Mass Casualty Management

Guideline for Emergency Medical Services (EMS), Maldives

Japan Fund for Poverty Reduction

Contents

Foreword by Director General of Health Services

DR. AHMED ASHRAF

Director General of Health Services

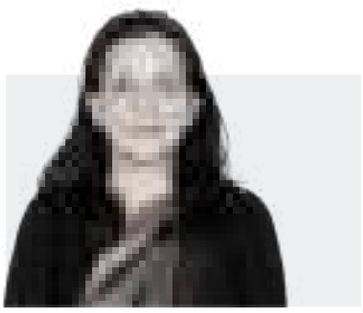
The Maldives, a low-lying small island nation, is prone to natural disasters such as tsunamis and flooding and with its rapid industrialization and development, the Maldives has become even more vulnerable to mass casualty incidents. This makes it crucial for the Maldives to have a well-established mass casualty management system in place. The limited resources and infrastructure in remote islands make it challenging to provide timely assistance and aid during disasters, climate change has increased the frequency and intensity of natural disasters in the Maldives, further exacerbating their emergency and disaster management challenges.

In times of disaster, effective mass casualty management is essential for timely and organized responses. A health emergency operation plan (HEOP) is crucial in such situations as it can save lives by ensuring efficient coordination among various response teams and providing timely medical assistance to those in need. Therefore, it is imperative for the Maldives to prioritize the establishment and implementation of a robust mass casualty management system to mitigate the effects of natural disasters and ensure the safety and well-being of the people in emergencies.

We are immensely grateful to the WHO for their support in developing the Mass Casualty Management Guideline and action plan for the Maldives Emergency Medical Services. The efficient management of mass casualties is crucial in times of disasters and emergencies. Their expertise and resources have helped us to develop a comprehensive plan that addresses all aspects of mass casualty management, including triage, treatment, evacuation, and communication.

This guideline and action plan will not only improve our readiness to handle mass casualties but also ensure a coordinated and effective response in such situations which would enable EMS personnel with the knowledge and skills necessary to effectively manage large-scale emergencies. The focus on triage, resource allocation, and inter-agency coordination ensures a seamless and efficient response, maximizing patient survival rate and outcome.

Foreword by WHO Representative



DR NAZNEEN ANWAR

WHO Representative

The Maldives, being comprised of a series of dispersed islands, presents distinctive hurdles when it comes to emergency readiness. With communities spread across multiple atolls, establishing a resilient and flexible Emergency Medical Services (EMS) infrastructure becomes imperative. This becomes especially paramount during mass casualty situations, underscoring the necessity for a well-coordinated and swift response to mitigate potential loss of life.

World Health Organization Maldives is honored to have assisted the Ministry of Health in developing these Mass Casualty Management (MCM) Guidelines and Action Plan. These guidelines are a vital step forward in strengthening the Maldives' disaster response capabilities.

The Mass Casualty Management Guidelines will equip Emergency Medical Services (EMS) personnel with the knowledge and skills necessary to effectively manage a large-scale emergency. The focus on triage, resource allocation, and inter-agency coordination ensures a streamlined and efficient response, maximizing patient survival rates.

While Mass Fatality Management is an essential aspect of disaster response, this guideline, after consultation with the Ministry of Health, will concentrate solely on pre-hospital care. This document serves as a crucial component to the existing National Emergency Operation Plan (NEOP) outlining response protocols, and a Health Emergency Operational Plan (HEOP).
Within these guidelines, a set of fundamental principles will serve as a guiding light for planners, policymakers, and implementing agencies. These principles are designed to empower effective response strategies tailored to the specific needs of the Maldives.

By equipping our first responders with the knowledge and protocols outlined in the document, we aim to significantly enhance the Maldives' ability to effectively respond to Mass Casualty Incidents, minimizing loss of life and maximizing the chances of recovery for those affected. These guidelines represent a significant investment in the safety and well-being of the Maldivian people.

We extend our commendation to the Government of Maldives for its unwavering commitment to fortifying its emergency response system. As WHO, we reaffirm our steadfast dedication as a partner in this endeavor, and we look forward to continued collaboration in building a more resilient Maldives.

Background

Maldives being a low-lying country. While 99 percent of the country is sea, the average elevation above sea level is one meter. As such the country is prone natural disasters as amply demonstrated by the 2004 tsunami. With the rapid industrialization and development Maldives is also vulnerable to manmade disasters including Mass casualty incidents (MCI).

There are plans in existence to address disasters. National Disaster Management Authority mandated by law has adopted the National Emergency Operation Plan (NEOP) which assigns functional response and responsibilities for all entities including government functions as well as the functions of island/atoll/city councils,

during an emergency/disaster within the territory of Maldives. This is augments by the Health Emergency Operational Plan (HEOP) which is more specific to health impacts on health by disasters. While both address MCIs in limited ways there is no targeted structured plan to deal with MCI in the country.

The scope of this paper to develop a Mass Casualty Management Guideline and action plan for Emergency Medical Services to respond in mass casualty situation. The scope of the guideline is delimited to the greater Male' area and two selected scenarios. Although any discussion on MCI also will involve dealing with Mass fatalities, after discussion with Ministry of Health (MOH) this paper will only address prehospital care. This guideline should be read in conjunction with NEOP and HEOP.

A number of guiding principles should be observed within all plans, protocols and operational procedures. These principles are designed to assist planners, policymakers, and implementing agencies as they develop plans for their own specific situations.

Clear lines of responsibility

Plans must clearly define the roles, responsibilities and expected activities of all those dealing with the incident. They must allow response to be scaled up from local, to provincial/state and to national levels in a seamless manner, with no confusion as to who is in charge at each phase of the response.

Scalability

Preparedness must address different scales of incident and surge in demand for health care. While some activities (triage, transportation, treatment) are common to managing all mass casualty incidents, additional measures such as evacuation of large populations may be necessary.

Whole-of-health

In addition to death and injury, other health considerations must be planned for. Planning strategies must also take into account the basics of environmental health (i.e., water, sanitation, housing); non-communicable diseases (including mental health); maternal, newborn and child health; communicable diseases; nutrition; and health care delivery services (including health infrastructure).

Knowledge-based

Almost every imaginable form of mass casualty incident has already occurred before, and planners therefore have access to a great – and growing – body of knowledge. Useful sources of information may include official reports from other countries (particularly those with similar conditions); scientific and epidemiological data; and documentation from WHO and other organizations.

Multisectoral

The success or failure of responses to mass casualty incidents depends on the cooperation of many sectors – communications, transportation, law and order, security, water and sanitation, social services, and other non-health sectors – that may not coordinate their "normal" daily activities. Coordination should be institutionalised not only at the level of national ministries, but – ultimately
most important – at the local level of communities.

National policies which enable local solutions

The fundamental concerns of a mass casualty management system are public safety and the building of safer communities ("building" in this case means not only physical construction but strengthening all of the elements – human, organizational and infrastructural – that make up a community). While plans must be in place to mobilize provincial/state and national resources if required, the national policy and strategy emphasis must be clearly directed at enabling local authorities to prepare for, respond to and recover from a mass casualty incident.

The prerequisites for planning are: a recognition that risks and vulnerability exist, and that emergencies can occur; an awareness by the community, government, and decision-makers of the need to plan and of the benefits of planning; implementation of the plan is guaranteed by appropriate legislation; and, designation of an organization responsible for coordinating both planning and emergency response and recovery in the event of an emergency. The planning process can be applied to any community, organization or activity. It includes:

Resource analysis:

to identify the required resources for the response and recovery strategies, resources available, discrepancy between requirement and availability, and responsibility.

Designation of roles and responsibilities

to individuals and organizations.

Management structure

concerning the command of individual organizations and control across organizations.

Developing strategies and systems

for specific response and recovery.

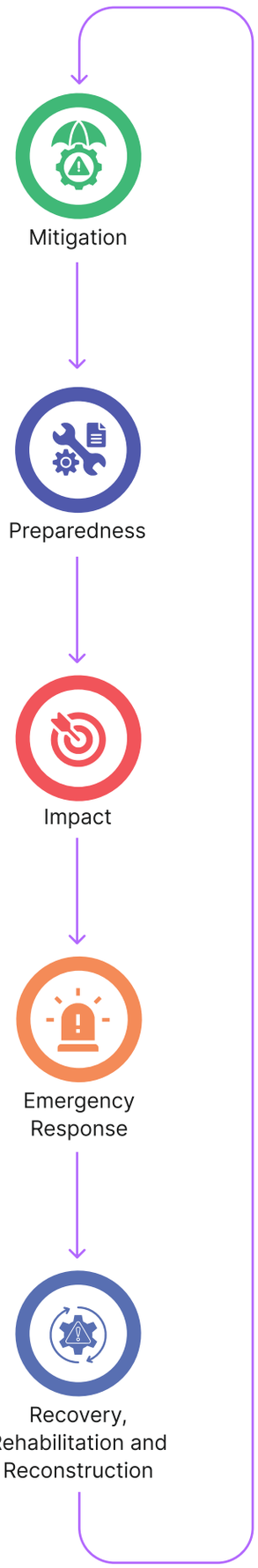
Documentation:

The written emergency plan will consist of the outputs of each step of the process.

Phases of an Emergency Disaster

1. Preparedness
2. Mitigation
3. Impact
4. Emergency Response
5. Recovery, Rehabilitation and Reconstruction

The length of each phase will depend on the types of incidents or disaster and the degree of preparedness. Adequate planning in the preparedness phase will minimize the degree of devastation during any disaster; improve the quality of the emergency response and shortened the recovery phase.



Mitigation

These are measures undertaken to make communities less vulnerable. Structural and non-structural elements must be designed and erected with consideration of the hazards in a specific geographical area. For example, high floor building for flood prone areas.

Impact

This is the effect of a hazard or emergency situation on a community or country.

Response

Decisions or measures taken to contain or mitigate the effects of a disastrous event to
prevent any further loss of life and/or property. It allows for the restoration of order in the aftermath of an incident and reestablishment of normalcy.

Recovery/rehabilitation

Is the act of restoring or rebuilding what was destroyed after the disaster to a pre disaster level or ideally to a better level.

This paper will mostly discuss the response phase while briefly touching on the preparedness which is essential for the responsible phase to be successful.

Preparedness

Action(s), taken in advance of an emergency, develops operational capabilities and facilitates an effective response in the event that an emergency occurs.

"Assessment and Planning phase">>In-depth assessment, findings & listing of problems and all consequences, possibilities associated with it and appropriate planning for overall management to respond timely and appropriately (the best way) including lessons learned from past similar incidents and best practices/ models etc.

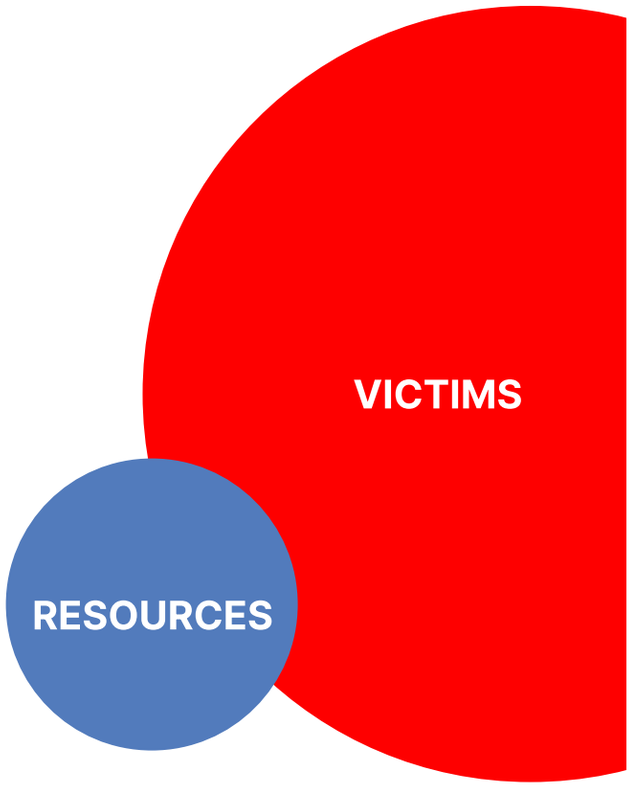
Mass Casualty Incidents (MCI)

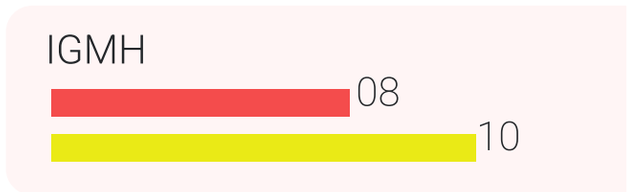
A Mass Casualty Incident (MCI) is an overwhelming event, which generates more patients at a time than locally available resources can manage using routine procedures. It requires exceptional emergency arrangements and additional or extraordinary assistance. MCIs can occur as a consequence of a wide variety of events: disasters (both natural and man-made), terrorist attacks, motor vehicle collisions, etc. Whatever the causing event is, the characterizing feature of an MCI is the number of victims large enough to disrupt the normal functioning of health care services.

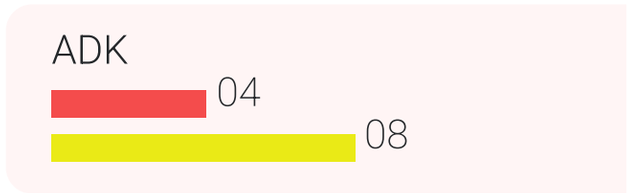
Although many have attempted to put numbers to what constitutes a mass casualty incident (MCI), perhaps the best definition is any number of casualties that exceed the resources normally available from local resources. This is based upon available resources, number of injuries, and severity of injuries. For example, in your response system, 20 victims with minor injuries may not require instituting the MCI plan, while five victims with critical injuries may.

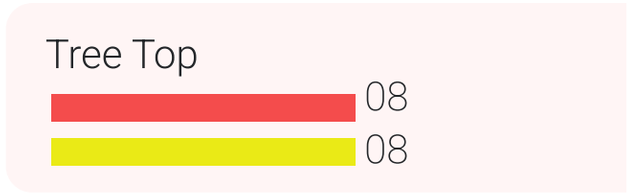
It is very clear depending on the health resource definition of MCI may differ from country to country. It may also differ from region to region in the same country. For the purpose of this paper, we will define MCI in the context of Greater Male area. Based on the discussions held with relevant authorities in the three biggest hospitals in the area.

An MCI was arbitrarily defined as patent load which would require an activation of the Hospital Emergency Management Plan. For IGMH which is the biggest and the main tertiary hospital this was defined as 10 Yellow category patients or 8 red category patients or a combination of both. For ADK it would be four red and eight yellow while as for tree top it would be around 8 red and 8 yellow







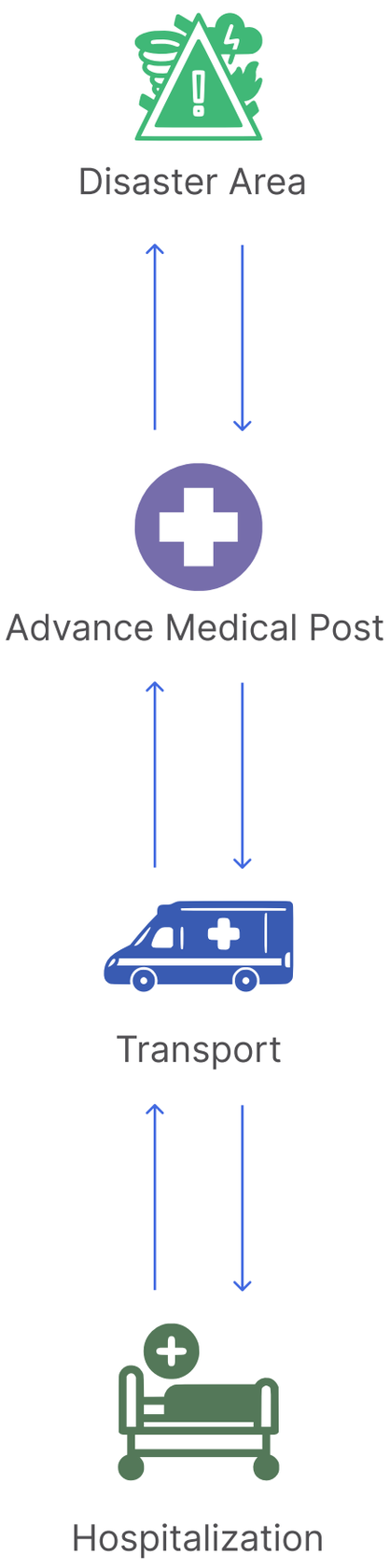


Multi-Sectoral Approach

In order to effectively respond to a MCI we need a multisectoral approach. Different organization with different capabilities, expertise and resources have to come together and work in tandem. To bring about proper coordination they need to be a common umbrella organization in terms of disasters to activate the response process.

Maximizing existing resources and manpower is of paramount importance to the successful management of an MCI. Each agency should be able to immediately adapt preset procedures. All agencies need to work together, helping each other to achieve their goals, where possible. Working together during periodic simulation exercises – both desktop and field - that are as realistic as possible will help to make staff members comfortable with protocols. Only then will the community truly save as many lives as possible while keeping response agencies safe. All agencies should therefore strive to attain the knowledge on how to execute the plan in order to achieve the ultimate fulfilment in a job well done.

There are three different organizations responsible for emergency action in Maldives. NDMA is responsible for all disasters in Maldives. Joint Inter Agency Operating Centre (JIAOC) in MNDF is responsible for coordination amongst agencies specially in cases of terrorism events. Health Emergency Operating Centre (HEOC) in health is responsible for managing health aspect of disasters and will be the lead agency in MCIs.



Activation of HEOC (Health Emergency Operating Centre)

The HEOC is the government's health response operations structure for any emergency situations, which require the utilization and commitment of national assets and/or services in the health sector. HEOC is the central point where decision-makers and health response activity representatives are co-located in order to effectively respond to emergencies. This close coordination assures an effective response in a timely manner with minimal duplication of effort across the different health institutions.

In any case of Mass casualty Incident (MCI) the first step would be to alert designated Emergency Focal Point at Ministry of Health. The information may come through a number of sources including MNDF, NDMA, EMS, Hospitals and other health care facilities, WHO, Media, MRC or private citizen phone calls. Once this information is received by the designated Emergency Focal Point at Ministry of Health, emergency focal points within the health sector (including EMS) and the Senior Policy Core Group are informed. With the guidance of the sector emergency focal points, Senior Policy Core group determine the health emergency level and accordingly decide to activate the various components of HEOP and HEOC. In potential or actual emergency situations, as per the guidance from the Senior Policy Core Group, Incident Manager and the Incident Management Team are appointed and has the option to operate HEOC at the required level and the alert phase.

Process of Operationalizing HEOP

1

EARLY WARNING DETENTION

NDMC, Laboratory + Surveillance, Phone Calls, Port Health, Media/News, MMS Alerts, Private Hospitals & Health Care Facilities, Public Health Care Facilities, WHO

EMERGENCY FOCAL POINTS

HPA, RAHS and MFDA

2

3

SENIOR POLICY GROUP (HECC)

Determine PHE Level
Decide to activate HEOC and HEOP
Designate IM, IMT and TAC

4

HEALTH EMERGENCY OPERATION CENTRE (HEOC)

Determine PHE Level
Decide to activate HEOC and HEOP
Designate IM, IMT and TAC

5

MINISTRY OF HEALTH

(Head of Agencies, Authorities and Departments)

- Male' City Government Health Care Facilities
- City / Atolls Hospitals
- Island Health Centers
- Port Health
- Laboratory, Blood Bank

Incident Management Systems

(Incident Management Team)

- Leadership Management
- Operations
- Planning
- Logistics
- Administration and Finance

HECC, TAC + Support Agencies (MACS)

- Ministries, Agencies, Departments
- Local Councils
- Private Sector - HCOs
- MRC
- Media
- UNI, INGOs, NGOs, CBOs

Implement and Execute HEOP & Action Plans

(Pandemics Preparedness and Response Plan, Mass Casualty Incidents, Disaster Medical Response, Endemic Response Plan, etc...)

6

When Ministry of Health is the lead agency in a response, the Ministry can nationally coordinate the operation in the HEOC or it may also use the National Emergency Operations Centre (NEOC), maintained by NDMC, depending on the situation and the extent of the response needs of particular emergency.

In a MCI, the Ministry of Health acts in a supportive role, and coordinate with NEOC and may have to coordinate with the JIAOC (Joint Inter Agency Operations Centre) established at MNDF (specially in terrorism scenarios) by physically sending a senior person to represent Health at operations centre.

Health response in a MCI

Under section IV Hazard specific procedures of HEOP, MCI incident is covered. It gives elaborate actions and action points with responsible agencies in case of MCI. The specific role of EMS with in the HEOC need further elaboration as proposed in this paper.

Preparedness for a MCI

It is beyond the scope of this paper to go in depth into the preparatory phase, but it is recommended to:

- update the structure of HEOC to reflect EMS and
- update the hazard specific plans to include the role of EMS in the HEOP.
- establish clear lines of communication with EMS in the HEOP.

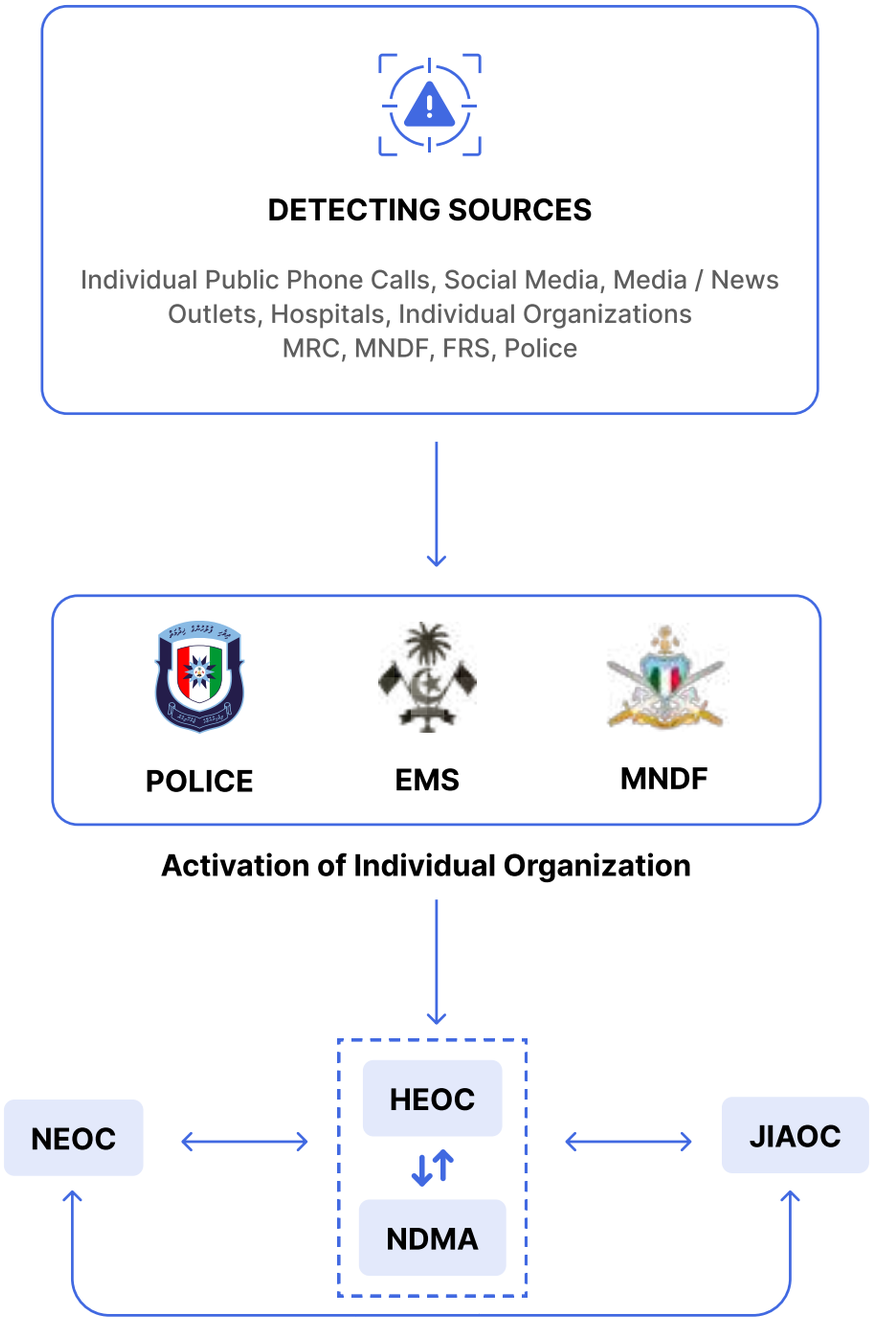
It is noteworthy that Hospitals and Public Health Care facilities in Male' city has been given the following responsibilities in the HEOP, which will now be led by EMS.

- Conduct health emergency training and drills for staff.
- Establish communication with other health care providers in the city.
- Maintain adequate stock of medicines and other required supplies.
- Arrange a mechanism to receive early warning and public information.
- Update and maintain emergency point of contact list.
- Formulate rapid response teams and coordination with other responding agencies.

Response in an MCI

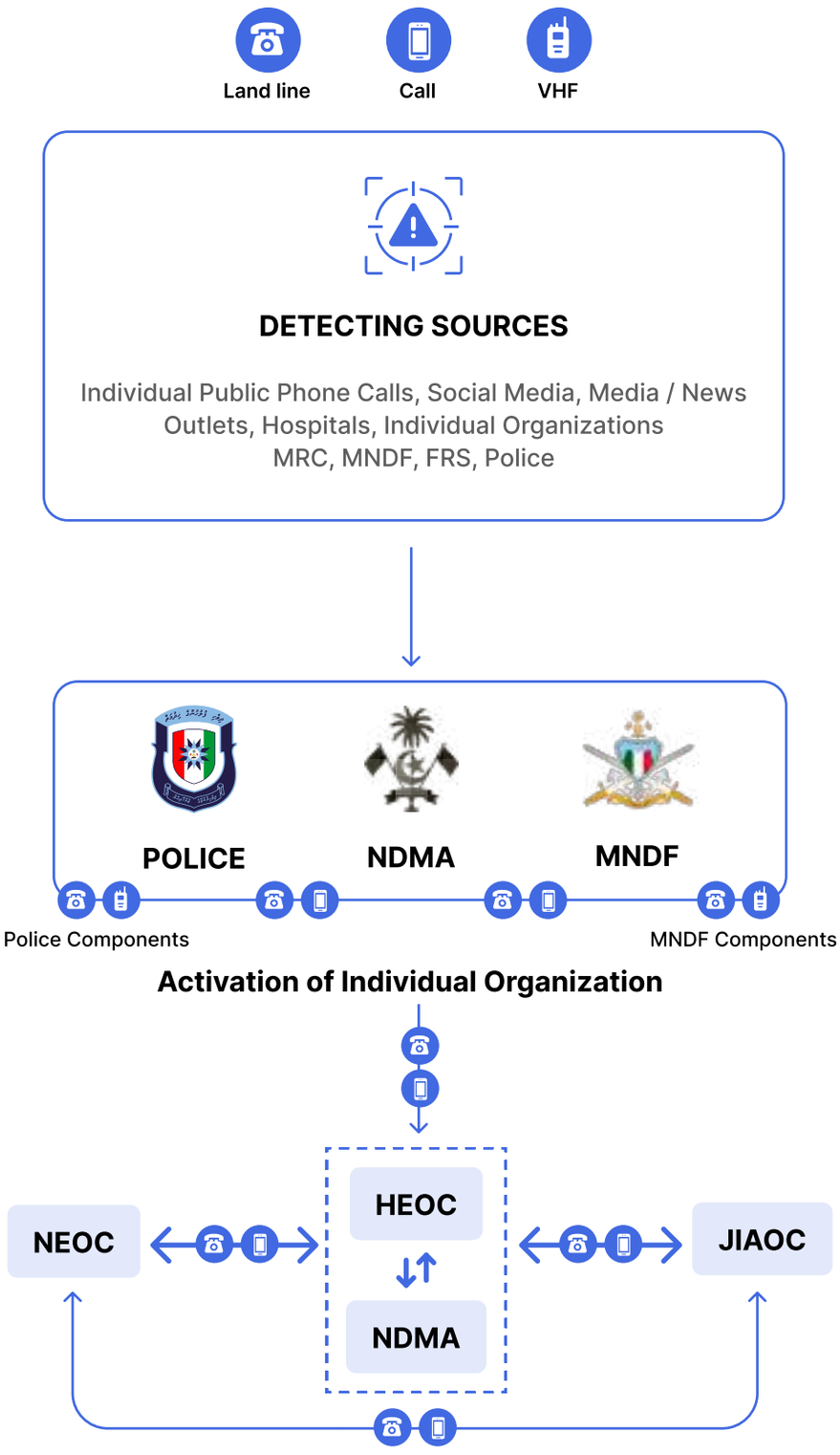
Under section IV Hazard specific procedures of HEOP, MCI incident is covered. It gives elaborate actions and action points with responsible agencies in case of MCI. The specific role of EMS with in the HEOC need further elaboration as proposed in this paper.

Once this message is received it is conformed and informed to other sister agencies. An appropriate assessment of the situation and prompt dissemination of the alert message is important. Depending on the scale of emergency JIAOC, NEOC and HEOC is activated as necessary as per their individual existing protocols. Communication is established amongst these agencies to coordinate the response.



Communication in MCI

Communication resources has always been a challenge in Maldives. While the security forces have their own established radio frequency sets for internal communication there is no inter agency communication established between the relevant agencies. The other agencies involved rely heavily on text messages, internet and mobile and fixed lines calls for communication. It has been noticed in the past that these are not effective modes of communication as they tend to get jammed in traffic in emergency situations. More talks need to be made at interagency and policy level to find a permanent more effective instrument for interagency communication in disasters.



Responsible authorities in a MCI.

Under section IV Hazard specific procedures of HEOP, MCI incident is covered. It gives elaborate actions and action points with responsible agencies in case of MCI. The specific role of EMS with in the HEOC need further elaboration as proposed in this paper.

Maldives National Defence Force

- Provide first response including first aid and triage.
  - Appoint a triage commander.
- Support patient movement and evacuations
- Provide transportation via sea ambulance and air.
- Firefighting, search, and rescue.
- Ensure safety at the incident site.
- Establish incident command system.
  - Demarcate zones and centres.
  - Appoint an Incident Commander.
  - Appoint relevant commanders.
- Standby or activate JIAOC as required.

National Disaster Management Authority

- Implement and execute the relevant parts of NEOP.
- Assess and determine emergency level.
- Standby or activate NEOC as required.
- Notify and convene Disaster Management Council as required.
- Monitor and update situation to higher leadership.
- Keep relevant departments, agencies and organizations informed and notified.
- Risk communication and provide public information.
- Coordinate, support and assist in surge capacity.
- Coordinate with HEOC and/or JIAOC as required.

Maldives Police Service

- Provide first response.
- Provide safety and security for incident site.
- Traffic management and crowd control.
- Monitor and maintain public safety.

Ministry of Health

- Activate HEOC in full or subcomponents based on requirements.
- Implement and execute the relevant parts of HEOP.
- Standby NRRT and/or EMS.
- Monitor and update situation to higher leadership.
- Initiate appropriate MoH response at national or agency level.
- Coordinate and liaise with health sector agencies, private health care organizations and partners.
- Risk communication and provide public information.
- Keep relevant departments, agencies and organizations informed and notified.
- Coordinate, support and assist in surge capacity.
- Coordinate with NEOC and JIAOC.

Health Emergency Operating Centre

- Implement and execute the relevant part of HEOP - MCI response plan.
- Monitor and update situation to higher leadership.
- Initiate appropriate health response at national or agency level.
- Coordinate and liaise with health sector agencies, private health care organizations and partners.
- Coordinate with EMS and maintain open communication.
- Risk communication and provide health information to public.
- Standby NRRT and deploy when required.
- Keep relevant departments, agencies and organizations informed and notified.
- Coordinate, support and assist in surge capacity.
- Coordinate with NEOC and/or JIAOC.

Hospitals and Public Health care facilities in Male'

- Alert respective hospital departments and key personnel.
- Activate Hospital ERP – MCI response SoP.
- Provide emergency disaster medical and triage service.
- Standby HRRT and deploy when required.
- Keep public informed and EMS notified with situation updates.
- Request support and assistance from HEOC when local resources are overwhelmed.
- Provide ambulances when required.

Maldivian red Crescent

- Volunteer management.
- First response and psychosocial support.
- CERT mobilization.
- Provide support in casualty evacuation.
- Provide ambulance when required.

Community Emergency Response Team

- Assist in first response.
- Provide support in casualty evacuation.
- Provide security for triage at incident sites.

Emergency Medical Service/National Ambulance Service

- Activate EMS MCI response SoP.
- Provide paramedics.
- Provide ambulances.
- Provide first response including first aid and triage.
- Provide Triage kit and other necessary tools for triage.
- Provide support in casualty evacuation.
- Coordinate, support and assist in surge capacity.
  - Coordinate with all health care facilities.
  - Determine available medical services and facilities.
  - Guide transporting team in deciding the destination healthcare facilities.
- Coordinate with health response incident manger and update status at HEOC.

EMS response in a MCI

EMS response in a MCI
With the establishment of EMS in the future, EMS will play a pivotal role in the management of MCI. When the call is received to EMS either from HEOC or any other source it will be fed into the CAD system and ambulances dispatched accordingly. Number of ambulances will depend on the magnitude of the incident.

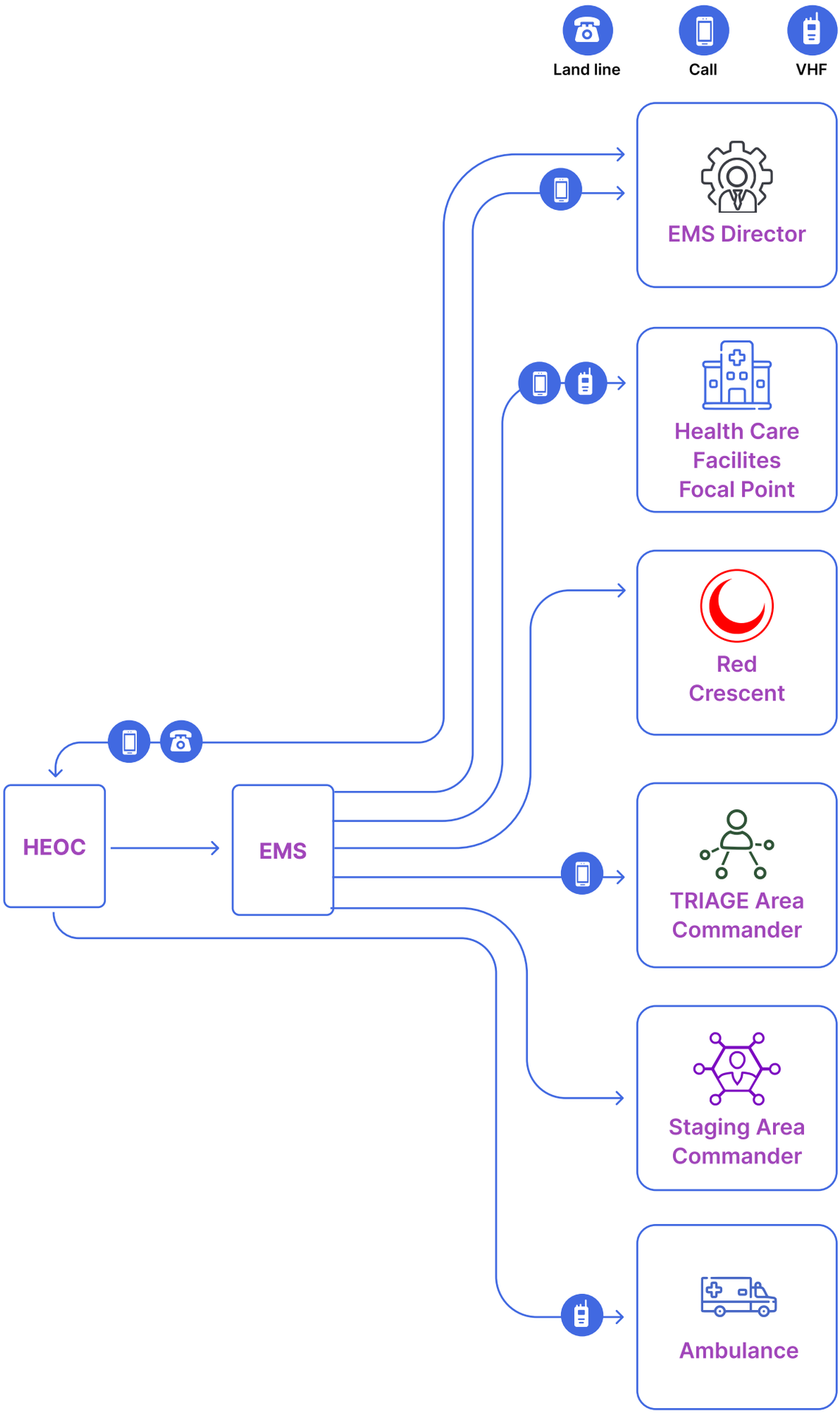
With the increase in number of casualties with potential for an MCI the EMS director will be informed. The job of the EMS director who will be a member of the HEOC will brief HEOC on the status of EMS operation as well as coordinate the EMS operation.

EMS focal point should also get in contact with MRC and facilitate volunteers for first response. EMS should direct the volunteers to the accident site or where even else they may be needed including Healthcare Facilities.

Follow up ambulances should have the necessary triage kits to establish a triage. This would include the triage tags for distribution to the first response agencies.

EMS focal point should be in constant communication with Triage Area commander and Staging Area commander. Triage Area commander would give statistics on the number of casualties.

EMS focal point than should contact all Healthcare facility focal points and log their status and the capacity to take more patients. This should be coordinated with the Staging Area manager on the scene to decide on the transport of causalities to various health care facilities.


Land line
Call
VHF
EMS Director
Health Care Facilites Focal Point
Red Crescent
HEOC
EMS
TRIAGE Area Commander
Staging Area Commander
Ambulance

Field operations in a MCI

Incident command system

The ICS concept was formed in 1968 at a meeting of Fire Chiefs in Southern California. The program reflects the management hierarchy of the US Navy, and at first was used mainly to fight California wildfires.

Studies determined that response problems often related to communication and management deficiencies rather than lack of resources or failure of tactics.

Weaknesses in incident management were often due to:

- Lack of accountability, including unclear chain of command and supervision.
- Poor communication due to both inefficient uses of available communications systems and conflicting codes and terminology.
- Lack of an orderly, systematic planning process.
- No effective predefined way to integrate inter-agency requirements into the management structure and planning process.
- "Freelancing" by individuals within the first response team without direction from a team leader (IC) and those with specialized skills during an incident and without coordination with other first responders
- Lack of knowledge with common terminology during an incident.

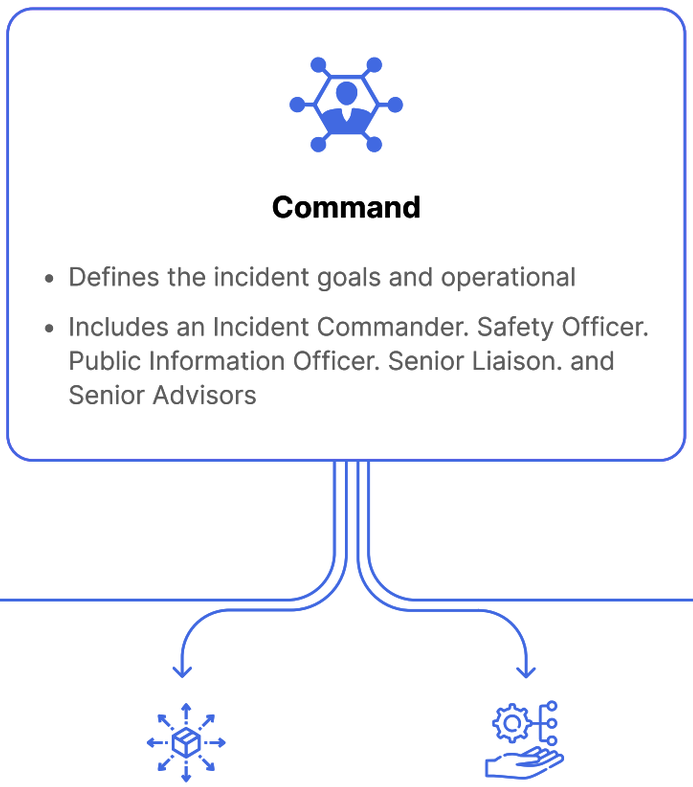
The existing management structures — frequently unique to each agency — did not scale to dealing with massive mutual aid responses involving dozens of distinct agencies and when these various agencies worked together their specific training and procedures clashed. As a result, a new command and control paradigm was needed.

ICS is the model tool for command, control, and coordination of a response and provides a means to coordinate the efforts of individual agencies as they work toward the common goal of stabilizing the incident and protecting life, property, and the environment.

ICS is interdisciplinary and organizationally flexible to meet the following management challenges:

- Meets the needs of a region to cope with incidents of any kind or complexity (i.e., it expands or contracts as needed).
- Allows personnel from a wide variety of agencies to meld rapidly into a common management structure with common terminology.
- Provide logistical and administrative support to operational staff.
- Be cost effective by avoiding duplication of efforts and continuing overhead.
- Provide a unified, centrally authorized emergency organization.

The ICS provides guidance for how to organize assets to respond to an incident and processes to manage the response through its successive stages. All response assets are organized into five functional areas: Command, Operations, Planning, Logistics, and Administration/Finance.



That are certain key concepts of ICS which makes it more effective and universally reproducible for any given situation across a wide variety of incidents. They are:

Unity of command

Each individual participating in the operation reports to only one supervisor. This eliminates the potential for individuals to receive conflicting orders from a variety of supervisors, thus increasing accountability, preventing freelancing, improving the flow of information, helping with the coordination of operational efforts, and enhancing operational safety. This concept is fundamental to the ICS chain of command structure.

Common terminology

Individual response agencies previously developed their protocols separately, and subsequently developed their terminology separately. This can lead to confusion as a word may have a different meaning for each organization.

When different organizations are required to work together, the use of common terminology is an essential element in team cohesion and communications, both internally and with other organizations responding to the incident.

An incident command system promotes the use of a common terminology and has an associated glossary of terms that help bring consistency to position titles, the description of resources and how they can be organized, the type and names of incident facilities, and a host of other subjects. The use of common terminology is most evident in the titles of command roles, such as Incident Commander or Triage commander.

Management by objective

Incidents are managed by aiming towards specific objectives. Objectives are ranked by priority; should be as specific as possible; must be attainable; and if possible, given a working timeframe. Objectives are accomplished by first outlining strategies (general plans of action), then determining appropriate tactics (how the strategy will be executed) for the chosen strategy.

Flexible and modular organization

Incident Command structure is organized in such a way as to expand and contract as needed by the incident scope, resources and hazards. Command is established in a top-down fashion, with the most important and authoritative positions established first. For example, Incident Command is established by the first arriving unit. Only positions that are required at the time should be established. In most cases, very few positions within the command structure will need to be activated.

Span of control

To limit the number of responsibilities and resources being managed by any individual, the ICS requires that any single person's span of control should be between three and seven individuals, with five being ideal.

Coordination

One of the benefits of the ICS is that it allows a way to coordinate a set of organizations who may otherwise work together sporadically. While much training material emphasizes the hierarchical aspects of the ICS, it can also be seen as an inter-organizational network of responders. These network qualities allow the ICS flexibility and expertise of a range of organizations.

Incident Action Plans

Incident action plans (IAPs) ensures cohesion amongst anyone involved toward strictly set goals. These goals are set for specific operational periods. They provide supervisors with direct action plans to communicate incident objectives to both operational and support personnel. Hazardous material incidents (hazmat) must be written, and are prepared by the planning section, but other incident reports can be both verbal and/or written.
The consolidated IAP is a very important component of the ICS that reduces freelancing and ensures a coordinated response. At the simplest level, all incident action plans must have four elements:

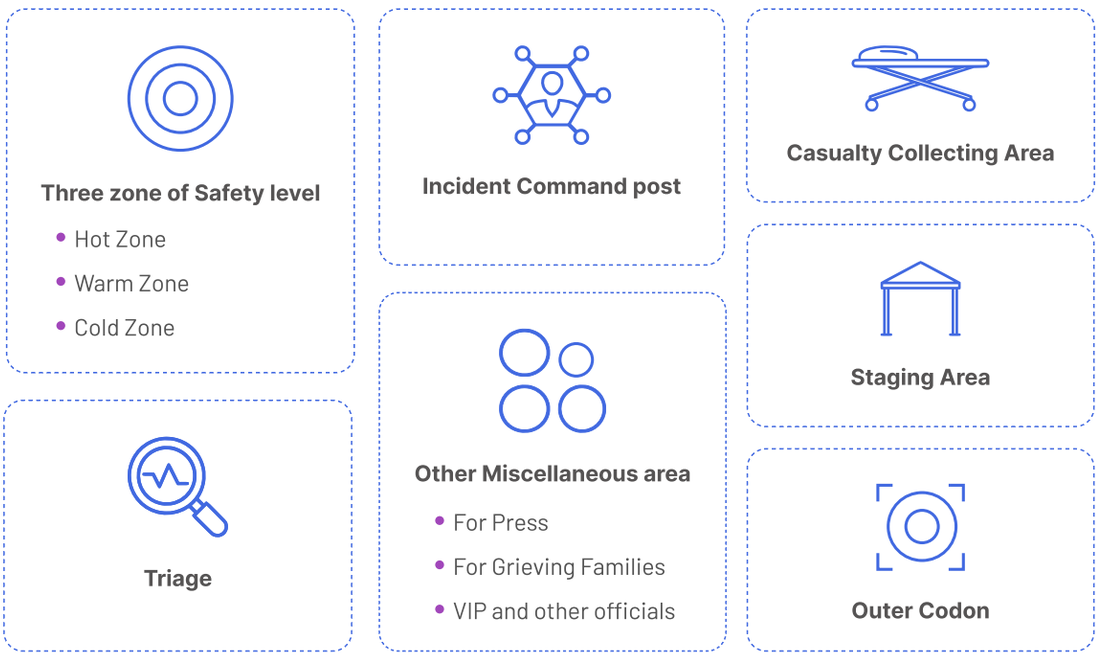
- What do we want to do?
- Who is responsible for doing it?
- How do we communicate with each other?
- What is the procedure if someone is injured?

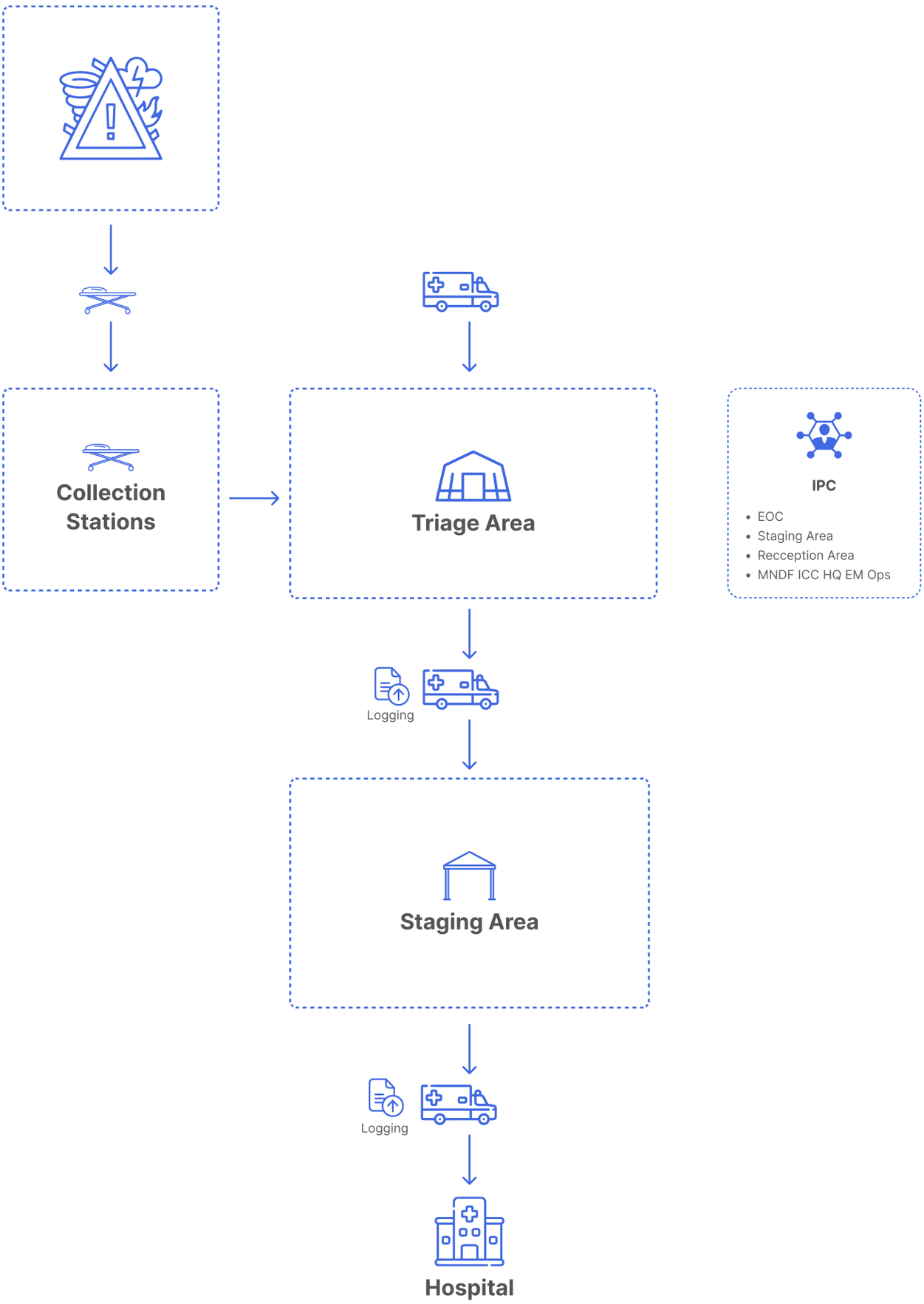
The content of the IAP is organized by a number of standardized ICS forms that allow for accurate and precise documentation of an incident.

For ICS to be effective, the incident must be formally defined so that there is clarity and consistency as to what is being managed. This may be best accomplished by defining the incident response through delineation of response goals and objectives, and by explaining response parameters through an Incident Action Plan (IAP)—the primary documentation that is produced by the incident action planning process.

It requires that all parties to be well versed with the flow of patients as well as the establishment of different point and their role in it.

Areas to be established in the field.




Collection Stations
Triage Area
IPC
• EOC
• Staging Area
• Recception Area
• MNDF ICC HQ EM Ops
Logging
Staging Area
Logging
Hospital

Flow of patients in the incident site

COMMAND POST

TRAIAGE AREA
Two persons monitoring and tagging 90 m upwind

COLLECTING AREA

Care Area

PRIORITY III
And uninjured (Aircraft Operator monitoring)

PRIORITY II

PRIORITY I

TRANSPORTATION AREA

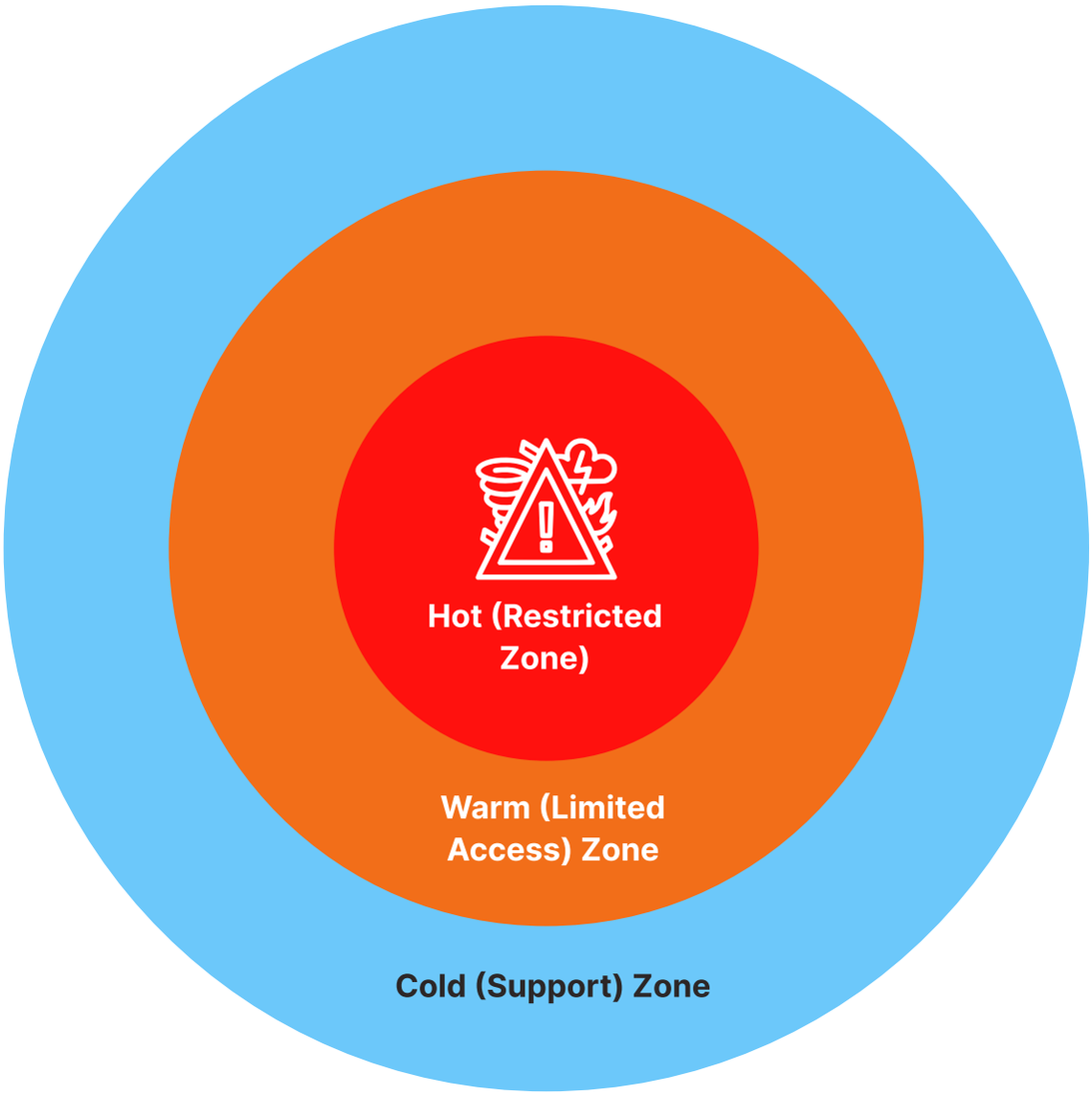
TO HOLDING AREA

AMBULANCE AREA

Zones of Incident Site

Zones of care are the term used in the prehospital setting to delineate locations that require different levels of care and/or safety. Operationally speaking these zones help define the personnel and equipment that can and should be used depending on the type of incident. The zones are divided based on colors or names.

Zones of care are dynamic and fluid. Each zone has its inherent risks, equipment, and requirements for personal protective equipment. Responders must also take into account the effects of weather and how this can alter the zones of care in real-time. The environment can be chaotic and messy, which can lead to further injury to the provider or patient. Safety is paramount and the goal is to effectively transition the patients from the location of potential harm to definitive care.



Hot Zone

Area where the operation is being conducted. Also called the Impact Zone
Only trained personnel who are performing rescue operations and wearing appropriate clothing and suiting is allowed inside hot zone.

This zone poses the highest risk to life, and limited care should be provided in this environment.

In an environment of active on-going fire. Only the quickest and most necessary life-saving treatments should be employed to limit caregiver and patient risk. The only medical treatment that should be administered in this zone is essential hemorrhage control, such as the application of direct wound pressure or a tourniquet.

Preventing further injury is one of the top priorities within the hot zone when care is being rendered. Personnel providing care in this location need to be mobile, steady on their feet, and should carry limited equipment to prevent the hindering of mobility.

Warm Zone

The second zone of care, yellow zone, or warm zone is where tactical field care takes place. It is the zone immediately outside the warm zone. This is a zone that is less dangerous than the hot zone but is still not completely safe. This zone is dynamic in nature and depends on the location of the threat, the mobility of the threat, and the mobility of the patient.

In warm zone, additional hemorrhage control with tourniquets and/or hemostatic agents continues. While attempts at hemorrhage control are may be started in the hot zone, further treatments are limited to the tactical field care zone and green zone to ensure the safety of the provider and patient. Basic airway maneuvers (chin lift, nasal airway) are easy to provide, require no equipment, and can be life-saving.

Access to this zone must be limited to people aiding in the rescue process.

Cold zone

The third and safest zone is the green zone or cold zone. Basic emergency management services can be performed in this location. The cold or green zone is outside of the immediate danger area and transportation is usually available. There is no immediate danger to the provider or patient. As with any point during the transition of patients from the hot zone to the cold zone, continued care and reassessment are the keys to ensuring patient safety and optimal care. Tourniquets should be re-examined to ensure they have not loosened or moved.

In this zone depending on the casualty, resources and the transport available triage will be done.

Incident Command Post

An Incident Command Point (ICP) is generally a fixed location that is identifiable and accessible from which Incident Commander operates and provides operational resource command, incident information collection, situational awareness.

Establishing an ICP:

If the incident is of a size or complexity that it requires a fixed location for command to be undertaken and a number of firefighting appliances or personnel attending an incident would be better managed by the establishment of an ICP.

The Incident Controller or Operations Officer will organize the establishment of an ICP.

Staffing an ICP

Staffing levels and requirements are at the discretion of the Incident Commander. Normally these personnel will be from MNDF and experienced members from any Service can be appointed to the roles at ICP.

Location of ICP

The Incident Controller or Operations Officer determines the most appropriate location for the ICP but normally would be a point close to the impact zone but outside the hot zone and would have easy access and communication.

Casualty Collecting Area

Established just outside the warm zone. This is where the rescue workers leave the injured victims which they carry from the warm and hot zone. Usually there should be commander either from MNDF or HEOC to coordinate activities. This is where they will be collected before triaged into different urgency levels. Triage starts here.

Staging Area

A staging area is established for any incident where there may be a significant number of units attending, access is difficult, safety considerations, complexity of incident or where there is to be a changeover of crews. It is a designated area for personnel, vehicles and equipment to prepare for their assignment at an incident. Off-going crews also muster at the staging area before leaving.

Establishing a staging area

Incident Commander will determine where and when a staging area is to be activated and when it is to be deactivated. The decision to activate the staging area must be made early so that there is time for it to be ready to support operations as units arrive at the incident.

Functions of a staging area

The functions undertaken at a staging area include:

- logging the names and call signs of all attending crews
- logging the types and call signs of attending vehicles and the institution they belong to
- logging the names of crews and vehicles departing the incident
    - maintaining information on briefing incoming crews
    - maintaining communications contact with units en-route from the staging area to their assignment.
- Identifying an area that is separate but close to the Staging Area for catering, ablutions, and other welfare services,

Staging area location

Because of terrain features, the choice of a reasonable staging area may be restricted. When selecting the location for a staging area, consider:

- Accessibility
- Safety
- Size

Choose an area that is relatively close to and up wind of the incident; near to the heel of the fire is often a suitable site. The likelihood of it being at risk from the incident should be minimized. The area should be able to be easily relocated on short notice if it comes under threat from the fire.

This will depend on the number of units expected to use it, including both incoming and departing crews. The staging area may need to expand to accommodate additional units if the fire escalates.

The location must be able to support the communications arrangements.

Managing a staging area Managing a staging area

When a staging area is established, a Staging Area Manager will be designated. The Staging Area Manager is responsible has the authority and responsibility for the proper functioning of the staging area functions.

The Staging Area Manager will usually be an officer from the MNDF though an experienced member from any Service can be appointed to this role.
The Staging Area Manager must wear vest to always identify himself as "Staging Area Manager".

Triage and triage area

Once there is an over whelming number of patients who need to be attended, we are faced with the difficult choice of deciding who to attend first. Thus, we need a way to sort them out. The word triage meaning to "to sort" is referred to the process of sorting out priorities and who to attend in times of limited resources with mass casualties.

By using a casualty sorting system, you are focusing your activities in the middle of a chaotic and confusing environment. You must identify and separate patients rapidly, according to the severity of their injuries and their need for treatment.

Triage provides a way to draw organization out of chaos and helps to get care to those who need it and will benefit from it the most, and in resource allocation. It slow provides an objective framework for stressful and emotional decisions.

An ideas triage system should be simple with no requirement for advanced skills and thus does not rely on specific diagnosis and should be easy to do, learn and teach and must be rapid.

There are many Triage systems but perhaps the most common and most effective and more importantly practiced in the Maldives in the START triage system. It achieves all the above-mentioned conditions.

One of the important element of triage system apart from the triage protocol is the sue of Triage Tags. There are many internationally accepted Triage Tags. Different organizations in Maldives have been using different tags at different exercises, these needs to be standardized and similar Tags procured by all agencies, perhaps centrally by the NDMA.

Usually is accepted that protocol that patients are sorted and colour coded as per priority and tagged.

BLACK	RED	YELLOW	GREEN
(Deceased/expectant) injuries incompatible with life or without spontaneous respiration; should not be moved forward to the collection point	(Immediate) severe injuries but high potential for survival with treatment; taken to collection point first	(Delayed) serious injuries but not immediately life-threatening	(Walking wounded) minor injuries

Simple triage and rapid transport method (START)

There is no perfect triage system, but one of the methods available to us is the START (Simple Triage and Rapid Transport) method. START was developed in 1983 by the Newport Beach (Calif.) Fire Department and Hoag Hospital in Newport Beach, California. It is designed to identify problems that could cause death to the patient within one hour, typically breathing problems, head injury or significant bleeding.

The START system was developed to allow first responders to triage multiple victims in 30 seconds or less, based on three primary observations: Respiration, Perfusion, and Mental Status (RPM). The START system is designed to assist rescuers to find the most seriously injured patients. As more rescue personnel arrive on the scene, the patients will be re-triaged for further evaluation, treatment, stabilization, and transportation. This system allows first responders to open blocked airways and stop severe bleeding quickly.

In a MCI the first step of START is carried out by the first responders (either MNDF or Police). EMS personnel does not enter the red or warm zone for tirage unless accompanied by the authorized personnel. EMS and supporting healthcare personnel are responsible to carryout triage from the second step of START.

The First Step in START: Get up and Walk!

Direct the walking wounded to casualty collection points.

The first step in triage is to clear out the minor injuries and those with low likelihood of death in the immediate future. The best way to do this is to direct in a loud voice (with public address or loudspeaker assistance) for anyone that is injured and needs medical assistance to move to a designated area, a casualty collection point. The walking wounded patients are initially tagged as "green" or "minor." While it is possible that these patients may have serious injuries, if they are able to listen, understand directions and get up and walk on their own to a casualty collection point, the chances of them dying in the next hour is low. As soon as enough medical resources arrive on location, the "green" or "minor" injury patients will need to be re-triaged to look for more serious conditions.

Assess remaining patients

The Second Step in START: Begin Where You Stand

The remaining victims fall into a few categories. They are either:

- Unable to understand your directions; they may speak another language, they may be deaf, or they have an altered mental status affecting their ability to understand.
- Unable to move due to injury.
- Unconscious
- Dead or expectant.

REMEMBER: Your job is to find and tag the patients —those who require immediate attention. Examine each patient, correct life-threatening airways and breathing problems, tag the patient with a tag and MOVE ON!

How to evaluate patients using RPM

The START system is based on three observations: RPM—Respiration, Perfusion and Mental Status. Each patient must be evaluated quickly, in a systematic manner, starting with Respiration (breathing)

Assess respirations

To determine which triage category these patients fall under, we begin by assessing the respirations of the remaining victims. If they are not breathing, we can reposition their airway, but if breathing does not begin spontaneously, the victim is tagged as "deceased."

Many EMS providers actually prefer the designation "expectant," which is often used by the military. Initially, if the number of victims largely outnumbers medical staff, it is reasonable to not waste resources on someone in respiratory arrest when other victims may benefit from our actions and be more likely to survive. However, if a few minutes later a large number of medical providers arrive on scene, this "black tagged" victim may be able to receive immediate care.

This is how the triage process is so dynamic — it depends on resources. If the patient does start breathing after the airway is repositioned, you can place an oral airway, tag them as "immediate" and move on.

If the patient is breathing, and breathing over 30 times per minute, they are tagged "red" or "immediate." If their respiratory rate is fast, they may be in shock, or be in respiratory distress.

Assess perfusion

If they are breathing less than 30 times per minute, the next step is to assess the perfusion or circulation status. This can be done in one of two ways: radial pulse or capillary refill. The problem with capillary refill is that it is largely affected by the environment. A cold night will cause everyone's capillary refill to be delayed, so the presence of a radial pulse can be used instead. The rate does not matter — just its presence or absence of the pulse.

If the radial pulse is absent, the patient is tagged "immediate." We can assume they have one since this patient is breathing, which would not occur for very long if they had no heartbeat at all.

Control any external life-threatening bleeding. A commercial tourniquet can be placed quickly so you can move on to the next victim.

Assess mental status

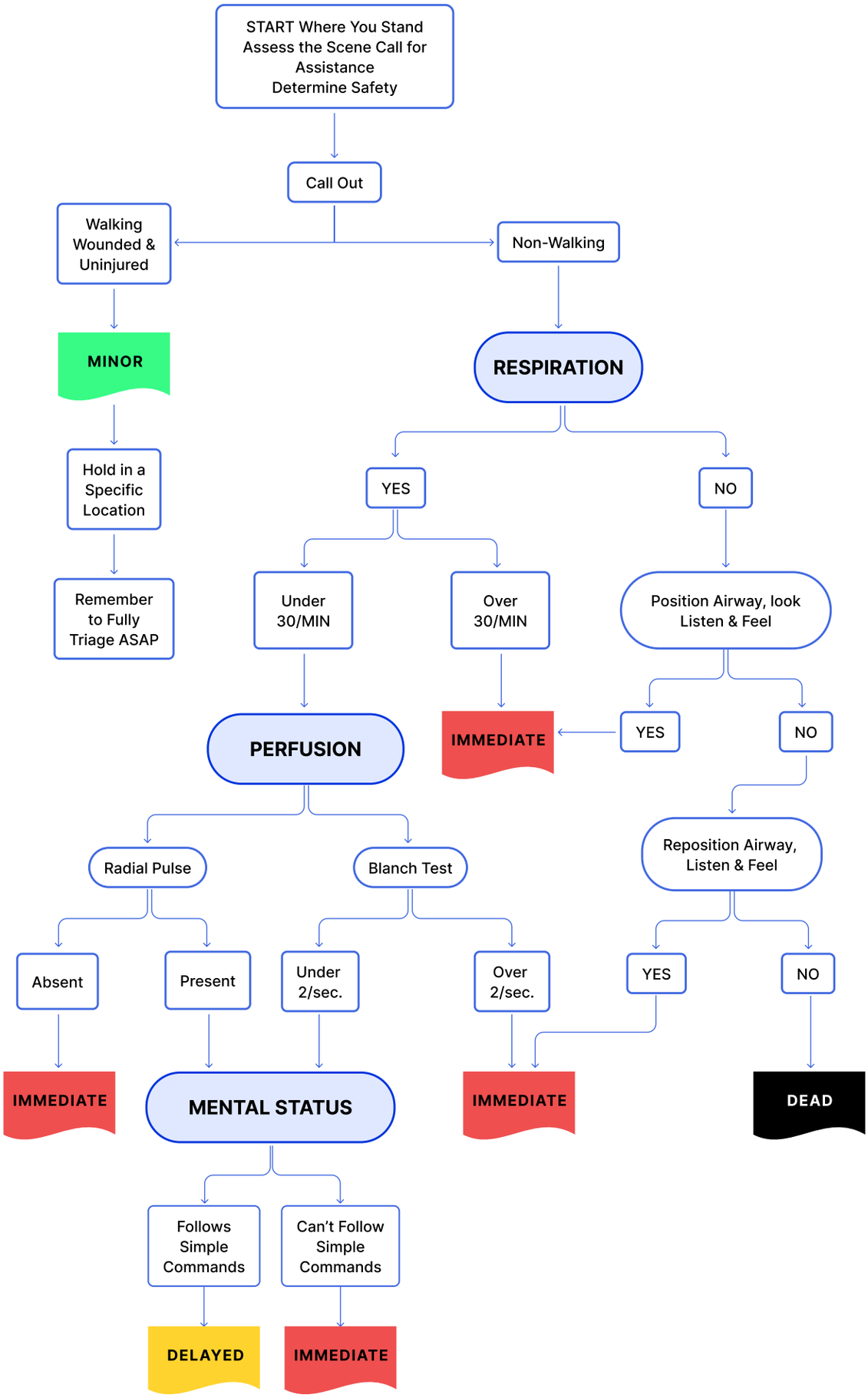
If the radial pulse is present, the last criterion to evaluate is mental status. A patient with normal mental status is tagged as "yellow" or "delayed." These victims often are unable to move due to lower extremity injuries or other conditions that prevented them from moving to the "green" section. If they do have confusion or altered mental status, then they are tagged "immediate," as they may have a head injury or other condition that is causing the abnormal level of consciousness.

Patient tracking

The START system ends up triaging the majority of these patients as "red" or "immediate" rather than "yellow." It is understandable, and to some degree desirable to over-triage in order to make sure we do not miss any serious conditions. Remember to keep track of how many of each patient you have triaged.
As you can see by the above, the amount of equipment that needs to be carried around during triage is minimal — triage tags, oral airways, tourniquets and a method to count the patients triaged.

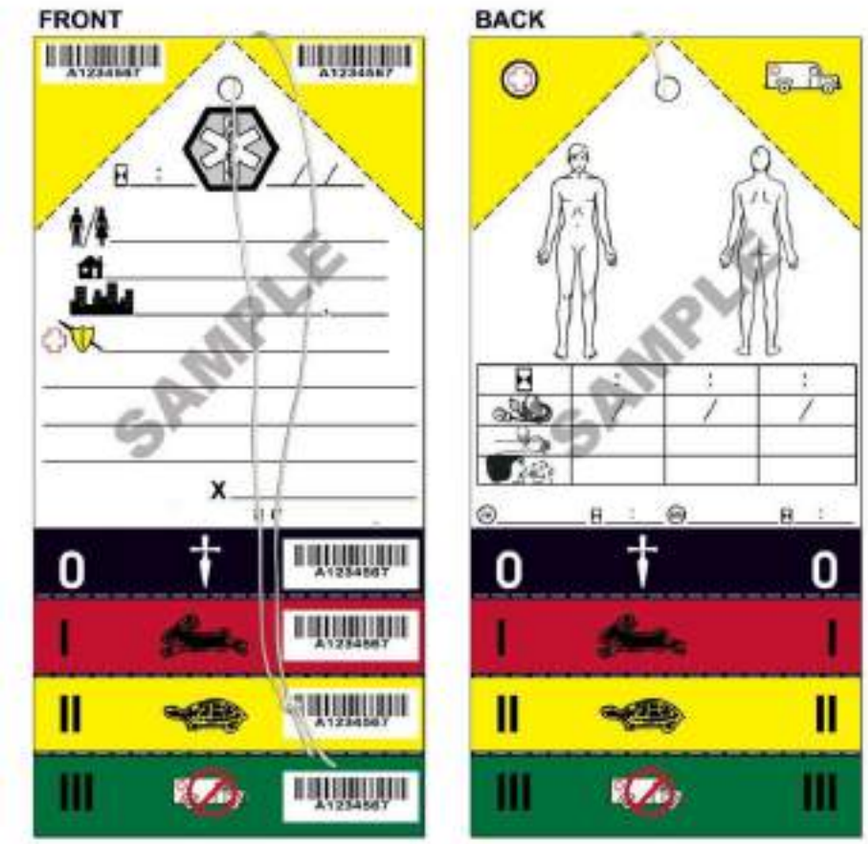
Once you have triaged the patients, treatment can begin on the most serious victims.

START - Simple Triage and Rapid Treatment



Triage tags

While there are many internationally accepted triage tags, the most important thing is for it to be uniform in a set surrounding. Triage tags should be procured prior to the incident and should be carried to the site by EMS personnel. Ideal triage tag should be universally accepted, easy to read, rapidly tagged and easily re-triaged by changing the tag colour.



The above traige tag was passed for use in the stake hoders meeting. It has perforated coloured potions which can be tored away for retraiging, bar code for identification if necessary and diagrams to write the status of the incident.

Triage kit

Triage kits are essential to organizing the scene of a disaster. From natural disasters to major car accidents, to fires, and more, a triage kit will help first responders to keep order among the chaos, prioritize the needs of survivors, and get to work administering life-saving aid. It is especially useful in MCIs. For it to be effective there should be a unform triage kit recognizable to all the organizations involved. EMS need to procure uniform tags and pre distribute it to the first responsible organizations. The Triage kit should contain triage tags and identification vests for key members.

Triage log:

Triage logs form an important part of the triage kit. It is important to keep a full record so that each and every individual is accounted for. Triage manager is responsible for keeping the log.

Type of Emergency:

Triage Log Form

	Priority				Area.Evaquated				Details
	Top Priority	2nd Priority	W.Wounded	Dead	CCS	W.W Area	Hospital	Time Out	
P.No									
P 1									
P 2									
P 3									
P 4									
P 5									
P 6									
P 7									
P 8									
P 9									

Ministry of Health
Republic of Maldives

ADB

Japan
Fund for
Poverty
Reduction

From
the People of Japan

World Health
Organization
Maldives