MASS CASUALTY PLAN GUIDELINES – And specifities in case of a CBRN incident

MSF OCP Med Dpt 2022

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MEDECINS SANS FRONTIERES

MASS CASUALTY PLAN GUIDELINES – And specifities in case or a CBRN incident.

DEFINITION AND IMPLEMENTATION

These guidelines are intended for use by health care facilities with an Emergency Department, but may be adapted to any type of facility. Its aim is to help with developing and writing a specific Mass Casualty Plan for each MSF health care facility.

In the event of an arrival of Chemical Biological Radiological or Nuclear contaminated patients (CBRN patients) the basic principles of the MCP are the same as usual.

What will differ is the necessity to protect your staff from secondary contamination, protect your structure form CBRN dissemination and avoid external contamination to become internal contamination. All this will be accomplished by Decontaminating the patients before they enter your treatment areas, with the help of staff wearing Personal Protective Equipment (PPE). Once decontaminated, CBRN patients become regular patients and staff taking care of them DO NOT NEED any specific CPRN PPE.

Mass casualty incident (MCI):

Any event resulting in an influx of patients (surgical or medical, adults and children) large enough to disrupt the normal course of activity in the health care facility involved.

Any number of CBRN contamimated patient(s) is enough to launch the decontamination process. Only above a certain threshold of any patient should he whole Mass Casualty Plan be launched.

Mass Casualty Plan (MCP):

The plan that is going to make the health care facility involved in a MCI able to deal with this MCI. Routine activity organization is traded for a specific MCI organization. The MCP's key element is MCI TRIAGE.

Triage of contaminated patients before decontamination is only to assure that the most severe gets decontaminated first, not for treating the patient before decontamination.

The plan may be activated in response to the mass influx itself, or to information from a witness or government official about an impending influx (explosion, accident, etc.).

Every health care facility should have it's own MCP written down and have it's staff trained and re trained to it's MCP.

This term replaces the previously-used white plan, red plan, etc.

MCI Triage:

In case of a MCI, the routine triage of the ER has to be traded for a more rapid and simpler triage system, allowing all victims to be quickly and efficiently categorized and sent to the appropriate treatment zones or structures. MCI Triage is essential to sort out the patients according to the severity of their condition, to the nature of the wounds, and to the available resources.

MCI triage applies in the same way to any CBRN patient once decontaminated.

All Emergency Department personnel should acquaint themselves with these procedures when they assume their post, and stay current with subsequent updates. ***The Medical Coordinator*** is responsible for ensuring that procedures, and related listings, are kept up to date.

Problems encountered by the health structure facing a MCI :

1-Lack of space
2-Lack of material
3-Lack of human resources

Solutions the MCP has to bring:

Empty the hospital.
Close the hospital (all access but one, and separate from exit).
TRIAGE +++
Setup the MCP setup (as prepared, with predefined material and drugs).
Call back staff.
In case of CBRN mass casualty, in addition to the above solutions, you will have to set up the decontamination chain (if it is not permenant) and activate it.

TO WRITE A MCP : ANSWER EACH OF THE FOLLOWING QUESTIONS

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1- What type of MCI might the health structure have to deal with?

Asses what type of risk is must probable but keep in mind a "All hazard applicability"

Fighting: GSW, shrapnels, Haemorrhagic shock, burns…
Natural disaster : Crush syndromes, dehydration, poly trauma…
Refugee camp in winter : Burns
Road Traffic Accidents : Poly trauma, haemorrhagic shock…

Biological hazard, Chemical exposure, Radiological or Nucear incident

Other…

2- Above what number of patients arriving at the same time at the health structure, will the organisation for routine activity be overwhelmed?

According to your usual flow of patients and of your regular staff, imagine that number.
Note that a massive influx of patients might arrive at your door for 2 reasons :

- *A large number of non urgent patients arrive together (they took the same one and only bus, it's just a coincidence…) for non urgent consultations.*
- *A MCI just occurred nearby.*

In the first case, all you have to adapt is your triage tool, in order to rapidly assess if among these non urgent patients, non are truly urgent. In the second case, the MCP in total, will have to be declared in order to be able to deal with many severe patients.

Any number of CBRN contamimated patient(s) is enough to launch the decontamination process. Only above a certain threshold of CBRN patients, (that you have to evaluate, but should correspond to the number you chose to declare an MCP outside a CBRN incident) should the whole Mass Casualty Plan be activated.

3- Who declares the MCP ?

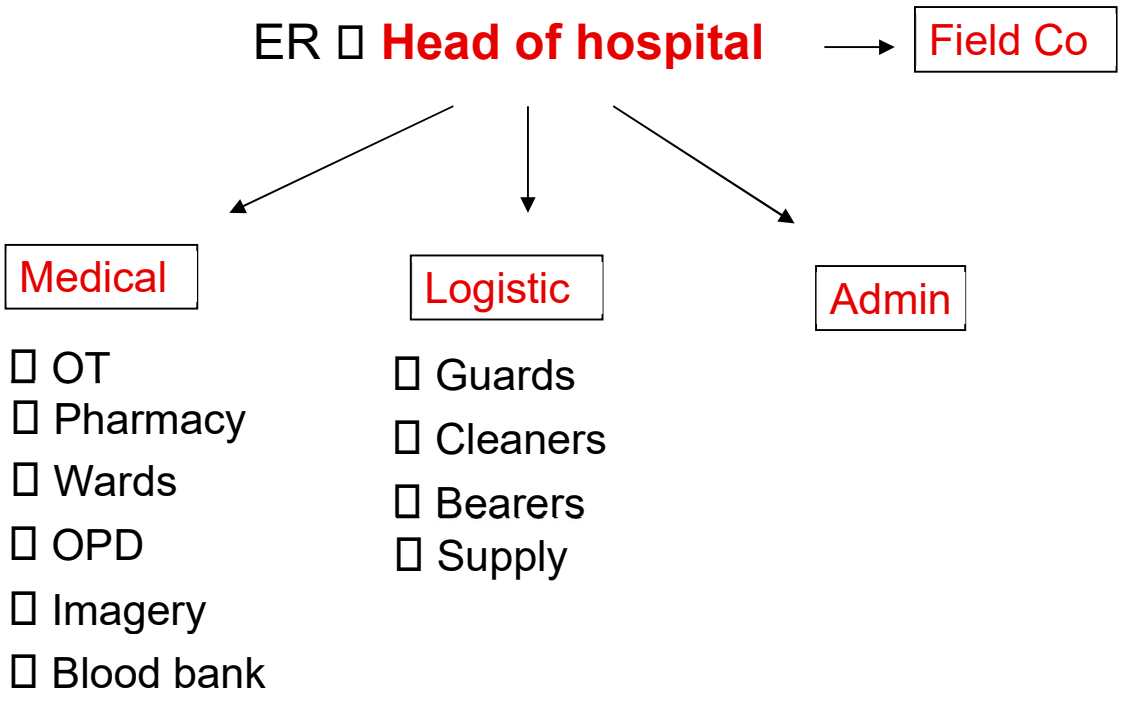
The head of hospital, on suggestion made by the physician at the entrance of the hospital, (most often, **the ER physician on duty**)
The ER nurses at triage must alert the ER physician if they notice an important influx of patients, or if they have knowledge that a potential MCI just occurred.

If information arrives on a potential CBRN incident, the decontamination chain should be set up and activated.

4- Who spreads the news and to whom ?

The Head of Hospital (who becomes the MCI coordinator) makes sure everyone in the hospital knows that the MCP is activated, and stays in relation with all other coordinators.
How the Head of Hospital is going to communicate the MCP's activation to the rest of the hospital has to be thought up !!

A specific line of communication has to exist for the decontamination team to be alerted they have to set up and activate the decontamination chain in case of a CBRN incident.



These coordination functions must be predefined with names, and all the staff should be aware of who is behind these coordination functions.

5- Who EMPTIES THE HOSPITAL and how ?

ER nurse and physician get all the non urgent patients, and all relatives out of the ER.
Surgeon and OT nurse delay any non urgent surgery.
Ward physician and nurse discharge all dischargeable patients, and get all relatives to leave.

OPD nurse and physician tell all OPD patients to come back later

These roles should be predefined, not with names, but with functions.

In case of a CBRN incident, if the number of patients implicated is below the decided threshold, there is no need to launch the MCPlan but there is the need to set up and activate the decontamination chain.

6- Who CLOSES THE HOSPITAL and how ?

The guards on duty, as soon as they know the MCP is declared, **close all access to the hospital but the one predefined**. The one access left open should be :

- at the entrance of the ER,
- accessible by ambulances,
- separate from the one exit left open.

Once the MCP is declared, no relatives should be allowed inside, in order to preserve the space in the hospital and avoid panic and confusion inside the hospital. It is a very difficult and very important task !
Put at least 2 persons with diplomatic skills and known by the population. They should continuously explain that in order to properly take care of the patients, the hospital has to remain not crowded. Of course, weapons are forbidden inside, but of course a weapon pointed to the guards head makes the gun holder go in…
A waiting area outside the hospital should be pre established, where the relatives can sit and regularly be informed of he general situation.

These roles should be predefined, not with names, but with functions.

If the information that CBRN contaminated patients are coming to your facility arrives before the patients, and whether the number of expected patients makes this event a Mass Casualty one or not, the guards at the entrance should wear CBRN PPE.

7- How to organise MCI TRIAGE ?

(for more theoretical information concerning triage, refer to the Guideline for MCI Triage in the ER tool box)

INTRODUCTION :

"Do the best for the most and not everything for every one"

The idea is to **take care in priority of the most serious patients who have a chance to survive if taken care of, immediately, and none if not** (categorized as **RED** patients).

In case of a CBRN Mass Casualty Incident, these most serious and savable patients will be decontaminated first in order to be rapidly treated afterwards.

Proportion of RED cases is usually only around 5 to 10%...

The difficulty is to **not be overwhelmed by non urgent cases** (categorized as **GREEN** patients) who can be very loud patients but who do not require immediate or post immediate care; **nor by patients already dead or with no chance of survival even with the best medical care available** (categorized as **BLUE** patients).

Patients who require post immediate care, within one hour, are categorized as **YELLOW** patients.

(See annex 1 for MCI triage protocol.)

Categorizing patients as BLUE is emotionally extremely difficult, but is the key to save the savable patients (RED and YELLOW cases)

MCI Triage is a dynamic process. All patients should be frequently re-assessed while waiting for the doctor.

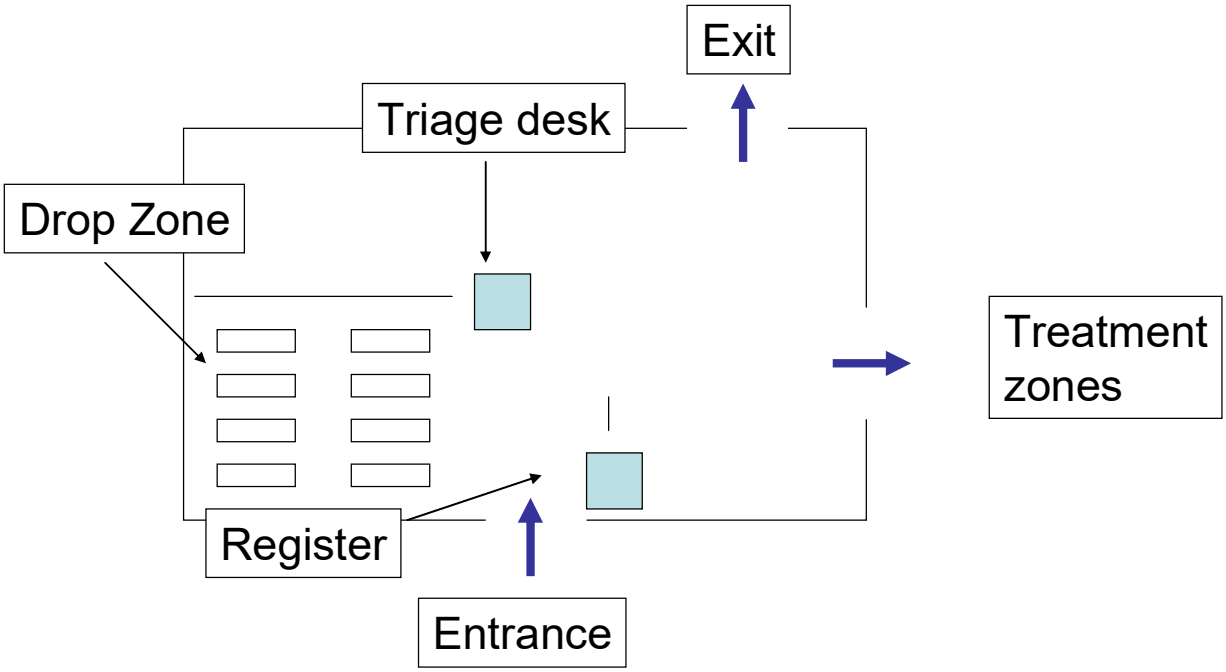
Make sure that patients coming to the ER, who are not involved in the MCI, are triaged as well, according to the MCI triage system !!

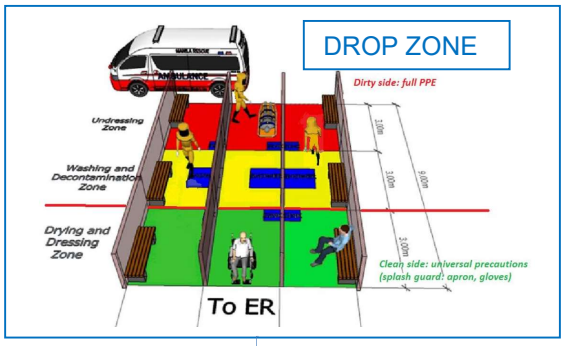
TRIAGE SETUP

Ideally, the triage zone is located in front of the entrance of the Emergency Department.

The triage zone is divided into two sections:

- **Pre-triage waiting area or DROP ZONE**: patients not yet seen by triage.
- **Registration area**: desk + chair.





In case of a CBRN Mass Casualty Incident, you will setup and activate your decontamination area in front of your hospital, before the ER and it's regular drop zone. You will install a dedicated CBRN drop zone before the decontamination area.

The space for triage should be big enough to accommodate a large number of victims and leave enough room for the staff to move about and work.

The floor should be washable; the zone should be protected from sun and rain, and have lighting at all times.

Minimum personnel required at TRIAGE ZONE:

- One doctor (or Nurse) for triage, whose decisions are final
- One secretary for registering the patient and creating a **Triage Tag** (see Annex 2) that should follow the patient all along the way.
- One nurse for first aid
- One maintenance/hygiene person
- Stretcher bearers

In addition of the above, in case of a CBRN Mass Casualty Incident and for the decontamination chain that will be set up before the "clean triage zone" you need:

- 2 guards in PPE,
- In the drop zone : 2 medical Staff in PPE (for dry deconta and triage)
- In a valid decontamination corridor : 1 to 2 staff in PPE (for the undressing and shower zones) and one staff in **not wearing** CBRN PPE (for the clean dressing zone)
- In a non valid decontamination corridor : 4 staffs in PPE (2 in the undressing zone and 2 in the shower zone) , and 2 staffs **not wearing** CBRN PPE in the clean dressing zone)

These roles should be predefined, not with names, but with functions.

Minimum material required at TRIAGE ZONE :

At the drop zone :

strechers, chairs, dressings, splints, ambu bag, 2 pair of cisors for cutting clothes, ready to use Triage Tags.

At the registration area :

A chair, a table, a register book, 5 pen, 2 permanent markers, MCP Triage tags ready to use, a watch (to measure the respiration rate and note the time)

For the decontamination chain, please refer to the "EMACC interim guidance to chemical exposure". But in a nut shell you will need : Dry decontamination material, cissors, big waste bags, small plastic bags for precious personal belongings, 2 decontamination corridors, both with an undressing zone, a warm shower zone, and a clean drying and dressing zone (with clean cloths or scrubs), 2 stretchers for the non valid decontamination corridor. You will also need 10 full PPE sets for the staff that will operate the first hour of decontamination.

Material needed has to be listed, prepared and stocked in an easy access area, close to where the MCI Triage zone is to be setup.

Each patient should:

CBRN patients should be seen by full PPE triage staff before the deconta chain, in order to decide who goes in deconta first, and once out of the deconta, consider them like any other MCI patient :

- be seen by the special triage team;
- have a numbered triage tag *(see annex 2)* with his triage colour filled in;
- be registered by the secretary (specific MCI register or usual register);
- be seen by the doctor (or nurse), who will assess severity according to the MCI triage tool *(see annex 1)* and place the patient in the appropriate category;
- be sent to the zone corresponding to his category.

Red patients should be taken immediately to the treatment zone,
Yellow patients should be transferred to the yellow zone and closely monitored by a dedicated nurse, while waiting for an availbale doctor.
Green should be moved as quickly as possible to an outpatient consultation area where they can be treated. If necessary, they can be sent to a waiting area for able-bodied patients.
BLUE patients are taken as soon as possible (depending on the flow of “red” patients) to the blue zone.

TRIAGE PROTOCOL FOR MCI (annex 1)

In order to accomplish it’s main goal, (maximize the number of lives saved) a MCI Triage tool has to integrate three components :
1-Patients general condition,
2- Patient’s type of injuries and symptoms
3-Available resources.

The MSF protocol for triage in case of a MCI is based on a very rapid evaluation of the patient’s vital functions (mobility, respiration, pulse and consciousness) but also considers available resources and the injuries or symptoms’ severity. It is rapid and efficient and is specifically designed for MCI.
For MCI triage tool : see Annex 1
See, print, read, learn, teach, prepare a plastified version of, and teach again Annex 1 MCI Triage tool

8- How to SETUP THE DIFFERENT TREATMENT ZONES ?

The different treatment zones (red, yellow, green and black) have to be physically identified in your MCP.

Material and drugs needed for each treatment zone have to be listed, prepared and stocked in an easy access area, close to where the corresponding treatment zone is to be setup. The list should be regularly checked during routine activity.

- RED ZONE : For absolutely urgent cases.

ROLE : Stabilisation – full examination – diagnosis – transfer to OT or refer to wards or other hospital.

Who sets it up : *predefined personnel (nurse, log, bearers…)*

Where : Ideally in the ER's shock treatment area, and near the OT

What :

- Stretchers, gloves, antiseptics – Monitoring - Trash bins.
- O2 – AMBU bags – Chest tube kits – Intubation kits
- IV lines – Fluids +++
- Dressings – splints – urinary catheters
- ATB – painkillers – resuscitation drugs – antitetanos vaccine and Ig

Personnel for Red Zone : one emergency physician (or, failing that, an anaesthesiologist), one nurse, one cleaner. ***Predefined personnel. Not with a name, but with a function (ER physician on duty is a good option)***

- YELLOW ZONE : For relatively urgent cases :

ROLE : Monitor++ and prevent deterioration while waiting for complete examination. Then : Diagnosis, treatment/stabilize, and refer to OT or wards or other hospital.

Who sets it up : *predefined personnel (nurse, log, bearers…)*

Where : Ideally in the ER's examination area.

What :

- Stretchers, gloves, antiseptics – Monitoring +++ - Trash bins.
- (O2 ?) – IV lines – Fluids +
- Dressings – splints
- ATB – painkillers – resuscitation drugs – antitetanos vaccine and Ig

Personnel for yellow Zone : Nurse + Cleaner +emergency physician (or, failing that, an anaesthesiologist), immediately if one is available, OR after red patients are stabilized. ***Predefined personnel. Not with a name, but with a function.***

- GREEN ZONE : For non urgent cases :

ROLE : Monitor and small procedures, discharge and asked to come back later if needed

Who sets it up : *predefined personnel (nurse, log, bearers…)*

Where : Whenever possible, "green" patients should be sent for outpatient care. If there is no outpatient care within the hospital, an area should be improvised away from the triage and treatment zones.

What :

- Chairs, gloves, antiseptics – Monitoring, trash bins.
- Dressings – splints - stiches
- Oral painkillers – antitetanos vaccine and Ig.

Personnel for green Zone : Nurse + Cleaner + emergency physician (or, failing that, an anaesthesiologist), immediately if one is available, OR after red and yellow patients are stabilized. ***Predefined personnel. Not with a name, but with a function.***

- BLUE ZONE : For dying patients :

ROLE : Support the dying, pain management, comfort companions. This is the only zone where relatives are allowed. Explanations must be regularly given to the companions and to the patients +++

Who sets it up : *predefine personnel (nurse, log, bearers…)*

Where : Away from triage and other treatment zones. IT IS NOT THE MORGUE.

What :

- Chairs, stretchers, gloves, antiseptics, trash bins.
- Dressings – splints - stiches
- IV lines - Morphine – BZD.

Personnel for Blue Zone : Nurse. ***Predefined personnel. Not with a name, but with a function.***

EXIT :

Install a discharge register at the exit gate.

Whether patients leave for OPD or to go home or are refered, at minimum, their Triage number, name and final destination have to be written on the exit register. The triage tag is part of the patients medical file, so, unless the patient is transferred, his triage tag should be collected when he leaves the hospital.

Operating room :
All scheduled surgeries are cancelled, and the operating room should go into **"damage control" mode.**
The surgical team must be able to turn patients over more quickly. Surgeries should be limited to stopping any bleeding, leaving reconstructive surgery for later. All patients should be reassessed as soon as possible after the MCI plan ends.

Pharmacy, sterilisation, laboratory and blood bank :
These facilities must be capable of responding immediately to all urgent needs, and therefore must be involved in the writing of the MCP.
The blood bank should be capable of supplying a greater number of packed cell units for transfusion, then during routine activity. Blood donations should be stepped up.
A messenger should be designated and charged with supplying blood and transporting any lab tests.

9- Who CALLS BACK PERSONNEL ?

The Admin coordinator or the Head of Hospital calls back personnel in accordance to the importance of the MCI and it's potential duration.
They should use a **pre established list** of the personnel's phone numbers to call back more staff.
When arriving, staff should have a specific place in the hospital to show up and be designated a role by the head of hospital/MCI logistics co/Med Co :
-First arriving Guards should be sent to help out at the entrance, triage and exit.
- First arriving Bearers should be sent at triage and then to the other junctions.
- First arriving Cleaners should be sent to the ER, triage, red and yellow zones
- First arriving Nurses should be sent to the OT, the ER red, yellow, green and black zone, and then to other posts if needed.
- First arriving Doctors should be sent to the ER red, yellow, green and black zone and then to other posts if needed.
- First arriving surgeon should be sent to OT then to the ER I OT already has a surgeon.

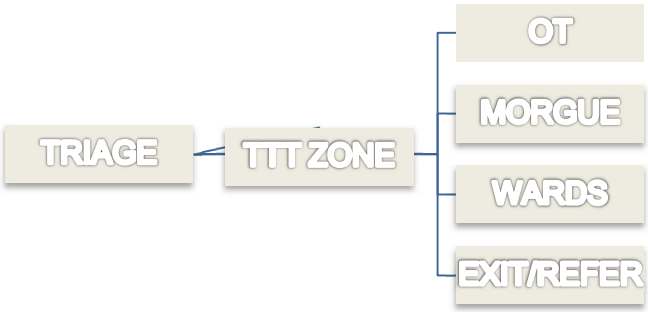
10- what's left to setup ?

- **Morgue**

Make sure that the morgue is functional and has enough room.
Make sure that bodies are being identified. ADAPT THE MORGUE TO LOCAL CULTURE +++

- **Patient transport**

Stretcher-bearers should be divided among the different sectors: teams are placed in the junctions between the different areas:
The stretcher bearers already on sight at the beginning of the MCP should position themselves close to triage. After personnel is called back and there are more of them, they will split up between the different junctions, under the log's coordination.



- **Logistical support**

This is the responsibility of the MCI Logistics Coordinator.
- He supervises cleaning and waste disposal, the placement of security guards at critical locations in the hospital (entrance, exit, triage zone, etc.), and with the Medical Coordinator, he makes sure that the stretcher service runs smoothly.
- He is also, and mainly, in charge of providing everything that has not been thought of or in too small quantities… His job is to improvise…

- providing the necessary extra supplies (drugs, stretchers, mattresses, etc.);
- providing food and water for caregivers and patients, if necessary;
- verifying the oxygen supply;
- verifying the water supply and the availability of soap, alcohol gel, hand towels and gloves, etc.;
- placing trash bins in strategic locations;
- verifying the power supply (light and electrical outlet for each bed).

- **Transfers**

Depending on the context and ambulance availability, referrals to other medical facilities may be an option. The MCI Logistics Coordinator is responsible for managing ambulance dispatch.
It is, therefore, essential that the coordination team be familiar with the health system in the region, in order to make the most appropriate referrals : List the surrounding health structures and their technical capacities, as well as names and phone numbers of privileged contacts.

- **Coordination/Information**

In a perfect world ♫♪ :

The Head of Hospital (MCI Coordinator) **stays in constant contact** with the three principal coordinators (Medical, Logistics, and Administrative/HR) , he should know in real time the availability in the in patients department, OT, and ER, and about patients referred to other medical facilities.

The head of hospital, via the field coordinator should stay in relation with local authorities, army, medical facilities.

One person (or several) could be designated as the family liaison (could or should, depending on the pressure and the number of patients and companions).

Each zone "leader" reports real-time needs, as they evolve, to his coordinator.

- Decontamination of the decontamination chain and PPE Staff
- Decontamination of contaminated, reusable PPE material

11- When does the MCP stop ?

Depending on the context, a mass casualty situation can last several hours (e.g., blast or train accident), several days (e.g., armed conflict), or even several weeks (e.g., armed conflict or epidemic).

Criteria for shutting down the MCI system:

- Reliable information from the authorities (police, military or health)
- Empty triage zone
- Return to normal emergency department activity:
    - No patients over and above the routine activity level.
    - All existing patients under control.

The MCI Coordinator is the person responsible for declaring the MCI over.

12- and after the MCP ?

Returning to routine activity

MCI coordinators and their teams must:

- put away all mass casualty supplies and equipment;
- clean up all of the areas used;
- return teams from each department to their normal work rotation;
- count up any overtime worked;
- **replenish all the MCI kits, i.e. supplies, drugs, and mattresses;**
- **verify the checklist for replenished kits;**
- inform all participants of the debriefing date;
- offer psychological support, if possible.

Preparing for the debriefing

The coordination team performs the final assessment of the MCI:

- Number of patients
    - Distribution by category, age, sex, etc.
    - Distribution by pathology

  - Number of patients treated in surgery
  - Number of patient treated in each department
  - Number of deaths
  - Number of transfers
- Volume in terms of human resources involved
- Estimated quantities of supplies and drugs used, until the pharmacy supplies the actual data.

Debriefing
The debriefing can be done in several steps.
Step 1:
Coordinators and zone managers are debriefed.
Step 2:
All the participants are debriefed.
This can be done in various ways:

- Debrief all participants at one meeting
- Debrief participants by "trade":
  - Logistics and security
  - Medical
  - Administrative and human resources

The purpose of the debriefing is to let each participant share his experience and comment on how the MCI went.
It can be thought of as a critical review, to prevent the same mistakes during the next MCI.
Some reasonable amount of time after the event, the coordination team should prepare a summary and make any necessary changes to the mass casualty incident plan.
Obviously, any changes that are made should be transmitted to all personnel at an information/training session.

13- ONCE YOUR MCP IS WRITTEN :

Write out a "MCI JOB DESCRIPTION" for every routine activity position held in your hospital, and distribute them at the end of the first training on MCP to the appropriate staff.
Example :
Routine activity ER Entrance Guard :
MCI Job Description : as soon as you have knowledge that the MCP is on, you must forbid any non injured person to come in.
It is a very difficult task, you must explain again and again, how important it is that the hospital does not become overcrowded, and for the medical team to take the best care of their relative/friend, they need space.
Send the relatives to the planed waiting area outside the hospital and tell them we will be giving them information in some time.