MANAGEMENT OF MASS CASUALTY INCIDENTS (MCI)

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Introduction:

Effective Mass Casualty Management is a complex and demanding evolution for all medical personnel, afloat and ashore. For shipboard medicine, it is a constant threat that must be considered. For shore based medical personnel, planning is less visible but it remains important. The Seabee medical department is expected to be the expert on management and disposition of these casualties.

Definitions

Disaster. Unplanned natural or man made incident which significantly impacts the public health and support capabilities of a location.

Mass Casualty Incident. A large scale event in which medical resources are unable to meet medical requirements, thus requiring prioritization of medical care by triage.

Triage. The act of sorting out sick and/or injured to provide most good for most people. This implies that some patients may receive less than "state of the art" therapy in order to do the most good for the most people. Triage is a continuing process which terminates only after "state of the art" care is implemented.

Triage cards. Cards which are attached to patients during the triage process which are helpful in identification of the status of that patient, type of injuries, medications being used or given, other information as appropriate and, most importantly, disposition of the case on the basis of urgency and likelihood of survival. These cards are numbered sequentially in packages of 50, have a symbol indicating disposition and are color coded as follows:

Color	Symbol	Action
Black	Cross	Expectant (Not likely to survive)
Red	Rabbit	Immediate
Yellow	Turtle	Urgent
Green	Ambulance	Delayed (Minimal injury)

Additional space is available for other identifying and vital sign information.

Phases of the Mass Casualty Incident.
there are several phases through which a mass casualty event must proceed, and it may be helpful to look at each in a basic outline format with required actions for each phase.

Activation
Upon notification of a mass casualty situation, you must exercise your notification list as part of the initial response.

Establishment and organization of a command post through which all communication flows and all activities are directed.

Implementation
Search and rescue is initiated if required.
Initial triage, stabilization, and transport of victims is begun, and continued in the most expeditious manner possible until all are received at definitive care facilities.

There must be definitive handling, not only of victims at the scene, but also any hazards associated with the scene (e.g. ordinance), to prevent additional casualties among the rescuers.

Recovery
Scene withdrawal. After the site has been secured and casualties appropriately handled, the scene may be handed over to proper authority for post accident investigation.
Return to normal operations

Debriefing. A particularly important part of the evolution, and conducted, not for the purpose of assigning blame for the disaster or difficulties in its management, but rather as a "lessons to be learned" opportunity.

Some variables to consider for MCI
Location
Important considerations influencing your handling of MCI's are whether ashore, afloat, close to medical care, isolated situation, military base, off base, international, domestic, tactical situation, etc. Only by prior planning and training for such events under each of these conditions can the flight surgeon even hope to be prepared.

Time
Day, night, peacetime, wartime

Chain of command/control

Military, civilian or both, and their inter-relationships.

Medical support available.
Staffing, training and equipment of ambulances, clinics, hospitals and their limitations. Your facility may not be a Level I Trauma Center, capable of handling all forms of casualty. Additionally, if deployed out of CONUS, the host country facilities capabilities and access must be considered

Non-medical support
Fire department, police, security, transportation (surface, air, water), communications, logistics, extra manpower.

Nuclear-Chemical-Biological.
These are considerations with potential for very large numbers of casualties, quickly overwhelming theatre operations capabilities.

Mass casualties afloat

Instructions
(1) OPNAVINST 3120.32:

The SMO shall ensure:
comprehensive training
effective communications
contingency plans
acquire/disperse resources.

(2) Other instructions:
Ship's 3300.1
Ships emergency bills
Mass casualty bill
NBC warfare bill
Nuclear accident/incident bill

Ship Asset Considerations
Ship training cycle:
These are generally about 18 month cycles which occur as follows:
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(1) Post deployment standdown

(2) SRA (ship reduced availability) = maintenance time.
(3) Sea Trials
(4) Workup and training
(5) Refresher Training. (REFTRA): TRE I, TRE II, TRE III. Operational Readiness Exercise (ORE) versus real world scenarios
(6) Predeployment
(7) Deployment.

CV, LPH/LHA/LHD, etc. (Patrol Squadron and LAMPS detachments have similar cycles)

Carrier Medical Manpower Assets
Aircraft carriers have the best medical capabilities in the fleet. This fact, coupled with the carrier being the heart of the fleet means that casualties may be brought to the ship from other, less capable vessels. The medical staff aboard the carrier will be:

(a) 1 Senior Medical Officer (SMO)
(b) 1 General Medical Officer (GMO)
(c) 1 Physician's Assistant (PA)
(d) 2 Wing Flight Surgeons
(e) 1 General Surgeon, 1 Nurse Anesthetist
(f) 1 MSC- medical administrative officer
(g) 35 Corpsmen (50 in war)

Dental
(a) 4-5 DO's, 1 oral surgeon.
(b) 9-15 DT's

Other resources
(a) Stretcher Bearers- messmen and other ship's company.
(b) Designated ancillaries such as strikers, chaplains etc.
(c) Marines for security, and often clean up duties.
(d) Assets from shore or other ships in company of the carrier.

The goal of successful management of MCI's afloat is the return of the maximum number of personnel to duty (turning wrenches, generating steam, launching aircraft and dropping bombs) to accomplish the ship's mission. If in combat operations, the saving of individual lives may be a secondary consideration. This seems harsh perhaps, until one considers that the life of the ship and everyone remaining on board is the greater duty.

The conduct of a successful MCI is also dependent upon:

1) The mission of the command
(2) The resources available
(3) The location aboard the ship
(4) The geographical location of the ship

Ultimately, a properly pre-planned and well executed mass casualty incident should be:

C Controlled
F Flow of patients and information as required.
E Extraction of victims wherever they may be.
E Evacuation of patients to appropriate facilities.
T Treatment

The most likely locations for a MCI with actual examples are:

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(1) Fire on flight deck. USS FORRESTAL, USS LEXINGTON, USS NIMITZ
(2) Fire in engineering. USS RANGER
(3) Collision at sea, such as with USS BELKNAP & USS KENNEDY
(4) Fire on adjacent ship. USS BONEFISH
(5) Aircraft ashore. CH-53D in Korea
(6) Disaster ashore. Marines in Beirut

Other issues deserving consideration in planning for MCI:
(1) High crew turnover. Continuous training is required..
(2) Air wing assets come and go, changing the potential for, and numbers to be expected from a MCI.
(3) PCS vs. TAD surgeons, nurses, etc.
(4) Assets available after working hours. Do you have a contingency plan?

The ship's Commanding Officer has ultimate responsibility for everything that occurs aboard ship. He must be kept informed of all events and their status. His support will open all doors, paving the way for coordination and support from many departments including:

(1) The air operation officer who controls the flight deck.
(2) The weapons officer who controls the bomb elevators.
(3) The engineering officer who controls engineering spaces.
(4) The Damage Control Assistant (DCA) and Damage Control Central (DCC) in charge of damage control efforts.

(5) The Marine Detachment Commander for security.
(6) AIMD officer or Mess Officer for stretcher bearers.
(7) CAG (Carrier Air Wing Commander) who controls helicopter and fixed wing assets for medevacs.
(8) The Senior Dental Officer has dental assets, which join with the medical department during MCI's.
(9) The Admin Officer who handles personnel records, TAD orders, message traffic, pay matters, etc.

Training for a Mass Casualty Incident afloat

If well prepared and well trained in advance of any incident, you will have in the course of such training, involved department heads from ship's company and the airwing. These relationships must be carefully established and groomed, demonstrating that the medical department is concerned, prepared and practiced for any eventuality. Inter-departmental cooperation is thus virtually guaranteed, since it is in everyone's best interests to do so.
To begin your planning:

(1) Review previous critiques of mass casualty drills.
(2) Set down components. (See below)
(3) Set down Planning, Objectives And Milestones (POAM).
(4) Feedback is critical: UP, DOWN and LATERALLY.

Components- Important nomenclature
(1) AMAL- Authorized medical allowance list- supplies.
(2) PML- portable medical lockers. Ready loaded with IV fluids, tubing, angiocaths, tape, stethoscopes, Blood Pressure cuffs, ink pens, etc.
(3) BDS- Battle Dressing Stations, 6 per carrier.
    a. MBDS- Main Battle Dressing Station, in sick bay.
    b. Flt Deck BDS -- On flight Deck (manned for flight operations)
    c. 2-Aux BDS,
    d. FWD BDS
    e. AFT BDS.
(4) First aid boxes (1 per 50 sailors)
    (5) Stretchers/stretcher bearers (From ship's company not HMs)
    (6) Evacuation routes, primary, secondary, tertiary.
    (7) Bomb elevators (safety for drills)
    (8) Differences in GQ (General Quarters), Condition Zebra, Circle William.
    (9) Security for MBDS.

(10) Walking blood bank. There is no stored blood on carriers.

Organization of the medical department and training goals for MCI
(1) To be able to see the "Big picture"
(2) Shipwide cooperation and effort
(3) Prevent apathy and/or denial
(4) Make the program realistic and credible.
(5) Make sure the entire ship understands the importance of training.

Dealing with the injured with limited medical assets require crew awareness/training as well as a "pipeline system" over which medical has control. This provides for conservation of material and manpower.

From E-1 to O-9 your credibility will sell the training program. Training includes all medical/dental department personnel. personnel training should be rotated, for department personnel may themselves become casualties. Incorporation of training into the daily routine of medical care may be helpful. Various scenarios need to be considered in your planning.

Ship's company and air wing personnel need stretcher bearer training, CPR training, basic wound training, training during GQ, shipboard check in, etc. Each should be helped to understand the "BIG PICTURE", and that their shipmates will need treatment.
The use of video, booklets, "Hands on" at GQ, and repetitive drills at all levels is to be conducted and encouraged until everyone understands his duty and functions smoothly as part of a team.

Types of injuries
The types of injuries likely to be encountered may be minor or massive and include:

(1) Inhalation
(2) Burns
(3) Contusions/Abrasions
(4) Head injuries
(5) Amputations
(6) Internal injuries
(7) Massive multiple injuries

There are medical echelons of care in mass casualty scenarios, designed to provide a " Pyramid of Treatment" as follows:

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(1) Self aid, if the individual is capable.

(2) Buddy aid. May be the first help on the scene.
(3) ER Response Team/On scene Team
(4) Triage Team
(5) BDS - Delayed, returned to duty if possible.
(6) MBDS - Immediate, Urgent for lifesaving care.
(7) Expectant are handled elsewhere, not in MBDS.
(8) Psychiatric patients handled elsewhere by chaplains

Response teams

The On-Scene Team
The On Scene Team is predesignated for that area or is from the nearest BDS. They set up as near as possible to the scene, with safety being paramount. Their function is to provide emergency first aid, with particular emphasis on airway & hemorrhage, selective fluid replacement and prevention of further complications. They are then responsible for immediate disposition of victims safely away from area. This team is manned by a medical officer or dental officer, hospitalmen and stretcher bearers

The Triage Team
The Triage Team is also predesignated to an area or from the nearest BDS, and receive casualties from the On-Scene Team. They are located as best as possible in a roomy area, lighted, protected and with adequate supplies, and accessible. These are usually on hangar decks, mess decks, wardrooms, the Admiral's mess for the O3 level, Forecastle, ready rooms and the CPO mess. Their function is that of definitive triage of injured patients, establishment of IV's and treatment of shock. Immediate and urgent cases are sent to the MBDS, delayed to a BDS & returned to duty and expectant cases put aside. Classification of cases is determined by how hard they are to stabilize and how hard they are to treat definitively. Manning is by medical officers, hospitalmen, with phone talkers linked directly to the MBDS and other BDS's with Marines for security

The Emergency Response Team (ER)
The MBDS is located in the main medical spaces, and designated BDS's. This is the primary (Major) Surgical Team. They select patients most likely to benefit from surgery as received and begin the cases. In real situation, they probably complete some triage functions first because of input of patients from several areas. The composition of the team is a surgeon, RN anesthetist, and hospitalmen, and they locate in the operating room providing definitive surgical care.

A secondary (Minor) surgical team (#1) is located in the treatment room, BDS, and is composed of a general medical or dental officer, hospitalmen and dental technicians. They perform repairs that can be accomplished using local anesthesia.

Another minor surgical team (#2) is located in the aviation exam room and is composed of a flight surgeon, or dental officer, HM's, and DT's. They perform local anesthesia wound repairs as well.

Other medical support personnel include ward receiving teams located in the wards and composed of HM's, DT's, and any extra medical officers aboard or from other ships in the area. Their function is to clear the ward (assets to save ships), provide pre and post op care and supportive treatment.

A blood bank team is located in the dental spaces (dental chairs are used for drawing of blood). It is composed of a lab technician and dental technicians. This team functions in activation of the walking blood bank and typing and cross matching of blood. It is usually best to concentrate on O negative and have some for later use.

An X-ray Team is location in the X-ray spaces. Composed of X-ray tech and strikers, their function is to load cassettes, keep processed film moving and take films as required.

An administrative team is pressed into service as well. Located in the medical records section or SMO's office it is composed of the Medical Administrative Officer (MAO/MSC), extra dental officers, and chaplains. There are ship/airwing administrative personnel, a ship supply officer representative, a medical supply petty officer and Marines for morgue security and general order. Their duties are in Identification of the dead (dental officers), establishment of a temporary morgue, personal effects security, preparation of casualty messages, death certificates, rapid transfer as required, last rites and psychiatric counselling.
Indirect support includes refilling of oxygen cylinders location and retrieval of supplies (locked in 3 locations) and positioning of supplies.

Triage is a continuing process which is provided by the on scene team and by triage teams in receiving areas. Some injuries may present later and so there is a need for flexibility to reclassify anywhere along the chain.

The Mass Casualty Incident afloat

A Crash/Explosion on Flight Deck is the most likely scenario (9 of 10) if aboard an aircraft carrier. The ship is immediately alerted to general quarters, requiring all hands to take specific actions to minimize further damage and maintain the ship's integrity. There is a dispersal of vital assets such as the MBDS, BDS, Aux BDS and so forth, for accessibility in emergency, and to prevent complete loss should the central activity be involved. The major causes of injuries are fire, missiles(both material and personnel), steam, inhalants and falls.

Potential difficulties
Communication is a critical element in successful mass casualty management, and is one that frequently breaks down either due to confusion, poor operator technique or loss of equipment/communication lines. Don't lose control of the situation. Aboard ship, become familiar with the operation of all communication devices and their proper use. There is available the; 1MC, 3MC, 5MC, Telephones, VPC (Voice Powered Circuits) and runners

Power outages can and do occur as a result of accident or other damage and may severely limit capabilities of communication, transportation of casualties and medical treatment. Understand what options are available to you.

Heat stress may become a factor for rescue and transport personnel, further complicating the casualty load. Smoke and fumes may prohibit or limit operations even in distant locations because of loss of ventilation capability.

It may be difficult to control unauthorized personnel in medical spaces as people walk in looking for friends, trying to obtain information or just plain curiosity seekers. You will need to isolate the BDS, especially MBDS, with Marine security personnel.

Shore Mass Casualty Situations.

More variables may make the mass casualty ashore more complicated, although more assets may be available. Whether on base, off base, civilian, military, during working hours or after working hours, recall time, staffing, training, turnover, and dependent care requirements all must be considered in preparation.

Depending on location on or off base, civilian assets may be difficult to reach immediately because distances may be much longer or exit routes blocked.

The Base Commander will be in charge for operations on base, but civilians will control off base with military assistance, unless specifically turned over to the military.

It is a good idea to become very familiar with on base and civilian assets and who controls them, should their assistance be needed. Fire departments, police departments, base operations, public works, motor pool, supply department, electricity, water, radios, telephones, boats, and so forth.

You will need to identify stretcher bearers ambulance equipment and personnel to remove victims from the scene plus all medical and support people and facilities for communication security and

transportation.

There may be special equipment needs for high rise buildings, toxic chemicals or trapped victims.

Often there are public affairs problems with press, friends, relatives, and curious bystanders.

You will need to review your facility's Mass Casualty Plan. Make sure it is realistic. Your clinic may not have the expertise of a trauma center. The Base Commander needs to be involved in the planning since a large number of his assets will be involved. There is a need for a lot of coordination and cooperation. Planning for available off-base assets will likewise be required and may necessitate personal liaison with the permission of your reporting senior and the Base Commander..

Training is no less important than that already covered under. The afloat portion of this discussion, both requiring frequent drills and other training in order to be effective. Base assets need to become involved as well.

A major difference between shipboard and shore based mass casualty scenarios is that the response to the disaster may be encumbered by personnel absent from the local area, as contrast with ready availability afloat. It is important to have an up to date and regularly exercised recall roster to get people in the habit of letting others know where they may be reached.

National Disaster Medical System (NDMS)
DoD Directive 3020.36
DoD Directive 3025.1

The NDMS is a joint Federal, State and local mutual aid organization for a coordinated medical response during time of war or other large scale national disaster involving large numbers of casualties. The system may be activated by the Assistant Secretary of Defense (for health affairs) or the Director, Federal Emergency Management Agency.

Through coordination with the American Red Cross, American Medical Association, and the National Association of State Emergency Medical System Directors and other agencies, casualties may be directed to in-patient facilities, military and civilian, providing the level of care required for each individual. An entire Federal and State infrastructure is in place to deal with this eventuality. In the event of military conflict, military operated hospitals would be utilized first, followed by the VA system hospital, and then the civilian facilities as necessary.

Summary

Plan and train as realistically as possible for every scenario that can be imagined, and then expect that when one occurs it will probably be one you had not considered. The more these drills become a part of the routine, the more likely that it will be conducted in good order. Failure to understand and have available all your assets, train and prepare as adequately as possible will result in a disaster all on its own.