GENERIC SOPs

CHAPTER 11: MEDICAL SUPPORT AND CASEVAC

Date:

Opinion and best-practice vary. Similarly, the minimum medical provision that is acceptable to the NMAA may vary from country to country. When the NMAA requires the medical provisions described in this Chapter to be increased, they must be increased. If the national requirement is less than that listed here, the requirements of this Chapter should not be reduced.

The Senior Paramedic must check that the lists of equipment and consumables in this Chapter are appropriate by ensuring that all necessary items are listed and removing any unnecessary items from the lists.

The availability of both a well trained and equipped paramedic and emergency evacuation vehicle are essential before work can be conducted in a hazardous area. Ambulance vehicles can be shared between demining Tasks as detailed in this Chapter. On-duty Paramedics must not be tasked with other work during working hours and must not be expected to work as deminers while providing medical cover. Paramedics who have been trained as deminers may be required to work as deminers when there are more Paramedics than required.

The accident record shows that general transportation vehicles that have not been suitably converted must not be used as ambulances. The attempt to save resources in this way has caused unnecessary deminer fatalities.

Fast and efficient trauma care can reduce the severity of the consequences of an accident, saving lives and reducing disability.

CHAPTER 11: MEDICAL SUPPORT AND CASEVAC

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1. All staff

All staff required to work at a demining Task site must be trained in basic First Aid. The training must include recognising their responsibilities and their limitations when providing first aid care

First Aid training should prepare staff for the following:

1. placing an unconscious person in the recovery position;
2. stopping bleeding by applying a pressure dressing in different places;
3. the elevation the wounded part/s;
4. the ability to, as a last resort, apply a tourniquet with minimal risk;
5. the importance of talking to victims to provide reassurance;
6. the importance of protecting the victims from cold, rain, wind and excessive heat; and
7. the ability to perform appropriate methods of casualty lift to carry a victim and place them on a stretcher.

If any of the medical support elements described in this Chapter become unavailable at a Task site, work in the hazardous area must stop until the medical cover has been restored.

If no communications are available to alert an emergency medical response, work in the hazardous area must stop until adequate communication is restored.

1.1. Basic health care

One of the duties of the Paramedic is to ensure that all staff are healthy and fit for work. Each person employed should have a medical examination and certificate of health before being employed. Each person in the Programme should have a medical examination at least once a year. Individual medical records for each staff member should be kept by the Senior Paramedic. Treatment for minor ailments and diseases that need not limit the staff member's working capacity should be offered in a daily clinic. Prophylactic treatments to prevent disease (such as malaria) must be given whenever appropriate, and the Paramedic must ensure that all staff are briefed against the health risks in the area where they are working. Inoculation against endemic infectious disease (such as tetanus, yellow fever and hepatitis) should be provided when appropriate.

When staff have symptoms that require specialist investigation and/or treatment, the Senior Paramedic should arrange for that treatment in a timely manner. When staff have illnesses or diseases that prevent their being able to work appropriately, the conditions of their employment contract (subject to relevant National employment laws) must be applied.

Chronic or degenerative illness that limits the working capacity is regrettable but the burden of staff treatment for illness or disease that are not work related or which fall outside the conditions of the contract of employment shall not be accepted. If an ailment will incapacitate a staff member for a long period, the staff member must be replaced in order to maintain a fully efficient demining team.

1.2. Insurance

Employee health insurance must be provided in line with the minimum requirements of the NMAA in the country of work. In addition to this, all staff must be insured against accidental injury from explosive devices during their work.

When the cost of extending staff accident insurance to include accidents outside the workplace is not prohibitive, that extension should be considered.

The particular insurance policy that is purchased may vary from country and should be selected based on content, service and price. Generally, other users of a policy should be contacted to determine the service that they have experienced when claims have been necessary.

The insurance must cover all activities undertaken in demining including “passive war-risks”. It must provide for the cost of comprehensive medical treatment of injuries/illness sustained at work and a sliding scale of compensation for permanent disability or disfigurement that results from any accident.

Medical treatment to a limit of US$100,000 or greater is preferred.

Compensation for death of a minimum of US$25,000 is preferred.

Compensation for disability and disfigurement up to US$40,000 (or greater) is preferred.

The compensation for accidental death should be a minimum of $US 25,000. Compensation for disability or disfigurement should be based on a Continental scale using $US 40,000 as the baseline unless a better (more detailed and comprehensive) scale is offered.

1.2.1 Minimum schedule of compensation

Insurance for national staff should be negotiated based on the compensation scale below.

The maximum compensation will be the maximum insured compensation sum no matter how many of the separate injuries listed below that the insured may suffer.

The permanent loss of use of a limb or appendage should attract the same compensation as the actual loss of the limb or appendage.

Arm at the shoulder	75%
Arm above the elbow	60%
Arm up to the elbow	60%
Hand at the wrist	50%
Loss of entire thumb	25%
Loss of Index finger	15%
Loss of part of thumb or fingers	5%
Loss of any other finger	9%
Leg above the knee	66%
Leg through the knee (or too close to the knee for walking with a lower-leg prosthetic)	60%
Leg below the knee (allowing walking with lower-leg prosthetic)	40%
Foot at the ankle	40%
Part of foot leaving heel and ankle	33%
Big toe	15%
Any other toe	5%
Eyesight in one eye	50%
Hearing in one ear (depending on % loss)	>30%
Hearing in both ears (depending on % loss)	>80%
Disfigurement (depending on the severity)	>50%
Permanent damage to internal organs (depending on the severity and loss of function).	>50%

The cost of a quality prosthetic is a medical provision and must not be subtracted from the compensation.

Injuries not listed (such as brain damage) must be assessed by medical professionals and a percentage disability agreed.

Insurance for International staff should be provided with a minimum provision of the requirements of employment law in their home country and additional cover at least as comprehensive as that offered by the demining agencies working in close proximity.

2. In the event of an accident

The Task Supervisor must ensure that a CASEVAC plan has been made and that all staff at the Task site know it. No work in the hazardous area can be conducted unless a documented CASEVAC plan is fully understood by all supervisors. The CASEVAC plan must also have been tested with a CASEVAC exercise before demining is started at each Task.

CASEVAC procedures vary according to the activities being conducted at the time of an accident.

CASEVAC procedures during manual demining are described in detail in Chapter 6, Part 5.2.

CASEVAC procedures to be used during the use of demining machines vary according to the machine and the work being undertaken. They are described in detail in Chapter 7, Part 1.16. The recovery of a machine from a hazardous area is described in detail in Chapter 7, Part 1.19.

CASEVAC procedures during MDD operations are as described for manual demining unless the MDD is the casualty. CASEVAC procedures for MDD are described in Chapter 8, Part 13.

2.1. Revising the TRA after an accident

If an explosive accident occurs, the Task Risk Assessment (TRA) must be reviewed in the light of the full circumstances surrounding the incident.

If the unplanned detonation could have been avoided, this may lead to a revision of the procedures and tools being used. If no one was injured in the unplanned detonation, this may be seen as a vindication of the original risk assessment. The choice of demining procedures, tools and PPE may have been good and, in this case, the review of the risk assessment may result in no change to the procedures being used.

Even when a deminer is injured, there is usually no reason to revise the working-distances unless there are secondary victims. Even when this occurs, the revision of working-distances should not be automatic. It must be based on an assessment of the likelihood of the circumstances surrounding the accident being repeated and any changes to the demining procedures and tools that will be implemented to prevent recurrence.

2.2. Conducting an accident investigation

Immediately after the CASEVAC of accident victims, the Task Supervisor must conduct a preliminary accident investigation as described in Chapter 6, Part 5.3.1.

An accident is a traumatic event but it is also an opportunity to learn and conduct an assessment of the procedures and tools that were in use at the time.

If the NMAA responds by forming an Accident Investigation Team in a timely manner, the Programme Manager must liaise with them and ensure that the Task Supervisor is represented in that investigation team. The Programme Manager must also ensure that the Accident Investigation Team is given all possible information and assistance as they conduct their inquiry.

When no independent investigation is conducted, the Programme Manager must form an internal Investigation Team and conduct an investigation as described in Part 6 of this Chapter.

3. The CASEVAC plan

It is the responsibility of the Programme Manager to ensure that a CASEVAC plan is produced by each Task Supervisor at every Task.

The basis for a CASEVAC plan is described below. It should be extended whenever necessary.

1) Plan the positioning of Paramedics and the resources required to respond to an accident. Plan their movement when the base-line moves forward as work progresses. Try to ensure that the Paramedic is always within five minutes from any possible accident victim.
2) Record the following details for each staff member:
    - Blood group;
    - Infections; and
    - Known allergies.
3) Ensure that provision is made to record the same details for each demining site Visitor in the Visitors log book.
4) List the medical equipment and drugs that must, as a minimum, be with the Paramedic at the Task site.
5) Describe how a victim is to be moved from the accident site to a safe-area. When appropriate, include details of how this will be achieved if the victim could be inside a machine inside the hazardous area.
6) State which emergency response vehicle should be used at which Task site, and list the minimum medical equipment that it should carry.
7) If a helicopter is to be used for CASEVAC, record all details of the prepared helicopter landing site. Record all details of how to call for a helicopter CASEVAC and the communication chain that must be used.
8) Record details of planned routes from the Task site to the nearest two medical facilities. Include an estimate of the travel time allowing for the road conditions. Describe the communications system that must be used while en-route.
9) Specify which medical staff should accompany the victim to hospital and the circumstances under which other staff (blood donors) will be required to travel to the medical facility.
10) Describe the minimum medical care that must be administered to any severely injured victim while being transported.
11) Make a schedule for the practice of CASEVAC procedures at the Task. A CASEVAC exercise should be conducted at each Task site before work begins.

4. Medical requirements at Task sites

The following regulations must be enforced at every Task site where manual deminers are deployed inside a hazardous area:

1. The site Paramedic should be positioned with the minimum medical equipment not further than 5 minutes brisk walk from the furthest possible demining accident at the Task.
2. A designated ambulance / emergency vehicle and dedicated driver must be available to the Paramedic. The emergency vehicle must not be used for any other purpose during demining activities.
3. The minimum medical equipment and material, support equipment and drugs must at all times be according to the minimum standard of this SOP as detailed below.
4. A Stretcher or Scoop Stretcher with spider webbing should be at the base-line.
5. The designated emergency vehicle must be able to carry at least one victim in a raised and comfortable position and carry the equipment described below.
6. Non-medical equipment may not be kept in the emergency vehicle while work is beng conducted inside the hazardous area.

4.1. Minimum medical equipment for the trauma-care pack

The minimum medical equipment in the Paramedic's trauma care pack is listed below. This should be augmented whenever necessary.

ITEM	Quantity
Manual ventilation bag with oxygen reservoir + masks	1
Oral airway disposable size 2, 3 and 4	1 each
Universal scissors	1
Artery Forceps	2
Stethoscope	1
Blood pressure manometer	1
Tourniquet	1
Burn dressing set	2
Gauze Pads, medium	12
Elastic bandage	5 rolls
Absorbent dressings, medium and large	6 each
Adhesive tape	1 roll
Abdominal/Chest dressing	2
Triangular bandage	2
Syringe 1 ml	2
Syringe 5 and 10 ml	5 each
Injection needle	5
Injection needle, s.c. and i.m.	5 each
Infusion set	5
Intravenous cannula 16–20 G	5
Cervical collar	1
Splints for upper and lower limb	1
Antiseptic solution	100 ml
Alcohol Swabs	25
Disposable gloves	5 pairs
Inj. Morphine 10 mg/ml *(or similar drug)*	5 x 1 ml.
Inj. Naloxon 0.4 mg/ml *(if using opoid)*	2 x 1 ml.
Inj. Anti-emetic drug *(if using opoid)*	2 amp.
Inj. Adrenaline 1 mg/ml *(or similar)*	3 x 1 ml.
NaCl 9% for inj.	10 x 10 ml
Ringer Solution *(or similar)*	2 x 1000 ml

The Paramedic must record the use of consumables and request replenishment promptly. The Paramedic must also ensure that all contents with a “use-by” date are replaced in a timely manner. Requests for replenishment must pass through the Senior Paramedic to the Programme Office and be dealt with as a priority.

4.2. Minimum medical equipment for casualty evacuation

The minimum medical equipment required for CASEVAC is listed below. This should be augmented whenever necessary.

ITEM	QUANTITY
Stretcher, Scoop stretcher *(or similar)*	1
Blanket	2
Oxygen. See example below	1000 litres*
Oxygen manometer and regulator with minimum flow of 10 litres/minute	1
Oxygen mask with reservoir	1
Suction pump set	1
Water container	10 litres
Means of communication (radio, cell-phone, etc)	1
Smoke signal *(when required)*	1
Example: Oxygen cylinder of 5 litres and a pressure of 200 Bar = 1000 litres. The oxygen cylinder should give 60 minutes of 80% oxygen at a rate of 15 litres / minute.	

The Paramedic must record the use of Oxygen and request a re-fill immediately. Requests for re-fills must pass through the Senior Paramedic to the Programme Office and be dealt with as a priority.

4.3. Emergency vehicle

Each Task must have a vehicle equipped as a dedicated ambulance available whenever work is being conducted in any hazardous area. The vehicle need not be a factory fitted ambulance unless the NMAA requires it. When the emergency vehicle is converted to serve as an ambulance it should have the following features fitted:

Privacy curtain between driver and patient compartment	1
AC unit on patient compartment	1
Medical cabinets	2
Fire extinguisher (2kg)	1
One or more off-floor stretcher(s) with mattress and belts	1
Spinal board foldable type (backboard)	1
Head immobiliser	
Defibrillator – ECG complete	1

48 cft OXYGEN cylinder with:	1
1. Regulator humidifier	1
2. Flow meter	1
3. Mask	1
Emergency Medical Aspirator (Suction machine) with:	1
1. Hose	1
2. Container	1
3. Suction pump	1
IV hooks	2
Waste bin	1
Needle container	1
Siren *w* / PA amplifier and speakers	1
Roof fights with on off switch	2

4.4. Ambulance consumables

The following table shows the consumables and other medical equipment that the emergency vehicle should have on board. The Senior Paramedic should make variations whenever necessary. All variations must be recorded in writing and should be sent to the Programme Manager for approval.

I.V. Cannulation	**Bleeding/burns**	**Fluids**
Disposable Gloves	Bandage 10cm/15cm	Normal saline 500ml
Syringe 2ml/5ml/20ml	Confirming Bandage 10cm/15cm	Water for Injection 500ml
Water For Injection 5ml	Crib Bandage 5,10,15cm	I.V. Set
I.V.Cannula G18	Triangular Bandage	Volven 6% 500ml
3 Way Stopcock	Cotton Roll 5cm, 7.5 and 10cm	Ringer Lactate 500ml
Hyp Needle G21	Zinc Oxide Plaster	Normal Saline 500ml
Tourniquet	Dressing 5x5, 5x10, 10x15, 10x20cm	
Zinc Oxide Plaster	Dressing 7.5x15 and 7.5x20cm	**BP & Medication**
Alcohol Gel and swabs	Rubber Tourniquet	Rescue Scissors
SAM Splint	Povodine Iodine 75ml	Artery and tissue Forceps
	Band Aids	Scalpel handle and blades
Intubations	Burn Shield	Stethoscope
E.T.Tube size 7, 7.5, and 8	Gauze Swab 10X10	Blood Pressure Set
E.T Stylet	Urine Catheter 14 and 16	Dolomol 500mg
Magill Forceps (Adult)	Urine Bag	Allerfine 4mg
Laryngoscope Set	Paper Tape	Spasmopan 10mg
Lubricating Gel		Clopram 10mg
O2 Connection Tube		Loperium 2mg
O2 Mask	**Suction Set**	Aquasqal
N.G.Tube	Rescue Vac Set	
	Suction Catheters	**Other**
Airway & Breathing		Neck Collar
Ambu Bag with Mask		Foil Blanket
Guidal Airway Size 3 and 4		Thermometer

All consumables should be have long expiry dates.

4.5. Medical documentation

The following records and forms cover all required medical documentation:

1. Trauma Pack contents;
2. Ambulance Pack contents;
3. Internal medical treatment form;
4. External medical treatment form;
5. CASEVAC exercise form;
6. Task Visitors Log;
7. Refusal of treatment form;
8. Weekly re-supply form;
9. Oxygen re-fill form;

10. Medical items issue form;
11. Staff blood group record; and
12. Hygiene inspection form.

The senior Paramedic may extend the documentation when required.

5. Blood Group compatibility

The Paramedic and at least two staff with a compatible blood group should accompany any severely injured casualty to the hospital whenever the availability of blood stocks is in question.

It is very important to ensure that blood groups are not mixed indiscriminately because some blood groups may cause a severe or fatal reaction when they are mixed.

The Table below shows which blood groups are compatible.

Casualty	Donor	Casualty	Donor
O+	Can receive blood types:	**O-**	Can receive blood types:
	O+		O-
	O-		
A+	Can receive blood types:	**A-**	Can receive blood types:
	A+		A+
	A-		O-
	O+		
	O-		
B+	Can receive blood types:	**B-**	Can receive blood types:
	B+		B-
	B-		O-
	O+		
	O-		
AB+	Can receive blood types:	**AB-**	Can receive blood types:
	AB+		AB-
	AB-		O-
	O+		
	O-		

6. Accident investigation

The following sections describe the contents of an Accident report. Chapter 12 includes a blank sample Accident Report format.

Internal accident investigations should be conducted whenever there is an unintended detonation or an intended detonation that causes injury. When the unintended detonation does not cause injury, the investigation may be brief and the report may be short, but an investigation should still be conducted.

Internal accident investigations must be completed within one week of the accident occurring. The investigation should normally begin on the same day as the accident, or on the following day.

Internal accident reporting is essential. The report will go on record and will augment any external report that there may be. The investigation obliges the investigators to look critically at the events surrounding the accident and identify ways of preventing any repetition. It also allows others to read the report and share the lessons that may be learned. To make sharing possible, it is essential that the investigation be clearly documented. Any judgment must be logically set out so that the conclusion is compelling. The discipline involved in this can help the investigators to stand back from events and be objective. The finished report should be submitted to the NMAA and must be sent to UNMAS for inclusion in the global Database of Demining Accidents (names are all removed before inclusion).

The purpose of an internal investigation is not to apportion blame. It is to fully understand what occurred, assess the information and what can be deduced or inferred from it (Conclusions), and make practical recommendations for any improvements that may be needed (Recommendations). There are times when nothing practical can be done to prevent recurrence, and other times when corrective measures may be obvious.

Because the accident report may be read by someone several years later, it is important that all details are recorded in a way that will prevent misunderstanding. Clear photographs with an accompanying narrative are the preferred way of describing the area, the Task site, equipment and injuries.

It is essential that accident investigators remember that any accident that results in severe injury will have shocked the people involved. Often people are uncertain about the events leading up the accident and are afraid of being blamed. The investigation must be conducted with patience and understanding. It should be stressed that any people injured are receiving treatment and will get compensation, and that the purpose of the investigation is not to blame or punish anyone.

In fact, the investigation may lead to the discovery of facts that lead to someone being disciplined or even dismissed, but that is a consequence of having discovered the truth: the discovery of the truth is the purpose of the investigation. In many cases, an accident results from an accumulation of errors, each of which may be trivial in itself, that are easily corrected without blame or punishment.

The investigation of an accident must take place quickly. This ensures that events are fresh in people's minds and that evidence on the ground will be undisturbed. Because of the need for speed, the composition of the investigation team will vary according to the people available to respond. A minimum of three people should conduct the investigation which should be led by a Platoon Supervisor or another person invited by the Programme Manager to do so.

6.1. SECTION 1: accident summary

The first part of the report is a summary recording the date, time and place, the mine/ERW involved, the activity at the time of the accident and the probable causes. The investigators will not be able to enter probable causes until the investigation has been completed.

The address of the Programme Office should be included in the header of footer of the front page of the Accident Report.

Accident details			
Accident date:		Accident time:	
Where it occurred:			
Primary cause:		Secondary cause:	
Class of accident:		Date of main report:	
Internal document ID:		Name of investigator(s):	
Mine/device:		Ground condition:	
No of victims:			
Map details			
Longitude:		Latitude:	
Alt. coord. system:		Coordinates fixed by:	
Map east:		Map north:	
Map scale:		Map series:	
Map edition:		Map sheet:	
Map name:			

Map details should be entered in the IMSMA format required. The physical address and hazardous area ID should be recorded under “Accident details: Where it occurred”. It is important to take a GPS record of the place where the accident occurred because it may help the NMAA to record clusters of accidents and so identify high-risk areas. This can also be useful for further demining efforts that may take place years in the future.

6.2. SECTION 2: the Accident report

The report of an accident should give a narrative under the following headings. These should be completed even when the investigator does not think they are relevant.

6.2.1 History of the hazardous area

Report on when and why the mines were laid, what is known about the threats, and the current conditions in the hazardous area (vegetation and ground conditions). Include details of how long the team had been at the site, and how much work had been completed.

6.2.2 Processes in use

Describe the demining processes that were in use at the Task. Include a detailed description of the equipment and PPE, the team size and the level of supervision.

6.2.3 Activity surrounding the accident

Describe what happened before, during and after the accident. Include CASEVAC reaction time.

6.2.4 Injuries sustained

Record all injuries, even minor ones, and damage to equipment.

6.2.5 Timeline

List at what time events occurred, starting at least an hour before the accident and continuing until the Victim(s) arrived in hospital. Make the timeline longer when the information is relevant. When there is any question of a communications failure, include the relevant parts of the communications log.

6.2.6 Photographs and sketches

Relevant photographs and sketches that will help others to understand the circumstances surrounding the accident should be included. These may include a sketch-map of the area but that is not essential. Photographs of the area and the accident site should always be included. Photographs of any damaged PPE and tools should also be included.

Each sketch or photograph should be accompanied by a brief explanatory narrative.

6.2.7 Statements

Witness statements are very important and often provide the main justification for the conclusions and recommendations that can be drawn. Witnesses need not have actually seen the accident, but should have been witness to some of the surrounding circumstances or events. Witnesses should be interviewed separately and without fear of the consequences. This can be hard to achieve, and may mean that the interviews must be conducted by someone else. When translation is required, do not use the field supervisors as translators. If you do so, the witnesses may be intimidated and/or the translation may be inaccurate.

When interviewing witnesses, do so with gentle persistence. Allow enough time for this. If things have been done incorrectly, try to find out why so that you can address the cause rather than the symptom.

Generally, any threat to the Victim or the Supervisors will be counter-productive. If a stupid error has been made, retraining may be more appropriate than dismissal because a dismissal will make deminers less inclined to be honest in future, and because there is no better lesson than an accident. The person making the mistake is usually the person least likely to make it again – as long as that person has acknowledged that a mistake was made. If the person has successfully hidden a mistake, they may be a real danger of it being repeated in future.

6.2.8 Conclusions

List the conclusions you have reached (including obvious ones) and refer to the evidence or statements that justify those conclusions. Do not simply state – “From what I saw, it was deminer error”. Later readers of the Accident Report need to know what was seen and why a conclusion was reached. Do not be afraid to write, “There is not enough information to determine quite what happened, but it seems likely that….”

6.2.9 Recommendations

Recommendations should follow logically from the conclusions. They can often be suggestions rather than requirements. Do not feel obliged to make any recommendations at all. If you do make them, they must be easy for those involved to understand, and you should present them to the people involved in the accident for approval. Whether they agree or disagree, that fact should be added to the recommendations.

6.3. SECTION 3: Victim Report

A victim report should be completed for each Victim.

Internal Victim ID:		Name:	
Age:		Gender:	
Work title:		Time to hospital:	
PPE issued:		PPE used:	

The “Work title” of the Victim is based on his/her job. Referring to the record of previous accidents, this may be one of: Deminer; Supervisor (covering all levels of supervisor); Paramedic; Driver; civilian; Dog handler; Trainer; Surveyor. Add any other work title when it is appropriate. If a civilian is injured during work at a Task, write “Civilian”.

6.3.1 Summary of injuries

Summarise the Victim’s injuries in a simple list. Each injury should be referred to as either “minor” or “severe”. A “Minor” injury is one that does not seem to require hospital treatment. A severe injury requires some hospital treatment. For example, light fragmentation on a hand might be a “Minor” injury but a fragment that needs to be removed by a doctor would be “Severe”. Amputation or loss of function must always be recorded as “severe”.

6.3.2 Medical report

Some kind of medical report should be included. The field Paramedic’s report may be enough, but if the Victim is taken to a hospital, a hospital report should be included. This should be added later if it is not available when the report is compiled.

Good photographs of the injuries can be very useful for both Paramedic and deminer training. Unless the face or eyes are involved, the pictures should not include a recognisable face. Photographs that do include recognisable faces should not be included in training materials without the consent of those shown (and will not be used by UNMAS or in the Database of Demining Accidents).

The hospital medical report should be augmented by a follow-up entry later that gives the Victim’s status after treatment. If she/he has returned to work, that is good to know. If he/she suffered complications and has subsequently become disabled, that is essential when assessing the seriousness of the accident.

6.4. SECTION 4: Accident Notes

Identifying common features of accidents can be very useful when considering changes to procedures and/or equipment. This should be done after the report has been completed, and amended by others who read the Accident Report later. If an event has only occurred once, the retraining and re-equipment required to change procedures may not be worthwhile. If it is a common “Note”, it may be time to address the problem. But many things about an accident are uncertain – might have been relevant, but might not have – so the list is tentative. Each entry has a (?) after it to show that this is only a possibility and that the reader should look at the report in full and make their own judgment.

The following is a suggested list that should be added to as required. All these have been noted in accidents around the world.

Disciplinary action against Victim (?)
Disciplinary action against supervisors (?)
Dog missed mine (?)
Hand-tool may have increased injury (?)

Inadequate area marking (?)
Inadequate communications (?)
Inadequate equipment (?)
Inadequate investigation (?)
Inadequate medical provision (?)
Inadequate metal-detector (?)
Inadequate survey (?)
Inadequate training (?)
Inappropriate vegetation cutting tool (?)
Incomplete detonation (?)
Inconsistent statements (?)
Long hand-tool may have reduced injury (?)
Mechanical detonation (?)
Mechanical follow-up (?)
Metal-detector not used (?)
Mine/device found in “cleared” area (?)
No independent investigation available (?)
Non-injurious accident (?)
Pressure to work quickly (?)
Protective apron not worn (?)
Request for better equipment (?)
Request for machine to assist (?)
Working distances ignored (?)
Squatting/kneeling to excavate (?)
Standing to excavate (?)
Use of pick (?)
Use of rake (?)
Use of shovel (?)
Vegetation clearance problem (?)
Victim ill (?)
Visor not worn or worn raised (?)

For example, the combination of “Use of rake”, “Standing to excavate” and “Non-injurious accident” in existing accidents implies strongly that the raking process is safer than excavation procedures in which the deminer is closer to the ground. However, if the frequency of accidents is higher than you would expect, it may be that the process (raking) is making the detonation of mines more likely. Retraining or refinement of the procedure may be needed. This kind of assessment cannot be made without data from a significant number of accidents that share common features.

6.5. SECTION 5: Analysis

Each accident should be assigned a Primary and Secondary cause. Two causes are preferred because there is rarely a single reason for an accident to occur. There may be many reasons.

Assigning a cause does not apportion blame, but does direct the reader of the Accident Report towards areas where improvements in procedures, equipment, training or support might be expected to make a repetition of the accident less likely. This is the only part of an Accident Report where investigators must put aside their desire to be objective and use their best judgement.

Having decided on a Primary and Secondary cause and entered them in the form in SECTION 1, the investigators should briefly explain why these causes have been assigned under this heading.

Investigators should review the report and select a Primary and Secondary cause from the following:

1. Victim inattention (?)
2. Field control inadequacy (?)
3. Unavoidable (?)

4. Inadequate equipment (?)
5. Inadequate survey (?)
6. Inadequate training (?)
7. Management control inadequacy (?)
8. Other (?)

The (?) shows that each choice is a possible opinion, not an absolute judgment. It is often difficult to choose between Primary and Secondary causes, so the order does not really matter. When only one cause is apparent, use the same cause for both Primary and Secondary. The list is provided to make it easy to identify accidents that shares common causes, but is not obligatory. If none of the above are appropriate, the investigator should write in something new.

6.6. SECTION 6: Signing off

Accident reports should be signed by the investigators and the supervisory staff at the place where the accident occurred. They must always be dated, so showing how much time has passed between the accident and the completion of the report.

To allow subsequent assessment of the injuries sustained, the Task Supervisor should remember to add post-accident medical data as it becomes available.

The Programme Manager should countersign the report and send it to the NMAA and must send it to UNMAS for inclusion in the Database of Demining Accidents (www.ddasonline.com). All names and identifiers will be removed before it is included.