A mass casualty incident (MCI) is an event that generates more patients, often with higher acuity, than a health facility can manage using its usual resources and procedures. This disrupts day-to-day procedures and requires additional resources. An MCI demands exceptional emergency arrangements and additional assistance.

During MCIs, emergency units (EUs) may become overwhelmed by a sudden surge in patients or suffer direct disruption from the event itself, limiting their ability to deliver care. When EUs are overwhelmed, both direct mortality from the acute event and preventable mortality from everyday conditions can increase dramatically. The objective is to ensure the greatest good for those who can benefit the most from medical and surgical interventions. Clinical service delivery during an MCI is particularly affected by factors including high patient volumes, increased security risks, inadequate resource availability, interruptions in routine clinical processes, disrupted communication and leadership and unfamiliarity with providing care during times of surge.

Mass casualty planning is essential to prepare for these anticipated challenges and allow effective mass casualty management (MCM). An MCM plan should be developed for the local facility including the EU and plans should be developed in collaboration with other clinical areas. Activation exercises should take place routinely. The plan should be designed with a smooth transition from routine practice in mind. This enables staff to continue working with familiar clinical processes, enhancing efficacy and reducing the risk of errors. For example, routine application of validated, acuity-based triage during everyday operations will create a strong foundation for triage during an MCI. The greater the departure from routine processes, the harder it will be for staff to switch from one process to the other.

TRIAGE FOR MCI

The role of triage during an MCI

Triage is a fundamental tool to improve patient outcomes during an MCI. Routine triage seeks to identify the most critical patients, so that resources may be targeted to the sickest patients. Use of a routine triage tool during a sudden increase in the number or severity of patients requiring emergency services - known as surge - often takes too long to rapidly identify patients who require life- or limb- saving interventions. When the MCM plan is activated, a specific MCI triage tool should be used. In an MCI, patient needs exceed available resources. MCI triage seeks to allocate limited resources to those patients most likely to benefit. In addition to rapid identification of critical patients, effective triage improves organization of flow in the EU and impacts the organization of care areas, thereby providing staff with a sense of control which reduces chaos and makes the situation easier to manage. Triage is a dynamic process and is used to identify changes in patient acuity and needs.

Activation of mass casualty triage

The MCM plan should contain clear explicit criteria to trigger the change from routine triage to MCI triage. The activation threshold is based on the number and acuity of arriving patients (or those anticipated to arrive) and depends on the resources available at that time. This threshold can vary depending on expected resources (e.g., night-time, weekends). The plan should specify how and by whom activation will occur including communication to all staff.

Designation of patient categories

Patients arriving to the health facility are categorised using an MCI triage tool to match limited resources to patient acuity. Patients must be rapidly triaged to avoid delays in care for the sickest patients and to facilitate rapid movement to an appropriate clinical area. Colours are associated with each category for easy identification of acuity and corresponding resources.

MASS CASUALTY – INTERAGENCY INTEGRATED TRIAGE TOOL (MC-IITT)

Overview

The MC - IITT describes how to assign patient acuity categories during the initial phases of MCI response. This tool provides a smooth transition from the facility-based routine IITT. The MC - IITT categorises patients into 5 colour categories. There are three main colours (Red, Yellow and Green), and a fourth colour (Blue) which is a subset of the Red category. The fifth colour, Grey, corresponds to deceased patients. Categorisation is based on clinical criteria and aligns with the structured approach to any emergency patient. This tool is designed to be easy to implement in all resource settings, including those with significant constraints.

The MC - IITT emphasises early re-assessment with a detailed evaluation of ABCDE conditions and high-risk vital signs. If re-assessment is delayed due to surge conditions, triage should be repeated with MC - IITT. Further changes to triage category may be needed based on patient assessment or clinician concern. Patients may become more critical over time, requiring “up triage” to a more serious category. Initial interventions, such as fluid resuscitation, may temporarily improve a patient’s condition, but great care should be taken before assigning a patient to a lower acuity if they have not received definitive treatment.

Table 1: Mass Casualty IITT Categories

Category	Description
Red	Non-walking patients with signs of critical life-threatening conditions. Red signs include any findings of: <ul style="list-style-type: none"> • airway compromise OR • respiratory distress OR • major (massive or catastrophic) haemorrhage or absent radial pulse or capillary refill > 3 sec OR • altered mental state or unresponsiveness OR • massive burns (> 40%) OR • clinician concern. <i>Patients initially categorized as green or yellow may be re-triaged to red on assessment.</i>
Yellow	Non-walking patients who do not have any red signs or high-risk vital signs.
Green	Walking patients. In the green area, patients are assessed and if they have any red signs or high-risk vital signs, they are re-categorised.
Blue	A subset of red patients who meet criteria for medical futility, require palliative services or require curative treatment beyond current capacity. During reassessment, the category can be reassigned if more resources become available or if the patient condition changes.
Grey	Deceased patients who are not breathing after basic airway manoeuvres and have no pulse. These patients may be dead on arrival or die during treatment at the facility. Patients without signs of life should be declared as deceased as per local protocols.

IMPLEMENTING MASS CASUALTY TRIAGE

Resources for mass casualty triage including space, staff and supplies should be carefully planned to provide appropriate care for each triage category. This guidance will only address the essential space issues around

implementing MC-IITT. Please see the [WHO A MCM course](#) for an expanded explanation of essential space, staff and supplies.

Space

During surge, area designation facilitates safe and effective patient flow. The term zone is used below to indicate a dedicated, pre-assigned area for a specific set of patients. Dedicated areas of the facility should be pre-identified to be used for a specific clinical function: triage point, red zone, yellow zone, green zone. The areas and transit routes between them must have clear signage to identify care areas and direct flow.

- **Triage points:** The first triage point is ideally located at the health facility entrance, preferably outside the facility building, with a single-entry point. Initial triage to walking/non-walking patients is performed here. A secondary triage point to assign non-walking patients to red or yellow category occurs ideally outside but close to the main EU. The space within the EU must be protected for care delivery. In smaller facilities or lower resource settings, first and second triage may occur in the same place.
- **Red zone:** The red zone is within the EU and reserved for the most acutely ill patients – red category patients. The red zone has the highest concentration of resources to care for acute life threats.
- **Yellow zone:** The yellow zone may be located inside the EU, or in another clinical area nearby, and is only for patients categorized as yellow. The yellow zone should be close enough to the red zone for patients who acutely decompensate and need to be moved.
- **Green zone:** The green zone should be separate from the EU to decongest high acuity areas and provide a safe space for treatment and monitoring of low acuity patients for potential deterioration. Some examples of common locations used include the outpatient department, the hospital waiting area or a separate tent.

Take care not to overwhelm these areas, as doing so can simply move the mass casualty burden from one part of the facility to another.

Patient Triage Categories and Flow

During an MCI, ALL arriving patients should be triaged with the MC - IITT. This includes trauma patients, medical emergencies and non-MCI related patients. Despite high volumes in the EU, patient flow must be preserved. Movement from triage points to the clinical areas must be unidirectional (one-way). To support this, only initial resuscitation interventions are performed in the EU. Further patient care should take place in other parts of the facility (e.g. wards, critical care units, operating theatres) to ensure that there is space and resources for newly arriving patients.

STEP 1: Patients arrive at health facility and are categorized as walking /non walking. Walking patients are directed to the green zone. Body parts should be directed to the morgue and not enter the clinical care space.

STEP 2: Patients who are unable to walk are directed to a triage point at the entrance to the EU where they are assessed for any red signs. If any signs of immediate threat to life are present, the patient is triaged Red and transferred to the Red Zone. If there are no red signs, transfer the patient to the Yellow Zone.

In some locations, if there is adequate staffing, senior clinicians may be positioned at Step 2 triage area. Depending on patient volumes, these clinicians may be able to assess for Grey criteria, allowing direct transfer to the morgue, further decompressing the Red Zone.

RED ZONE: The Red Zone should be staffed with a larger proportion of clinicians, preferably those who are more experienced. In the Red Zone, the focus is on immediate life- and limb- saving ABCDE interventions and rapid decision making on disposition to in-patient areas for ongoing care, such as the critical care unit or the operating theatre.

Red patients: Red patients undergo rapid assessment and management following an ABCDE approach (add reference for e.g., BEC). Interventions should prioritize resuscitation, life-saving interventions, rapid decision making on disposition, and handover to inpatient care (e.g., surgery, intensive care).

Blue patients: If a senior clinician identifies a red patient who exceeds the present capacity for curative efforts, the patient is categorised as blue. Patients with Blue criteria should be cared for by dedicated staff. These patients should be placed in a pre-designated space, preferably adjacent to the Red Zone. Senior clinicians should communicate decisions clearly with staff working in these zones. Patient condition and category should be reassessed if new resources become available.

YELLOW ZONE: Patients who do not meet the criteria for either Red or Green are triaged as Yellow. These patients are rapidly moved to the designated Yellow Zone which may be in a separate part of the EU (if there is space) or on a ward close to the EU. In the Yellow Zone, patients are assessed and receive appropriate ABCDE interventions, and decisions on disposition are made. If there are any high-risk vital signs or if there is clinician concern, the patient should be transferred to the Red Zone. Patients are monitored and cared for while awaiting admission to other areas of the hospitals or transfer to other facilities.

GREEN ZONE: Any walking patients should be quickly moved to a low-acuity area - the Green Zone. On arrival to the Green Zone, patients should be rapidly assessed and prioritized by clinical indication. If there are too many patients in the green zone to rapidly receive a clinical assessment, the MC-IIT should be repeated to quickly identify patients who are decompensating. Patients found to have a life- or limb threatening condition require transfer to the appropriate clinical area (e.g., red zone).

The Green Zone should be staffed with clinicians who can rapidly evaluate patients. Patients sorted to the Green Zone require reassessment, evaluation, treatment and appropriate disposition. Patients may require ongoing monitoring and reassessment at regular intervals to ensure they do not deteriorate. Patients may be deemed fit for transfer or discharge after full evaluation, depending on the context. Other Green Zone patients may require admission to inpatient wards for ongoing care.

Grey patients: Patients are categorised as **Grey** if they meet the criteria after evaluation by a locally appropriate clinician. Deceased persons and body parts can be transferred directly to the morgue or a suitable pre-identified area. Depending on the local context, it may not be acceptable or safe to declare patients dead at the triage point, requiring transfer to a designated area for this to be done. This process should be designed sensitively, and with minimal impact on patient care. Local socio-cultural context must be considered carefully in the management of deceased persons, including expectations around resuscitation efforts. Whenever possible, psychosocial, administrative and security staff should be placed at the morgue to support relatives. A family waiting area should be made available.

CONCLUSION

Triage is a dynamic process. Patient conditions evolve and capacity to provide curative treatment may change. Patient condition and category should be frequently reassessed. By following a systematic, validated triage approach, designating zones for varying acuity levels, and ensuring preparedness through a robust mass casualty management plan, healthcare facilities can mitigate the impact of mass casualty incidents on both acute and routine care, thereby achieving the greatest good for the greatest number of patients.