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## **Safety & occupational health - Medical support to demining operations**

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## Contents

Contents .....	iii
Foreword .....	iv
Introduction .....	v
Safety & occupational health - Medical support to demining operations .....	1
1. Scope .....	1
2. References .....	1
3. Terms, definitions and abbreviations .....	1
4. General requirements .....	1
4.1. Planning and preparation .....	1
4.1.1. Accident planning .....	2
4.1.2. Occupational health planning .....	2
4.2. Evacuation .....	3
4.3. Demining accident response capability .....	3
4.3.1. General .....	3
4.3.2. Small demining teams .....	4
4.4. Training .....	4
4.4.1. General .....	4
5. Responsibilities .....	4
5.1. National Mine Action Authority .....	4
5.2. Demining employers .....	5
5.3. Demining workers .....	5
Annex A (Normative) References .....	6
Annex B (Informative) Terms, definitions and abbreviations .....	7
Annex C (Informative) Level of medical training .....	9
Amendment record .....	11

## Foreword

International standards for humanitarian mine clearance programmes were first proposed by working groups at an international technical conference in Denmark, in July 1996. Criteria were prescribed for all aspects of mine clearance, standards were recommended and a new universal definition of 'clearance' was agreed. In late 1996, the principles proposed in Denmark were developed by a UN-led working group and the *International Standards for Humanitarian Mine Clearance Operations* were developed. A first edition was issued by the UN Mine Action Service (UNMAS) in March 1997.

The scope of these original standards has since been expanded to include the other components of mine action and to reflect changes to operational procedures, practices and norms. The standards were re-developed and renamed as *International Mine Action Standards* (IMAS).

The United Nations has a general responsibility for enabling and encouraging the effective management of mine action programmes, including the development and maintenance of standards. UNMAS, therefore, is the office within the United Nations responsible for the development and maintenance of IMAS. IMAS are produced with the assistance of the Geneva International Centre for Humanitarian Demining.

The work of preparing, reviewing and revising IMAS is conducted by technical committees, with the support of international, governmental and non-governmental organisations. The latest version of each standard, together with information on the work of the technical committees, can be found at <http://www.mineactionstandards.org/>. Individual IMAS are reviewed at least every three years to reflect developing mine action norms and practices and to incorporate changes to international regulations and requirements.

## Introduction

The responsibilities and obligations of the National Mine Action Authority (NMAA), employers and employees for providing and maintaining a safe workplace are outlined in IMAS 10.10. Safety and Occupational Health (S&OH) are achieved through the development of safe work practices and operating procedures, effective supervision, and control, appropriate education and training, equipment of inherently safe design, the provision of effective Personal Protective Equipment (PPE) and clothing and correct prophylactics against disease.

Good management and supervision will reduce the likelihood of harm, but there will always be the potential for demining accidents to occur. Demining organisations and employees must therefore be properly trained and equipped to respond to demining accidents. Demining is often conducted in an environment degraded by conflict and other humanitarian challenges, perhaps made worse through natural disasters. Under these circumstances diseases such as malaria, tuberculosis, triptosomiasis and cholera, previously kept in check by national medical control measures, can again become widespread.

Developing a capacity to provide an appropriate response to a demining accident requires good planning, well trained staff and the availability of medical services able to provide effective emergency treatment. Notwithstanding the legal and moral obligations placed on managers to provide the best medical support possible, in particular at the demining worksite, planning must acknowledge the reality of field operations. In mine-affected countries suffering from post-conflict trauma, the medical facilities will be limited, and overstretched. In these circumstances, mine action authorities and demining organisations should not place unrealistic demands on the host nation's medical infrastructure, in particular during the initial stages of a demining programme, but should plan to be as medically self-sufficient as possible.

The aim of this standard is to provide specifications and guidance for the provision of appropriate medical support to demining operations in the field. The document is in three parts: clauses 1 to 3 define the scope, references and terms used in the standard; clauses 4 and 5 define the requirements, specifications and responsibilities; and the Annexes provide additional detailed information and guidance on how to apply the standard.

## **Safety & occupational health - Medical support to demining operations**

### **1. Scope**

This standard provides specifications and guidelines for the development of medical support to demining operations. 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.

### **2. References**

A list of normative references is given in Annex A. Normative references are important documents to which reference is made in this standard and which form part of the provisions of this standard.

### **3. Terms, definitions and abbreviations**

A list of terms, definitions and abbreviations used in this standard is given in Annex B. A complete glossary of all the terms, definitions and abbreviations used in the IMAS series of standards is given in IMAS 04.10.

In the IMAS series of standards, the words 'shall', 'should' and 'may' are used to indicate the intended degree of compliance. This use is consistent with the language used in ISO standards and guidelines:

- a) 'shall' is used to indicate requirements, methods or specifications that are to be applied in order to conform to the standard;
- b) 'should' is used to indicate the preferred requirements, methods or specifications; and
- c) 'may' is used to indicate a possible method or course of action.

The term 'National Mine Action Authority (NMAA)' refers to the government department(s), organisation(s) or institution(s) in each mine-affected country charged with the regulation, management and co-ordination of mine action. In most cases the national Mine Action Centre (MAC) or its equivalent will act as, or on behalf of, the 'NMAA'.

The term 'demining organisation' refers to any organisation (government, NGO or commercial entity) responsible for implementing demining projects or tasks. The demining organisation may be a prime contractor, subcontractor, consultant or agent.

The term 'demining accident' refers to an accident at a demining workplace involving a mine or UXO hazard.

The term 'demining accident response plan' refers to a documented plan developed for each demining workplace which details the procedures to be applied to move victims from a demining accident site to an appropriate treatment or surgical care facility.

### **4. General requirements**

#### **4.1. Planning and preparation**

Planning and preparation includes all enabling activities taken by the NMAA and demining organisations to establish and maintain appropriate medical cover at the demining workplace, and to make appropriate arrangements with local, national and (if necessary) international medical treatment facilities including surgical facilities.

#### **4.1.1. Accident planning**

A demining accident response plan shall be developed and maintained by the demining organisation for each demining workplace. The plan shall identify:

- a) the training and qualification needs of all employees at the demining workplace, in particular demining workers and medical support staff with responsibilities for casualty evacuation and initial treatment;
- b) the equipment and materials required to implement the demining accident response plan, including: first aid and medical equipment, supplies and drugs; transportation required to move victims from the accident site to medical facilities offering treatment; and communications to call forward assistance and/or to provide details of the nature and extent of injuries; and
- c) the location of a suitably equipped and staffed hospital. Mine injuries are usually severe, and specialist surgery is often required. The nearest suitably equipped and staffed hospital may be in the country capital, or even in a neighbouring country.

Preparation for a demining accident shall include:

- a) the development and maintenance of work practices designed to reduce both the risk of demining accidents and the risk of multiple victims resulting from a demining accident;
- b) the pre-positioning of staff with the first aid and medical skills and resources required to respond to a demining accident;
- c) the development and maintenance of:
  - (1) demining worksite management documentation that includes details of the blood group, infections (HIV, hepatitis etc) and known allergies for each demining worker;
  - (2) a capacity to transport victims to an appropriate treatment facility or surgical hospital or insurance to cover the cost of transport to a suitably equipped and staffed hospital;
  - (3) insurance to cover the cost of surgical care and treatment, including prosthetics, for victims of demining accidents;
  - (4) insurance to provide an appropriate disability pension to demining workers who become victims of demining accidents; and
- d) 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.

#### **4.1.2. Occupational health planning**

An occupational health plan shall be developed, that shall include:

- a) the briefing of all staff on the health hazards, including insect and water-borne diseases, and poisonous animals or insects native to the demining area;
- b) the provision, where appropriate, of prophylactics against disease;
- c) arrangements for periodic health checks; and

- d) the provision of up to date injections against diseases such as tetanus, yellow fever and hepatitis, as advised by local or international health authorities.

#### **4.2. Evacuation**

The demining accident response plan shall include provisions that outline responsibilities and obligations for:

- a) the management of the on-site emergency response procedures, which may include, for example, procedures to remove victims from hazardous areas or procedures to extract victims from mechanical demining equipment;
- b) the on-site first aid and medical care of victims;
- c) the movement of victims to a surgical facility with the capacity to provide appropriate surgical care, including:
  - (1) details of planned routes and means of transport;
  - (2) details of security requirements including requirements for crossing international borders or through internal security posts;
  - (3) fuel, food and repair facilities on route;
- d) the medical care of the victim during movement from the accident site through to the surgical facility; and
- e) the establishment and maintenance of demining accident response equipment, materials and drugs including:
  - (1) on-site medical care equipment, materials and drugs;
  - (2) an emergency response vehicle, including specialist medical care equipment and fittings or fixtures to assist in the management of the victim during movement to the medical treatment or surgical facility; and
  - (3) preparation and maintenance of radios for on-site and en-route communications.

#### **4.3. Demining accident response capability**

##### **4.3.1. General**

Each demining workplace shall include:

- a) demining teams with resources to:
  - (1) provide immediate first aid to a victim of a demining accident;
  - (2) remove victim(s) from the hazardous area;
  - (3) transport the victim(s) to an appropriate medical treatment or surgical facility or other collection point for further movement of the victim to the appropriate medical facility;
  - (4) provide en-route medical care for the victim(s); and



- (5) communicate with the medical facilities, other emergency services or other coordinating organisations responsible for assisting the demining organisation in providing an appropriate response to a demining accident; and
- b) staff trained and equipped to:
- (1) clean and dress wounds correctly;
  - (2) stabilise fractures;
  - (3) give analgesia; and
  - (4) give antibiotics and anti-tetanus prophylaxis if the victim is not otherwise likely to receive them within six hours of the demining accident.

#### **4.3.2. Small demining teams**

It is acknowledged that it may not be practical to provide dedicated first aid or medical staff to small demining teams including, for example, survey teams or EOD teams which may be required to operate independently and in remote locations over extended periods. In such cases, demining organisations shall ensure that the small demining team has:

- a) employees with first aid training and resources, (including communications), required to respond to a demining accident, move victims to an intermediate medical treatment facility or a surgical care facility; and
- b) sufficient staff to manage and implement an appropriate emergency response procedure, including procedures which minimise the risk of multiple victims from a demining incident.

Additionally, when a team has only two people, both should be first aid trained and capable of carrying out appropriate emergency response procedures.

#### **4.4. Training**

##### **4.4.1. General**

All people working at or visiting demining workplaces shall 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. An example of the degree and level of medical training to be provided is given in Annex C.

### **5. Responsibilities**

#### **5.1. National Mine Action Authority (NMAA)**

The NMAA shall:

- a) establish and maintain documented standards and procedures for medical support to demining operations;
- b) monitor demining organisations' development and maintenance of demining accident response plans;
- c) assist in the co-ordination of appropriate responses to demining accidents, including supporting demining organisations in overcoming security constraints in the execution of a response plan;

- d) evaluate the effectiveness of emergency response plans and assist in implementing appropriate corrective action;
- e) establish and maintain standards and procedures for the investigation of demining accidents; and
- f) establish and maintain standards for insurance cover for medical treatment for demining workers, and standards for compensation for demining workers.

## **5.2. Demining employers**

Demining employers shall:

- a) develop and maintain Standard Operating Procedures (SOPs) which aim to reduce the risk of demining incidents occurring;
- b) develop and maintain SOPs which aim to reduce the risk of harm resulting from demining accidents;
- c) develop and maintain demining accident response plans for each demining worksite;
- d) provide the training and resources needed for the implementation of the demining accident response plan;
- e) provide an appropriate health plan for the demining workforce; and
- f) ensure that demining accident response plans are practised.

In the absence of a NMAA, the employer should assume additional responsibilities. These include, but are not restricted to:

- a) issue, maintain and update their own regulations, codes of practice, SOPs and other suitable provisions on medical support;
- b) cooperate with other employers in the same country to ensure consistency of standards for accident prevention, emergency procedures and occupational health; and
- c) assist the host nation, during the establishment of a NMAA, with assistance in framing national S&OH regulations and codes of practice for all aspects of medical support.

## **5.3. Demining workers**

Demining workers, including medical support staff shall:

- a) apply SOPs which aim to reduce the risk of a demining incident;
- b) apply SOPs which aim to reduce the risk of harm resulting from a demining accident;
- c) develop and maintain skills needed to respond to demining accident emergencies;
- d) identify and report opportunities to improve work practices to reduce the risk of a demining incident occurring and to improve the organisation's demining accident response plan; and
- e) carry out all the actions recommended by the medical authorities for the maintenance of occupational health.

## **Annex A (Normative) References**

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this part of the standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of the standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid ISO or EN:

- a) Care in the field for victims of war weapons, Management and health guidelines for health professionals; ICRC; and
- b) IMAS 10.10 Safety and occupational health - General requirements.

The latest version/edition of these references should be used. GICHD hold copies of all references used in this standard. A register of the latest version/edition of the IMAS standards, guides and references is maintained by GICHD, and can be read on the IMAS website: (See [www.mineactionstandards.org](http://www.mineactionstandards.org)). NMAA, employers and other interested bodies and organisations should obtain copies before commencing mine action programmes.

## Annex B (Informative) Terms, definitions and abbreviations

**B.1.  
accident**

an undesired event which results in harm.

Note: Modified from definition in OHSAS 18001:1999.

**B.2.  
demining accident**

an accident at a demining workplace involving a mine or UXO hazard (c.f. mine accident).

**B.3.  
demining incident**

an incident at a demining workplace involving a mine or UXO hazard (c.f. mine incident).

**B.4.  
demining accident response plan**

a documented plan developed for each demining workplace which details the procedures to be applied to move victims from a demining accident site to an appropriate treatment or surgical care facility.

**B.5.  
demining worker**

all employees who work at a demining worksite.

**B.6.  
demining worksite**

any workplace where demining activities are being undertaken.

Note: Includes sites where survey, clearance and EOD activities are undertaken including centralised disposal sites used for the destruction of mines and UXO identified and removed during clearance operations.

Note: Survey, in relation to a demining worksite includes general survey undertaken to identify mine and UXO hazards and hazardous areas.

**B.7.  
incident**

an event that gives rise to an accident or has the potential to lead to an accident.

**B.8.  
insurance**

an arrangement for compensation in the event of damage to or loss of (property, life of a person).

Note: Insurance should include appropriate medical, death and disability coverage for all personnel as well as third party liability coverage.

Note: Such insurance need not necessarily have to be arranged through an insurance broker or company, unless otherwise required by contractual arrangements. Self insurance (underwriting) schemes, provided they are formally constituted on accepted actuarial principles and provide adequate cover, may be an acceptable alternative.

**B.9.**  
**medical support staff**

employees of demining organisations designated, trained and equipped to provide first aid and further medical treatment of demining employees injured as a result of an accident.

**B.10.**  
**mine accident**

an accident away from the demining workplace involving a mine or UXO hazard (c.f. demining accident).

**B.11.**  
**mine incident**

an incident away from the demining workplace involving a mine or UXO hazard (c.f. demining incident).

**B.12.**  
**workplace**

all places where employees need to be or to go by reason of their work and which are under the direct or indirect control of the employer. [ILO R164]

## **Annex C** **(Informative)** **Level of medical training**

### **C.1. Demining workers**

In addition to the requirement specified in clause 4.4.1 demining workers should be trained in:

- a) their responsibilities and limitations for providing first aid care;
- b) how to place an unconscious person in the recovery position;
- c) how to stop bleeding by application of a pressure dressing to different parts of the body, elevation of a wounded part and, as a last resort, application of a tourniquet with minimal risk;
- d) the importance of dialogue with and realistic assurance of victims of demining accidents;
- e) the importance of protecting victims from cold, rain, snow, wind and excessive heat; and
- f) methods of casualty lift, carry and placement on a stretcher/litter.

### **C.2. Supervisors and demining team leaders**

In addition to the requirements specified in clause 4.4.1, demining supervisors and team leaders should be trained in:

- a) how to evaluate the security situation, and to assess the impact of the security situation on the implementation of an effective demining accident response plan;
- b) how to manage the extraction of a victim from a hazardous area;
- c) how to manage a demining accident which results in multiple victims;
- d) how to delegate first aid tasks to others with little or no training;
- e) how to plan and co-ordinate the evacuation of victims from the demining workplace to the surgical care facility; and
- f) the system for contacting medical treatment and surgical facilities, and organisations or authorities required to assist in facilitating the movement of victims to any intermediate care facilities and then to the appropriate surgical care facility.

### **C.3. Medical support staff**

In addition to the requirements specified in clause 4.4.1, medical support staff should 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) call forward medical assistance to treat the casualty on site or at an intermediate point before movement to advanced medical facilities;

- d) treat a casualty appropriately and safely at the demining workplace and en-route to advanced medical facilities; and
- e) correctly administer immediate antibiotics, oxygen, allergenic and intravenous fluids.

## Amendment record

### Management of IMAS amendments

The IMAS series of standards are subject to formal review on a three-yearly basis, however this does not preclude amendments being made within these three-year periods for reasons of operational safety and efficiency or for editorial purposes.

As amendments are made to this IMAS they will be given a number, and the date and general details of the amendment shown in the table below. The amendment will also be shown on the cover page of the IMAS by the inclusion under the edition date of the phrase ‘*incorporating amendment number(s) 1 etc.*’

As the formal reviews of each IMAS are completed new editions may be issued. Amendments up to the date of the new edition will be incorporated into the new edition and the amendment record table cleared. Recording of amendments will then start again until a further review is carried out.

The most recently amended IMAS will be the versions that are posted on the IMAS website at [www.mineactionstandards.org](http://www.mineactionstandards.org).

Number	Date	Amendment Details
1	01 Dec 2004	1. Formatting changes. 2. Minor text editing changes. 3. Changes to terms, definitions and abbreviations where necessary to ensure that this IMAS is consistent with IMAS 04.10.