



LMAS 10.40

MEDICAL SUPPORT TO DEMINING

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Note:

This document is current at the date shown on this page. The Local Mine Action Standards (LMAS) are subject to regular revision, so users should ensure that they are using the latest version of each document in the standards. The most recent versions of LMAS are available with office of Rabouni.

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Foreword

Critical safety, control and quality elements of the International Mine Action Standards (IMAS) have been retained in the Local Mine Action Standards (LMAS), so ensuring that they maintain the principles agreed in IMAS guidelines.

The work of preparing, reviewing and revising LMAS is conducted by a technical committee with the support of international, governmental and non-governmental organisations in Western Sahara, East of Berm (EoB).

In the LMAS, the following words are used to indicate the intended degree of compliance and are to be reflected in Mine Action Organisation Standard Operating Procedures (SOPs):

'Shall', 'will' and 'must' are used to indicate requirements, methods or specifications that are to be applied in order to conform to the standard;

'Should' is used to indicate the preferred requirements, methods or specifications.

'May' is used to indicate a possible method or course of action.

In LMAS:

The term "Demining Organisation" refers to any organisation (government, NGO or commercial entity) responsible for implementing demining projects or tasks. Demining Organisations include headquarters and support elements.

The term "Mine Action Organisation" refers to any organisation (government, military, commercial or NGO/civil society) responsible for implementing mine action projects or tasks. The mine action organisation may be a prime contractor, subcontractor, consultant or agent.

For the purpose of the LMAS, the words "Demining Organisation" and "Mine Action Organisation" are interchangeable and used to describe the same body.

1. Introduction

- 1.1 This standard provides requirements and guidelines for the medical support that must be available to mine action organisations conducting demining operations in Western Sahara EoB. It specifies the minimum requirements for medical emergency preparedness, including the planning required before staff deploy on demining operations, and the training of demining and medical support staff.
- 1.2 Mine Action Organisations and employees must be properly equipped and trained to respond to demining accidents. Demining may also be conducted in an environment where disease can be a problem, so all preventative measures must be taken to keep staff healthy.
- 1.3 No demining operations shall be conducted without an acceptable level of medical support and a demining accident response plan that everyone involved fully understands, and has practiced.
- 1.4 All demining sites and EOD activities shall make provision for adequate medical cover and casualty/medical evacuation.

- 1.5** Demining units (i.e. teams) shall formally exercise casualty evacuation at least once a month and upon changing worksites. These exercises shall be accurately recorded and be made available to external monitors.

2. Definitions

2.1 Casevac (Casualty Evacuation)

The evacuation of a casualty from the scene of an accident to the nearest appropriate medical facility that can stabilize and treat the injuries.

2.2 Medevac (Medical Evacuation)

The evacuation of a patient between one medical facility and another, usually for further treatment or treatment not available at the first medical facility.

2.3 Level One Medical Support

- a. Casualty Evacuation and a Level One medical capability.
- b. Located on the operational site, the organisation shall be able to conduct casualty recovery, basic life support medical treatment and have advance life support medical treatment available within 15 minutes.
- c. Off-site it should be able to tend to basic medical treatments and advice on preventative measures for mental and physical health.

2.4 Level Two Medical Support

- a. Casualty sustainment and a Level Two medical capability.
- b. Consists of additional paramedics and equipment to sustain the casualty and assist evacuation
- c. Used when the site is more than 1 hour from a Level Three facility.

2.5 Level Three Medical Support

- a. A medical facility (hospital) with lifesaving surgical capability. Provide facilities for Level One and Level Two medical support and be able to conduct life and limb saving surgery.
- b. Be able to investigate, diagnose and treat patients suffering from serious or life threatening conditions.
- c. Should have dental facilities and where possible provide hygiene support, supervision and medical investigation.

2.6 Level Four Medical Support

- a. Definitive care – A medical facility (hospital) with the capability for reconstructive surgery and rehabilitation
- b. Full medical support facilities.

3. General requirements

3.1 Planning and Preparation

Planning and preparation includes all enabling activities taken by Mine Action Organisations to establish and maintain appropriate medical cover at the demining workplace, and to make appropriate arrangements with local and national medical treatment facilities including surgical facilities.

3.1.1 Preparation for Accidents

A written demining accident response plan must be maintained by the Mine Action Organisation for each demining workplace. The plan must identify:

- a. The training and qualification needs of all employees at the demining workplace with responsibilities for casualty evacuation and the initial treatment of a casualty;
- b. The equipment and materials required to implement the demining accident response plan. This includes:
 - The first aid and medical equipment, supplies and drugs
 - Transportation required to move casualties from the accident site to appropriate medical facilities;
 - The communications equipment necessary to call for assistance and to provide details of the nature and extent of injuries; and
 - The location of a suitably equipped and staffed hospital. Mine accident injuries are often severe, and specialist surgery may be required. The nearest suitably equipped and staffed hospitals must be identified and means of contacting them established.
- c. The development and maintenance of work practices designed to reduce both the risk of demining accidents and the risk of more than one victim resulting from a demining accident;
- d. The pre-positioning of staff with the first aid and medical skills and resources required to respond to a demining accident;
- e. The development and maintenance of:
 - Demining worksite management documentation that includes details of the blood group, infections and known allergies for each member of staff;
 - An appropriate equipped ambulance to transport victims to a treatment facility;
 - Insurance to cover the cost of surgical care and treatment, including prosthetics, for victims of demining accidents;
 - Insurance to provide an appropriate disability pension to demining workers who become victims of demining accidents; and
 - The periodic testing of emergency procedures and evacuation procedures from the time of the accident through to the delivery of a victim to an appropriate treatment or surgical care facility.

3.1.2 Occupational health planning

Each demining organisation must have a written occupational health plan that includes: a.

The briefing of all staff on the health hazards that they be in the working area;

b. The provision of preventative medicine against disease; and

c. Arrangements for periodic health checks.

4. Demining Accident Response Plan

The demining accident response plan must include provisions that outline responsibilities for:

a. The management of the on-site emergency response procedures, which will include procedures to remove casualties from hazardous areas, including procedures to remove casualties from mechanical demining equipment when appropriate;

b. The on-site first aid and medical care of casualties;

c. The movement of casualties to an appropriate medical facility, including:

- Details of the planned route(s) and means of transport;
 - Details of security requirements that may be necessary, including requirements for crossing security posts;
 - Fuel, food and repair facilities on route;
- d. The medical care of the casualty during movement from the accident site to the surgical facility; and
- e. The establishment and maintenance of demining accident response equipment, materials and drugs including:
- On-site medical care equipment, materials and drugs;
 - An emergency response vehicle, including specialist medical care equipment and fittings or fixtures to assist in the management of the casualty during movement to the medical facility; and
 - Preparation and maintenance of on-site and en-route communications.

5. Demining Accident Response Capacity

As part of the accident response capacity, each demining workplace must have demining teams with resources to:

- a. Provide immediate first aid to a casualty;
- b. Remove one or more casualties from the suspected hazardous area;
- c. Simultaneously transport at least two casualties to an appropriate medical facility;
- d. Provide appropriate en-route medical care for casualties; and
- e. Communicate with the medical facilities, other emergency services, Civil Defence and SMACO to ensure a coordinated response to the demining accident.

At each workplace there must also be staff trained and equipped to:

- a. Clean and dress wounds correctly;
- b. Stabilise fractures; and
- c. Administer analgesia.

5.1 Roving Demining Teams

5.1.1 Roving demining units (i.e. teams) such as survey and EOD, may require fewer resources (i.e. vehicles and equipment) and personnel than mine and battle area clearance sites, for operational efficiency. This must be taken into consideration when planning for appropriate medical support.

5.1.2 Roving demining teams shall operate in accordance with the following which is dependent on their activities, and in accordance with any other requirements detailed in section 6 below, unless otherwise authorised by the SMACO:

- a. **Marking of hazardous areas and explosive ordnance, conducting explosive ordnance disposal including rendering safe procedures, conducting technical survey and clearance of mine/ERW hazardous areas:**
 - One dedicated medic qualified in advance life support medical treatment (or similar), and one person qualified in basic life support medical treatment.
 - One vehicle capable of transporting a casualty (lying down) and one person to administer appropriate medical treatment.
- b. **Other activities where it is assessed that there is a reduced risk of harm to personnel from explosive ordnance than those activities detailed above:**

- One vehicle capable of transporting a casualty and one person to administer appropriate medical treatment.
- Two personnel qualified in basic life support medical treatment (or similar).

6. Minimum Medical Support Requirements to Demining Operations

6.1 The minimum medical support requirements to demining operations involving the marking of hazardous areas, technical survey, clearance of hazardous areas and clearance of explosive ordnance shall be in accordance with the following unless the SMACO has approved a reduction based on a pertinent risk assessment, and the SMACO may request that the Mine Action Organisation provides additional medical support, where it is assessed as being insufficient:

- a. Accredited demining personnel must have the knowledge and skills to conduct casualty recovery, handling, and administer basic life support medical treatment (or similar) within five (5) minutes of an accident occurring.
- b. Accredited medical personnel must have the knowledge and skills to conduct casualty handling, and administer advanced life support medical treatment (or similar) to the casualty within 15 minutes of the accident occurring.
- c. A serviceable and suitable evacuation vehicle (i.e. ambulance) with a dedicated driver shall be available to transport a casualty to the nearest higher level medical facility, helicopter landing site (HLS), airstrip, or other designated location.
- d. The evacuation route from the demining site should have been reconnoitered prior to the commencement of demining operations, to confirm its suitability, and checked on a regularly basis. Alternative suitable evacuation routes should be selected, and all pertinent Mine Action Organisation worksite staff, including the site supervisor (or similar) and evacuation vehicle driver, must know the evacuation route(s).
- e. The evacuation vehicle driver must be trained and licensed to operate the vehicle.
- f. The on-site medical facilities shall be sufficient for the stabilization of casualties with expected trauma injuries in accordance with the Mine Action Organization's SOPs.
- g. The medical equipment must be sufficient to stabilise casualties with large-scale shrapnel injury or traumatic amputation within 15 minutes, and to provide surgery in a properly equipped hospital within one (1) hour. In circumstances where this is not achievable, e.g. remote sites, then the Mine Action Organisation shall prepare an effective casualty evacuation plan and request its authorisation from the SMACO.
- h. The compulsory minimum medical equipment is specified in **Annex A**.
- i. A minimum of one (1) accredited medic and one (1) dedicated emergency vehicle may support up to three (3) working demining sites if the emergency vehicle and the medic are positioned no more than five (5) minutes from each of the working sites they are allocated to support.
- j. In the event of an accident on any of the three (3) individual working demining sites that the medic and the emergency vehicle are supporting, operations shall cease on all of the three (3) sites until medical coverage has been reinstated to the levels above and authorization by the SMACO has been granted to re-commence operations.
- k. One evacuation vehicle and medic shall be required to support a maximum of thirty (30) personnel directly involved in marking of hazardous areas, technical survey, clearance of hazardous areas and clearance of explosive ordnance

- l. The location of the evacuation vehicle and the medic shall be known to all Mine Action Organisation personnel at the site.
- m. There shall be adequate communications between the demining site and operational base (or similar).
- n. There shall be adequate communications between the site supervisor (or similar), the medic and the evacuation vehicle driver.
- o. The evacuation vehicle must be marked to distinguish it when used for emergency purposes.
- p. The evacuation vehicle shall afford sufficient space in the rear for the transportation of two casualties (at least one in the lying position) and for an additional person to administer effective medical treatment.

Note: if one evacuation vehicle is not capable then an additional shall be required).

- q. During demining operations the evacuation vehicle must be suitably prepared, fitted with the relevant equipment to support casualties and the evacuation, and be free of unnecessary equipment.
- r. The evacuation vehicle shall be parked in an unobstructed position in order to facilitate an effective response.
- s. The response time shall be confirmed by rehearsal prior to commencing clearance and hazardous area marking operations.
- t. It must be remembered that the comfort and safety of casualties in transit is important therefore the evacuation vehicle must be driven at an appropriate speed in accordance with the local ground conditions and regulations.
- u. The blood groups of all demining personnel and visitors shall be recorded and maintained by the site supervisor (or similar) and / or medical personnel during demining operations.
- v. In the case of other Mine Action activities such as community liaison, MRE and possibly non-technical survey, which do not involve the marking of hazardous areas, technical survey, clearance of hazardous areas and clearance of explosive ordnance; medical assistance must be on standby and relevant teams must ensure that immediate radio and or phone communication is available should support be needed.

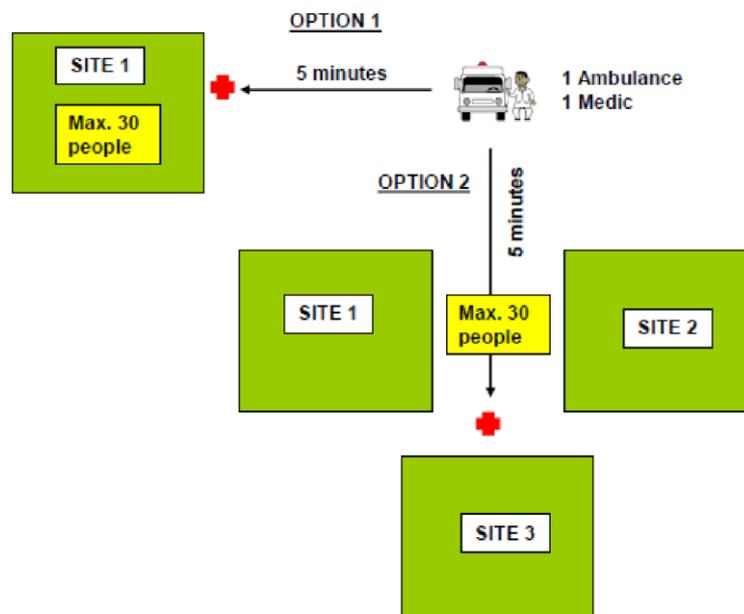


Figure 1: Minimum medical support to demining operations

7. Training

- 7.1** All Mine Action Organisation personnel working at a demining worksite must receive appropriate training on the precautions to reduce the risk of a demining accident, and the action to be taken in the event of a demining accident.
- 7.3** Mine Action Organisations SOPs (or other accredited documents) must detail the minimum medical training and qualifications required for medical and demining personnel. This information shall be used by the SMACO to evaluate personnel during monitoring of training, operations and during the Accreditation process.
- 7.4** Training and Accreditation should include demining accident management, casualty recovery, and handling procedures, actions of the 'first responder', medical treatment, reporting, and post-accident procedures.
- 7.5** All personnel directly involved in demining operations shall complete basic life support medical training and medical personnel, advanced life support (or similar courses).
- 7.6** The demining accident casualty evacuation exercise (or similar) must be rehearsed for personnel conducting demining operations (including independent EOD activities), on the following occasions:
- Prior to the commencement of demining operations at a new site.
 - At least once every month.
 - Prior to a team and individuals resuming operations after a break of at least 1 month.
 - Any personnel changes at the operational site (i.e. new or replacement staff).
 - Prior to recommencing operations after a demining accident.
- 7.7** These exercises shall be accurately recorded and be made available to external monitors.

8. Mine Action Teams Responsibilities

8.1 Deminers

- a. First response, i.e. Safety – immediate hazards to responder and casualties, including personal body substance isolation (BSI) precautions, Scene – assessment if trauma or medical casualties, Situation – Triage (number of casualties and priority for treatment)
- b. Assessment of casualty's consciousness.
- c. Opening of casualty's airway.
- d. Placement of unconscious casualty in the recovery position.
- e. Cardio pulmonary resuscitation (CPR).
- f. Bleeding control, including application of a tourniquet (if applicable), cleaning and dressing wounds.
- g. Treatment of casualties suffering for heat and cold conditions.
- h. Importance of dialogue with and realistic assurance of casualties;
- i. Methods of casualty lift, carry and placement on a stretcher/litter.

8.2 Demining Supervisory Staff

8.2.1 In addition to the requirements specified in sections 5 and 8.1 above, demining supervisory staff (i.e. site supervisor, team leader) shall be trained in:

- a. Accident site assessment, i.e. to determine the most appropriate course of action.
- b. Managing the extraction of casualties from a hazardous area;
- c. Managing a demining accident which results in single or multiple casualties;
- d. Delegation of first aid related tasks to others with little or no training;
- e. Planning and co-ordinating the evacuation of casualties from the demining worksite to the medical care facility; and
- f. Reporting and recording accidents.
- g. The system for contacting medical facilities and organisations or authorities required to assist in the movement of casualties to the appropriate medical facility
- h. Post-accident procedures at site, i.e. pending investigation.

8.3 Medical Staff

8.3.1 In addition to the requirements specified in sections 8.1 and 8.2 above, medical support staff must be trained to:

- a. Assess the casualty's general condition, and assess the treatment needed;
- b. Assess the best method of moving the casualty;
- c. Arrange for and if necessary call forward medical assistance to treat the casualty on site or at an intermediate point before they are moved to advanced medical facilities;
- d. Treat a casualty appropriately and safely at the demining worksite and en-route to advanced medical facilities; and
- e. Correctly administer immediate appropriate drugs, i.e. analgesics, antibiotics, allergenic, oxygen and intravenous fluids.

9. General Responsibilities

9.1 Local Mine Action Authority (SMACO)

SMACO will:

- a. Monitor demining organisations' development and maintenance of demining accident response plans;
- b. Assist in the co-ordination of appropriate responses to demining accidents;
- c. Evaluate the effectiveness of emergency response plans and assist in implementing appropriate corrective action;
- d. Establish and maintain standards and procedures for the investigation of demining accidents; and
- e. Establish and maintain standards for insurance cover for medical treatment and compensation for demining workers in Western Sahara EoB.

9.2 Mine Action Organisations

Mine action Organisations must:

- a. Develop and maintain SOPs which aim to reduce the risk of harm resulting from demining accidents;
- b. Develop and maintain demining accident response plans for each demining worksite;
- c. Provide the training and resources needed for the implementation of the demining accident response plan;
- d. Provide an appropriate health plan for the demining workforce; and
- e. Ensure that demining accident response plans are practised.

9.3 Mine Action Organisation Employees

Mine Action Organization employees, including medical support staff must:

- a. Apply SOPs which aim to reduce the risk of harm resulting from a demining accident;
- b. Develop and maintain skills needed to respond to demining accidents;
- c. Identify and report opportunities to improve the organisation's accident response plan; and
- d. Carry out all the actions recommended by the medical authorities for the maintenance of occupational health.

10. Example of Procedure in the Event of an Accident at a Demining Site

10.1 To facilitate an effective emergency response it is essential that sufficient preparation is conducted prior to the commencement of demining operations and that all personnel involved understand and are capable of conducting their responsibilities in the event of a demining accident.

10.2 The procedures detailed below is an example of procedures in the event of a demining accident and, as it is appreciated that each accident is distinctive, it is essential that training includes a variety of scenarios to increase awareness, safety and efficiency.

10.3 On understanding that there has been an accident or hearing an uncontrolled explosion at the demining site the following shall occur:

- a. A warning issued by radio and / or other means (i.e. whistle blasts) informing all personnel that there has been an accident and to immediately STOP what they are doing.

- b. On hearing the warning, all personnel shall STOP what they are doing and carry out the Immediate Actions (IA) in the event of a demining accident (i.e. depending on their individual responsibilities).
- c. All non-essential personnel (i.e. those not directly involved with the Casevac procedures) shall move to their designated safe area/s (i.e. rest area).
- d. The personnel nearest to the accident site shall immediately go to the site, ensuring that they use a known safe route only.
- e. The most senior person at the accident site shall take immediate control of the situation (i.e. team leader/deputy, site supervisor).
- f. He/she shall make an assessment of the situation, considering the following prior to authorizing the recovery of the casualty:
 - **WHAT** happened (i.e. mine/ERW accident)?
 - **WHERE** did it happen (i.e. location of detonation and casualty/s, cleared or unclear area)?
 - **WHY** did it happen (i.e. mine/ERW initiated by casualty or other means).
 - **WHAT** evidence is obvious (i.e. position of casualty/s, equipment, crater, EO component parts, QC markers)?
 - **WHAT** is the risk to other personnel (i.e. missed mines/ERW, casualty in unclear area, none)?
 - **WHAT** further actions are required (i.e. recover casualty/s from clear area, recover casualty from unclear area; procedures / personnel / equipment required)?

Note: The assessment is conducted from a safe area as close to the accident site as possible. It is not an 'investigation' however a quick appreciation of the situation to determine the optimum response.

- g. The senior person at the accident site shall organize and supervise the recovery of the casualty/s to the designated Medical Point / Safe Area. If possible, the personnel recovering the casualty shall administer first aid to the casualty/s prior to the arrival of the Medic/s (i.e. Danger, Response, Airway, Breathing and Circulation).
- h. The Medic/s shall administer first aid and stabilize the casualty/s prior to supervising loading and transportation by ambulance to the designated medical facility or casualty collection point.
- i. An initial situation report (SITREP) is sent by radio or phone to the HQ / Base by the Task Supervisor or appointed person. The report should be concise and comprise the following information (however may be a different format):
 - **WHAT** – happened (i.e. Demining Accident)?
 - **WHERE** – location (i.e. Task number / name)?
 - **WHEN** – time (i.e. 0900 hr.)?
 - **WHO** – casualty/s details (i.e. quantity, unit, ID number, blood group)?
 - **WHAT** – accident details and injuries sustained (i.e. casualty initiated a mine/ERW with a tool resulting in a traumatic amputation to his lower right arm and facial injuries; the casualty is conscious).
 - **WHAT** – requirements (i.e. warn the designated hospital and, the police to clear the route).
 - **WHAT** – further actions (i.e. ETA hospital 45 minutes by road).

Note: Certain information may not be available therefore the SITREP may be sent in stages, however there shall be no delay in transmitting an initial report.

- j. After the casualty/s has been evacuated from the task, the following shall occur:

- The immediate area of the accident (accident site) closed / secured pending an investigation.
- If necessary, the accident site shall be guarded.
- No personnel should enter the accident site prior to the investigation.
- Nothing should be touched or removed from the accident prior to the Investigation.
- If it is not possible to leave specific equipment at the accident site for security reasons (i.e. the duration before the commencement of the investigation is too great; an inability to provide guards or ensure that people do not enter the area / remove equipment and markings) then, every effort should be made to gather as much evidence as is safely possible prior to removing anything (i.e. take photographs, draw diagrams, record measurements and plot the location).
- All personnel should collect their equipment and go to the control point (CP) or other designated area. All personnel shall be accounted for.

11. General References

- a. International Mine Action Standards (IMAS), in particular, 10.20 Safety and Occupational Health – Demining Worksite Safety and 10.40 Safety and Occupational Health - Medical Support to Demining Operations
- b. LMAS 10.20 Demining Worksite Safety.