CHAPTER SEVEN

FUNCTIONAL PLANNING - HOSPITALS AND AMBULANCES

HOSPITAL DISASTER PLANNING

7.01 INTRODUCTION

Disasters produce casualties on such a scale that a significant overload is placed on existing medical, hospital and healthcare facilities, to the extent that the facilities often need strengthening and expanding to cope with the added increase in disaster casualties

7.02 Consequently, it is essential for hospitals in particular, to have up-to-date, prepared and rehearsed plans and procedures, integrated with the Community Disaster Medical Response Plans, to provide effective response when needed to cope with mass casualties in major incident and disaster situations.

7.03 Planning will need to recognise the potential effect upon a hospital from which sole source external medical teams are provided.

7.04 HOSPITAL PLANNING NEEDS

All hospitals must to have a Disaster Plan providing for the following:

a. **An Internal Disaster Affecting the Hospital Itself** - Internal disasters usually relate to hospital based incidents involving fire, bomb-threat, gas leaks and structural damage. Plans for emergency evacuation of the facility, and mutual aid arrangements for the care of patients are an essential element of a hospital's daily emergency procedures and planning. Such planning may involve the response by other emergency services and medical and health agencies and auxiliaries and needs to be integrated with local community authorities; and

b **An External Disaster where Casualties are Directed to the Hospital for Definitive Treatment and Care** - In the case of external disasters where casualties may be directed to the hospital with little or no warning, an effective response may well depend on the soundness and testing of the External Disaster Plan and the extent of training of staff required to provide such response.

7.05 COPING WITH DISASTER

To be able to cope with a mass casualty situation, hospitals must be prepared to accept casualties far in excess of what would occur in normal circumstances. In this context, with facilities and staff being stretched to the limit, and often being overwhelmed, strict priorities for treatment and management of casualties is necessary. Until the hospital routine and the situation resumes normality, often basic patient care only can be provided rather than the normal care usually available to patients.

7.06 HOSPITAL ROLES IN DISASTER

Apart from the requirement for a hospital to plan for internal and external disasters on an individual basis, such planning will need to address any special disaster roles given to the hospital under Regional or State Disaster Plans.

7.07 In a metropolitan area where multiple resources exist, a major hospital may well be a designated hospital to:

a provide trained Site Medical Teams to work at a disaster site;

b act as a Receiving Hospital for casualties transferred from a disaster site;

c receive patients transferred from other hospitals where bedspace is required by a Receiving Hospital for the admission of urgent cases; and

d. act as a triage hospital in extreme mass casualty conditions

7 08 SITE MEDICAL TEAMS

There may be a requirement for the hospital to supply a medical team to provide treatment at a disaster site. Consideration needs to be given to the depletion of hospital medical personnel to cope with the anticipated influx of casualties on on-going medical services

7.09 Such a team needs to be properly equipped with identification, appropriate protective clothing, disaster medical supplies, communications, and trained in medical disaster management, as they will be working with other structured emergency services. See Chapter Nine on Personal Equipment and Identification for a more comprehensive listing of appropriate items Consequently, it is necessary to have agreed site procedures to enable effective site control to be established for proper medical management of casualties

7.10 HOSPITAL RESPONSE TIME

What is not always realised, particularly by other responding emergency services and community groups, is that a considerable effort must be made by a hospital to re-arrange treatment and other care facilities to cope with an abnormal number of casualties being presented over a short period of time. With this fact in mind, it is essential that planning and practicing of plans and the training and exercising of staff in disaster procedures should be carried and integrated with all medical responders and participating emergency services

7.11 PLANNING CONSIDERATIONS

For a casualty situation with the potential to overwhelm normal resources, the following issues must be addressed:

a. The establishment of a Hospital Disaster Planning Committee and a representative member to attend the Local/Regional Disaster Planning Committee to ensure planning is not done in isolation and can be integrated with other emergency response required

b. Identify the positions authorised to place the hospital in a disaster mode:

(1) Where a hospital has an established Emergency Department, initial notification of casualties may be communicated directly to the Department. In these circumstances, such communications should be switched through to the Hospital Control room when established, as emergency staff will be fully occupied in treatment procedures

(2) In other circumstances, the Hospital Administrator or delegate might well be the appropriate person for initial contact and for the activation of the hospital to the desired level of disaster response.

c The hospital must provide a framework plan to establish a hospital disaster organisational structure to manage the situation and to develop procedures for staff/medical specialist alerting and mobilisation for assigned duties and other administrative matters

d Designation of a Hospital Controller and key personnel with Action Cards showing procedures and assigned duties Key staff given particular roles in an emergency should have suitable identity such as tabards eg Triage Officer/Nurse.

e Maintenance of an up-to-date system to contact, alert and call out necessary medical and other staff required.

f A Hospital Control Room with dedicated silent telephone, facsimile, television and other communication needs to be designated and established

g Silent telephone lines to enable the Hospital Control Group to effectively function without undue delays.

h Alternative communications eg. messenger system, clinic car with radio, other radio emergency networks, should telephone communications fail.

i. Treatment areas must be defined with arrangements shown for triage, resuscitation, casualty holding areas including areas designated for treating minor wounded

j. Establishment of treatment areas in the hospital to handle minor injuries not requiring hospital admission (This is most important as it keeps the Emergency Department clear for admission of urgent cases)

k. Inpatient medical assessment for the transfer of ward patients to other areas of the hospital, or to other healthcare centres as appropriate, or temporarily discharged to their homes, if beds are required for admission of serious casualties. It is desirable for all disaster casualties to be kept in designated wards due to the special requirements and documentation required following treatment and care.

l Arrangements necessary to provide for expanded wards, supplemented by beds and stretchers.

m. Rescheduling existing elective surgery and other medical appointments and rearranging existing out-patient services

n. Arrangements for auxiliary hospital staff to care for persons temporarily transferred from ward areas and to ensure that comfort and meals are provided to existing patients.

o Establishment of a Hospital Disaster Registration System for casualties, including provision for documenting hospital inpatients who reside in the impact area.

p. Casualties arriving at the hospital processed with triage tags showing treatment received, should have the tags integrated into the pre-prepared hospital disaster documentation

q Provide building plans to show the anticipated rearranged treatment areas for mass casualties and facilities for next of kin and the media.

r. Security staff required to handle the increased internal hospital security matters and to provide transport vehicle control at the hospital to allow clear entry for ambulances and other authorised emergency vehicles

s Arrangements to provide auxiliary power and essential supplies of water, gases, fuels to ensure the hospital can continue operating under adverse conditions Consideration should also be given to additional catering requirements.

t. The provision of tabards or armbands to identify persons carrying out an assigned role under the plan is most useful, particularly if they are not performing usual tasks

u. Review of the plan at regular intervals or following testing or activation of the plan where deficiencies are found. Contact numbers for key staff may best be kept in an annex to the main plan so that updating of changes can be made as they occur

7 12 SUMMARY

Hospitals need to plan for the following.

a An emergency or disaster affecting the hospital itself. Hospitals should maintain a vision for future developments. An emergency or disaster which affects the hospital may provide a window of opportunity to achieve or accelerate developments or changes in direction

b. Coping with large numbers of casualties presenting to the hospital for treatment.

c All plans need to be made in conjunction with medical and health response groups, participating emergency services, and local/regional planning committees to ensure full integration with all response agencies, and to avoid planning in isolation.

(1) The Hospital must fully understand the role/roles it may have to undertake in a disaster situation.

(2) A hospital control room with adequate communications both internally and to the State Health and Medical Control Centre must be established and a Hospital Controller appointed

(3) The hospital must be prepared to admit casualties far in excess of what would be expected in normal daily circumstances

(4) There must be in place a system for alerting and mobilising key clinical and administrative staff required, hospital auxiliaries and participating medical and health agencies

(5) Hospital contact lists of staff must be kept up-to-date and listings of resources and manpower availability should be amended at regular intervals and as necessary as changes occur.

(6) Where Hospital Field Medical Teams are planned, they must be properly clothed, equipped, provided with disaster medical supplies and trained in disaster site procedures.

(7) Action Cards should be drawn up to cover assigned tasks for key staff and for the arrangements necessary to set up designated treatment areas.

(8) Internal hospital arrangements to cope with an increased casualty load must be tested and practised on a regular basis, and planning adjusted to address deficiencies.

AMBULANCE AND FIRST AID DISASTER PLANNING

7.13 INTRODUCTION

It can be expected that the ambulance service, by the very nature of its normal operation, will provide the first medical response to casualties in a major incident/disaster Essential initial intelligence will give guidance for the appropriate medical support required at the scene and will be required to establish an effective and efficient initial medical management process which will triage and provide basic care and transport of casualties.

7.14 Situations can be broadly categorised into four groups:

a. A mass casualty situation of short duration which can be handled by the ambulance service with the assistance of the medical teams.

b. A disaster which produces large numbers of casualties which will require the ambulance service to enlist the support of the first aid service and other transport services.

c. A disaster which has few casualties but imposes restrictions on the normal operations of the service such as an exotic animal disease.

d A disaster which causes 'casualties' within the ambulance service to personnel or facilities thus limiting the ability of the service to respond.

7.15 It is essential therefore, that a plan is prepared, maintained and practised to take into consideration all of these circumstances and that the plan is integrated with the total health and medical plan and other functional service plans.

7.16 PLANNING

The initial step in preparing a plan for this segment of the medical readiness for disaster is to identify the types of hazards (local, regional) which will require a special response and to document these in the order of possibility and probability.

7.17 The next need is to identify all the human and physical resources that are available within the ambulance service, together with those other organisations which have similar roles, responsibilities, resources and training that would be able to participate and support a response to an incident

7.18 It is necessary to call a meeting of senior representatives of those organisations that may wish to participate to reach an agreement on the need to plan together and thus provide a coordinated response Ideally this meeting should also include a representative from the area Disaster Planning Committee and a health and medical representative

7.19 Agreements having been reached it is necessary to establish a planning committee who will firstly prepare a master plan for the combined organisation This plan should be prepared to include the following:

a Authority signed jointly by the participating organisations

b Aim of the plan.

c. Scope of the plan

d. Activation of the plan

e. The location of the Control Centre together with an alternative

f. The key personnel, their authority, roles and responsibilities

g. The specific roles and responsibilities of the participating organisations.

h The principle of the operation.

i. The phases of the activation.

j. The review of the plan

k. The distribution of the plan.

l The exercise of the plan.

m Annexes which include specific operational procedures, chain of command, duty statements, personnel.

7.20 The next step is to produce the support plans for each of the participating organisations. These plans should be prepared to include the following:

a. Authority signed by the head of the organisation

b. Aim of the plan.

c. Scope of the plan

d Activation of the plan.

e. If necessary, the location of a Control Centre together with an alternative

f. The key personnel, their authority, roles and responsibilities.

g. The specific role and responsibility of the organisation.

h The principle of operation

i The phases of operation.

j. The review of the plan

k. The distribution of the plan

l The exercise of the plan

m Annexes which include specific operational procedures, chain of command, duty statements, personnel and means of contact, resources, debrief procedures.

7 21 Two enhancements which are recommended for all the plans are as follows:

a. Identify incident/disaster response in phases and stages so that the plan defines a procedure which will coordinate the responses of each of the participating organisations in an escalating manner, where possible, or at least in a controlled manner in the event of an impact incident.

b Divide the service or organisation into sub-groups according to their particular expertise or function so that all personnel can be trained to their specific role eg. communications, administration and welfare, supply and engineering

7.22 TRAINING

It is essential that training is carried out as a continuing process for all personnel who will be required to participate in a response to a major incident/disaster

7.23 This training must include all aspects of the ambulance and first aid response such as the first responders role, initial medical site management, the hand over to a more senior person, the liaison with other services, especially the health and medical service, and an understanding of the overall picture of the State response to disasters.

7 24 Exercises can be carried out 'in-house' However, where possible exercises should include multiple disciplines to enable a sense of realism and practical experience in managing a response.

7.25 REVIEW AND MAINTENANCE

Any plan that is written is never really complete since resources, technology and personnel change as time progresses. In addition, experience may reveal better response strategies. Therefore an officer within the ambulance service should be dedicated to the role of reviewing, amending and maintaining the plan which has been initially prepared.

7.26 This also provides a central point for contact in the counter disaster arena which should ensure better liaison with the ambulance services' counterparts prior to the response - it is far better to be able to identify a friendly face in planning for and response to emergencies

PRINCIPLE

Those who work together well on a daily basis tend to work together well in a disaster.

CHAPTER EIGHT

COMMUNICATIONS

INTRODUCTION

8.01 Communications are vital to ensure the two way flow of information and for the exercising of command, control and co-ordination. This Chapter should be read in conjunction with Chapter Six on Medical Incident Management and Disaster Site Arrangements.

> PRINCIPLE
>
> **Disasters create the need for co-ordination between all participating agencies. This requires reliable inter-agency communication.**

8.02 REFERENCE MANUAL

Information on communications systems and methods, maintenance and operation of equipment, and communications management is contained in the Australian Emergency Manual - Communications. This is available on request from the State Emergency Service in each State or Territory and is recommended reading.

8.03 It must be assumed that normal communications during emergencies or disasters will be impaired. This may be due to damage to equipment, excessive use of existing facilities, or the lack of facilities in remote areas. Alternative back-up communication system should be established. Whenever possible responding agencies should be self sufficient in communications.

INTELLIGENCE

8.04 Invariably, there will be a number of organisations or agencies that require intelligence to enable appropriate actions to be taken. Intelligence that needs to be shared includes:

a. continuous assessment of the emergency situation;

b. requirement of responders, including resources, arrival times, priorities; and

c. command, control and co-ordination measures.

8.05 Officers-in-charge should constantly be aware of the needs of various agencies and ensure that information is appropriately disseminated. Jargon should be avoided to reduce the risk of misinterpretation.

8.06 Mobile communications technology, such as mobile facsimile and cellular telephones may be useful in supporting disaster response.

8.07 **COMMUNICATIONS NETWORK**

An example of a communications network is depicted at Annex A

8.08 In emergencies or disasters communications are a major problem for managers. All participants must be trained in communications systems and procedures.

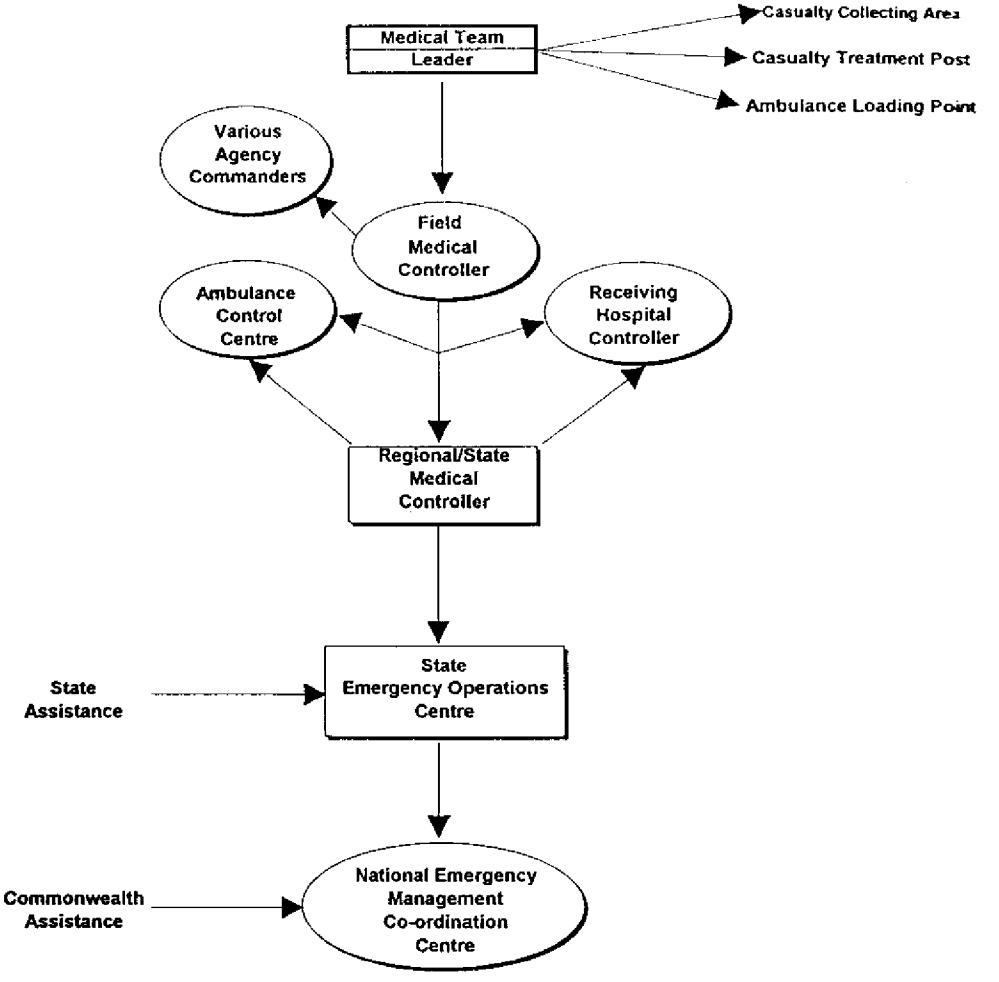
PRINCIPLE

In disasters, what are thought to be 'communications problems' are often co-ordination problems in disguise.

ANNEX: A. Communication Network

ANNEX A TO
CHAPTER EIGHT

COMMUNICATION NETWORK



CHAPTER NINE

PERSONAL EQUIPMENT AND IDENTIFICATION

INTRODUCTION

9.01 This chapter gives guidance on the selection of personal equipment that should be provided for each team member and the team collectively.

PERSONAL EQUIPMENT

9.02 HELMET

A safety helmet must be provided and worn on all appropriate occasions. Factors in their selection include the following:

a. **Material** - Plastic, fibreglass

b. **Sizes** - Are they fixed sized or adjustable?

c. **Colour Coding** - Do they conform to the international standard? ie green for medical.

d. **Chin Straps** - Are helmets supplied with chin straps, or do they have to be purchased separately?

e. **Visors/Goggles** - Can helmets be fitted with visors or goggles?

f. **Light** - Is there a facility for fixing a miner's style light on the helmet?

g. **Designation of Wearer** - Helmets should be labelled with doctor or nurse etc. Any marking of the helmet must be done in a manner not to affect the integrity of the helmet. Helmets should not be swapped for health reasons.

h. **Storage** - Helmets may have special storage requirements eg plastic helmets should not be exposed to continuous sunlight.

i. **Replacement** - Approved helmets have an expiry date. A cyclic replacement program is recommended.

9.03 EYE PROTECTION

Eye protection may be required from dust debris, and body fluids.

Choices are goggles, glasses or visors. Perspiration, condensation and comfort are factors to be considered.

9.04 RESPIRATORY PROTECTION

This may be required for noxious smells, dust, body fluids or toxic atmospheres. Choices are cloth masks, disposable filter mask or cartridge mask.

9.05 OVERALLS

There are a number of points to be considered in the choice of a protective overall.

a. **Material** - Should be low flammability, wool or cotton. Should be appropriate for the climate, hot or cold, wet or dry.

b. **Design** - Zips versus studs Is there an inside security pocket, velcro or elastic on wrist or feet? Reinforced knees/elbows? Male and female sizes?

c. **Colour and Markings** - Do they conform with international standards? Is the identification of the wearer clearly identified?

d. **Additions** - A belt should be provided that can carry a water bottle and portable phone/radio.

9 06 FOOTWEAR

Points to be considered are:

a. protection.

b. high rubber soles - grips;

c. ankle support,

d leather/suede uppers;

e mid-calf in length, and

f sewn-in tongues.

The best type of footwear available would appear to be military / fire fighters style of boot

9.07 GLOVES

Gloves are required for protection from sharps, debris, body parts and fluids. Different gloves may have to be provided for different circumstances that occur during the rescue and extrication of casualties and their subsequent treatment.

9.08 ENVIRONMENTAL FACTORS

Environmental factors, in both natural and man-made scenarios, may require specific-to-task additional or alternative clothing. For example, in natural disasters, clothing will need to meet the climatic conditions in the disaster area, eg lightweight for hot and humid and heavy but manageable for sub-artic or high altitude. In the case of man-made disasters, eg. chemical, biological or nuclear incidents, clothing specifically designed to provide adequate protection to the wearer will be a pre-requisite.

9.09 COMFORT KIT

A number of items should be maintained for the comfort and hygiene of the medical team. These may include the following.

Bobby pins
Comb
Container for drinking water
Deodorant
Disposable white 'Chux'
Elastic bands
Environmental wipes
Eye drops
Glucose sweets
Hand cream
Insect repellent
Lip balm
Nail file
Shaving kit
Simple analgesia
Soap washers
Sun protection cream
Talcum powder
Tampons
Tissues
Toilet paper
Toothpaste and toothbrush

PERSONAL IDENTIFICATION

9.10 Recognised identification should be carried by all responders to permit access to the site. In circumstances such as a controlled response to a disaster overseas, or in the remote area, the possession of a prepared form of personal identity card would be advantageous. Such a card should include a photograph, name of organisation, name and designation

REMOTE AREA AND OVERSEAS RESPONSES

9.11 Annex A provides information on personal and team equipment recommended for such responses

---

ANNEX: A. Recommended Personnel Equipment for Disaster Medical Assistance Team Members

RECOMMENDED PERSONAL EQUIPMENT FOR DISASTER MEDICAL ASSISTANCE TEAM MEMBERS

1 BACKGROUND

This document contains suggested supplies required to support a six-person medical team, deployed in outback Australia or overseas, as part of a counter-disaster response. Specific medical equipment is not documented as relevant lists exist elsewhere. Familiarity with equipment is essential. It is assumed that the team could be deployed for a period of up to 14 days.

2. GENERAL

It is important that a relief team does not become another administrative and logistic problem for the host area in the immediate post-disaster phase. Apart from fuel for the generator and a water supply, the team should be able to operate without any support for 3-4 days.

3. SUGGESTED EQUIPMENT

a. **Clothing** - Suggested uniform:

Helmet, safety fluorescent. Marked with designation 'Doctor', 'Nurse', front and rear. The colour should be green but a compromise might be white with green and white squares around rim.

Hat, khaki fur felt brim type (as issued to Australian Army).

Green and white squared border in place of existing band x 1.

Jacket, waterproof, zip-up with hood, orange x 1.

Overalls, jade green, helicopter pattern. Should be fully zipped for best protection against insects x 3.

b **Markings**

National flag on right chest, Hospital badge on left. Australian coat of arms on shoulder x 3.

Gloves, cotton reinforced or similar x 2 pairs.

Boots, leather with canvas uppers, Vietnam pattern x 1 pair.

Belt, webbing x 1.

c **Personal Clothing**

2 changes civilian clothing.

6 changes of underclothing and socks. 6 tee-shirts or singlets.

d. **Accommodation Stores**

Tents 11' x 11' or similar x 2

NOTE: Two large tents allow flexibility in use viz. sleeping and stores areas, male & female work and rest areas.

Tarpaulin 15' x 15' x 1

Camp beds x 6.

Mosquito nets x 6.

Sleeping bags x 6.

Mess sets x 6. Knife, fork, spoon sets x 6. Cups x 6.

Plastic buckets x 2.

Small generating set to operate battery charger and fluorescent lights.

Container, metal, jerrican type x 2.

Pressure cooker (to use as steriliser) x 1.

Flag, national x 2 (1 large for base; 1 small suitable for vehicle).

Flag, Red Cross (as above) x 2.

Lights, fluorescent and leads x 3.

Saw, general purpose x 1.

Rescue kit, S.O.S. or equivalent type x 1.

e. **Communications**

Radio AM/FM, commercial with rechargeable batteries x 1

Scanner, programmable, with rechargeable batteries x 1.

Transceivers U H.F. with rechargeable batteries x 2

Battery charger x 1.

Torches (rechargeable batteries) x 6.

f. **Food**

Ration packs, 24 hour (3 per team member) x 18.

Water bottles, individual with carriers x 12.

g **Personal Hygiene**

Toilet kits x 6.

Shaving kits x 6.

Sanitary napkins x 3pkts.

Soap x 6. Towels x 6.

Detergent x 2.

Toilet paper x 3.

Tissues, facial (Box of 200) x 3.

h. **Medical**

Should overseas deployment be the South Pacific/South East Asia areas, anti-malarial precautions are essential.

It is suggested that the following supplies be taken:

Insect repellent

Anti-malaria tablets.

Water purification tablets

Sunscreen sufficient for 6 people x 14 days

CHAPTER TEN

DISASTER MEDICAL SUPPLIES

INTRODUCTION

10.01 At times in multiple casualty incidents the decision is made to take the direct resources to the patient(s) pending transport of the patient(s) to the hospital. It is essential that in the preparedness phase consideration is given to the equipment that should be maintained for such eventualities.

10.02 DISASTER KITS

Experience has shown that equipment is required for airway management, control of haemorrhage, the management of shock and pain relief. A number of States have recommended disaster kits that participating agencies are required to maintain. Equipment tables for disaster relief have also been produced by the World Health Organization and the National Disaster Relief (Health) Committee.

10.03 When selecting suitable equipment for an out-of-hospital response, there are a number of important factors that should be considered.

COST

10.04 Disaster supplies are rarely used and their cost and replacement are important considerations. Careful selection and stock rotation can minimise holding costs.

10.05 SHELF-LIFE

Supplies with a limited shelf-life should be carefully managed along with equipment needing special storage requirements. Effective stock control can minimise wastage by putting back into general circulation stock that has a short use-by date.

AVAILABILITY

10.06 Supplies earmarked for disaster relief should be obtained from in - country suppliers who can guarantee re-supply within predictable lead times. Lists of suppliers should form part of the disaster plan resource document.

WEIGHT AND VOLUME

10.07 The equipment has to be packaged so that it can be carried by hospital personnel. This may involve carrying the equipment in and out of helicopters or over rough terrain for long distances.

FAMILIARITY

10.08 As the equipment will be used infrequently, it is essential that staff are familiar with the equipment.

10.09 Instrument sets should be suitable for use in the field.

PACKAGING

10.10 Commonly used methods for carrying disaster supplies include:

a. Thomas' Pack

b. Hagar Trunks

c. Fishing Tackle Boxes

d Disaster Jackets

e Perth Bags

f. Laerdal Disaster Kits

GENERAL

10.11 EQUIPMENT LISTS

When equipment lists are changed, it is essential that all potential users are notified that amendments have been made, and out of date lists are withdrawn.

10.12 ADDITIONAL INFORMATION

Additional comment on medical supplies and equipment appears at Chapter Seventeen on Medical Supplies and Equipment

CHAPTER ELEVEN

TRAINING AND EXERCISES

INTRODUCTION

11 01 To provide optimal care for the disaster victims the health professional requires clinical judgment skills in acute medicine, together with familiarity with the arrangements and plans for such a disaster. Personal attributes include good health, common sense, enthusiasm, decision making abilities, a degree of flexibility, and the ability to work within a team

11.02 AIM

The aim of disaster medical training is to provide the participants with the knowledge and skills that will permit the greatest good for the greater number.

11.03 DISASTER MEDICINE

Mass Casualty care involves rationing. By definition, disasters are events that overwhelm the resources immediately available. Training must equip the individuals and teams to integrate medical principles with the limitations that the disaster imposes. The training can be provided as individual skills acquisition or collective group training It is not every health worker who wishes to work in the pre-hospital environment It is essential that personnel identified as emergency responders are physically and psychologically prepared for such activities, and have completed appropriate training.

11.04 DISASTER MANAGEMENT EDUCATION

Education is required in the wider aspects of disaster management, in order to equip responders for specialist disaster-related tasks, and to orientate their actions within the overall management of the crisis.

11.05 SKILLS TRAINING

Training is required for those personnel who may be needed to perform specific skills in unusual circumstances, for example:

a clinical assessment;

b. triage,

c interventions;

d. patient evaluation;

e. documentation;

f. communications, or

g. public health

TRAINING MANAGEMENT GENERAL CONSIDERATIONS

11.06 Before establishing and implementing training, it is prudent to identify and consider specific factors which affect overall training These may include the following:

a The basic organisation applying to disaster management within the state or country, as this will influence training. It may also provide a suitable training structure or framework.

b. The current status of disaster management because this has a bearing on the scope of training programs

c. The degree to which the disaster management system, Prevention, Preparedness, Response and Recovery (P.P.R.R.), is utilised. This will reflect existing up-to-date experience and help to identify types of training needed.

d. The experience and knowledge of trainers

e. The commitment of management to fund training.

f. The resources which are available to implement training programs, staff, accommodation, teaching aids and administrative support.

11.07 SKILLS ACQUISITION AND MAINTENANCE

Training without practice is a wasted activity. Clinical skills such as cannulation must be continually practised to maintain proficiency When disaster strikes the time for training is well past

11.08 CO-ORDINATION TRAINING

Training in comprehensive disaster management is required for key personnel from:

a. medical and nursing personnel,

b. ambulance services;

c hospitals;

d. community health;

e public and environmental health agencies;

f. mental health services; and

g. voluntary organisations.

Where possible this training should include personnel from other services to add to the reality of a multi-service response.

11.09 As an adjunct to this training, the services and the organisations themselves need periodic practice and evaluation in a co-ordinated response, usually in the form of combined exercises.

11.10 SPECIALISED TRAINING

Training, often by means of workshops or seminars to cover:

a. specialised threats (hazardous chemicals); and

b. specialised events (mass crowd events).

11.11 VALIDATION OF TRAINING

All training must be evaluated. The total effect of training both short and long term should be then validated for both its effectiveness and efficiency. Validation identifies changes which must be made to keep training both efficient and effective, as indicated below

11.12 EFFICIENCY

Training is efficient when a satisfactory number and proportion of trainees meet the requirements of the training objectives for the least cost

11.13 EFFECTIVENESS

Training is effective when it prepares the trainees to perform to the desired standard. Further information can be found in the Australian Emergency Manual - Training Management. (See References information at end of Chapter)

TRAINING EXERCISES

11.14 INTRODUCTION

Training exercises provide probably the best methods of validating disaster/major incident plans, apart from the real event occurring.

11.15 There are several different types of exercises which can be conducted eg Oprex - operation exercise where personnel are deployed; Discex - a discussion exercise where representatives verbally present their Department or Service response to a given scenario; Papex - paper exercises where control room staff respond to control notes, input by directing staff

11.16 Where a training exercise is to be conducted it is important that proper preparatory work and documentation is carried out to ensure the maximum value is gained from your efforts. It is also recommended that other functional services such as police, fire and ambulance, as necessary to your scenario, are involved in the planning and actual exercising to ensure more accurate detail is provided.

11.17 EXERCISE PLANNING

The first step in preparing any exercise is to analyse the need and give thought as to who would benefit by being involved as a participant

11.18 POLICY

Having established the need for an exercise and identified appropriate participants, convene a policy meeting involving representatives from the services and/or Departments Decisions are then made on:

a. the type, nature and scope of the exercise that can be conducted which would best satisfy the training needs of all participants;

b. the organisations that need to be involved for maximum benefit;

c. policy directives to which the writing team must adhere;

d. the aims and objectives of the exercise,

e. the financial constraints if any,

f. the method of evaluation;

g. writing team nominations preferably with a cross-section of the services to be involved;

h the need to alert the general public to any inconvenience or to allay any fears and the means by which this can be conveyed;

i any potential industrial implications, and

j. the involvement of the media.

11.19 DETAILED PLAN

It is now the job of the writing team to meet, and plan the finer details such as:

a. the date, time and duration of the exercise,

b the location of the exercise,

c. the appointment of key coordinating/directing staff for the exercise who will be responsible for:

(1) liaison with visitors and the media;

(2) site security and control,

(3) safety and damage control; and

(4) filming, photographing or recording of the exercise

d. preparation or distribution of all the documentation;

e. a 'time line' for the preparation, conduct and debrief of the exercise;

f. the types of props and special effects that will be needed and where they can be obtained,

g. the number of 'casualties' that will be needed and where they can be sourced;

h the capability to moulage the casualties;

i the provision of exercise support such as vehicles, radios, toilets, catering, shelter,

j. obtaining observers to critique various facets of the exercises; and

k. organising further progress meetings

(An Exercise Planning Model appears at Annex A to this Chapter)

11.20 POST-EXERCISE ACTIVITIES

On completion of any exercise a de-briefing must occur and a report prepared and distributed to participants and any organisations with a particular interest in the scenario.

11.21 The report will provide a platform for the review of plans and procedures which should now be carried out together with any necessary remedial staff training.

11.22 Finally, letters of appreciation need to be forwarded to those persons or organisations who have provided some logistical support to your exercise.

REFERENCES

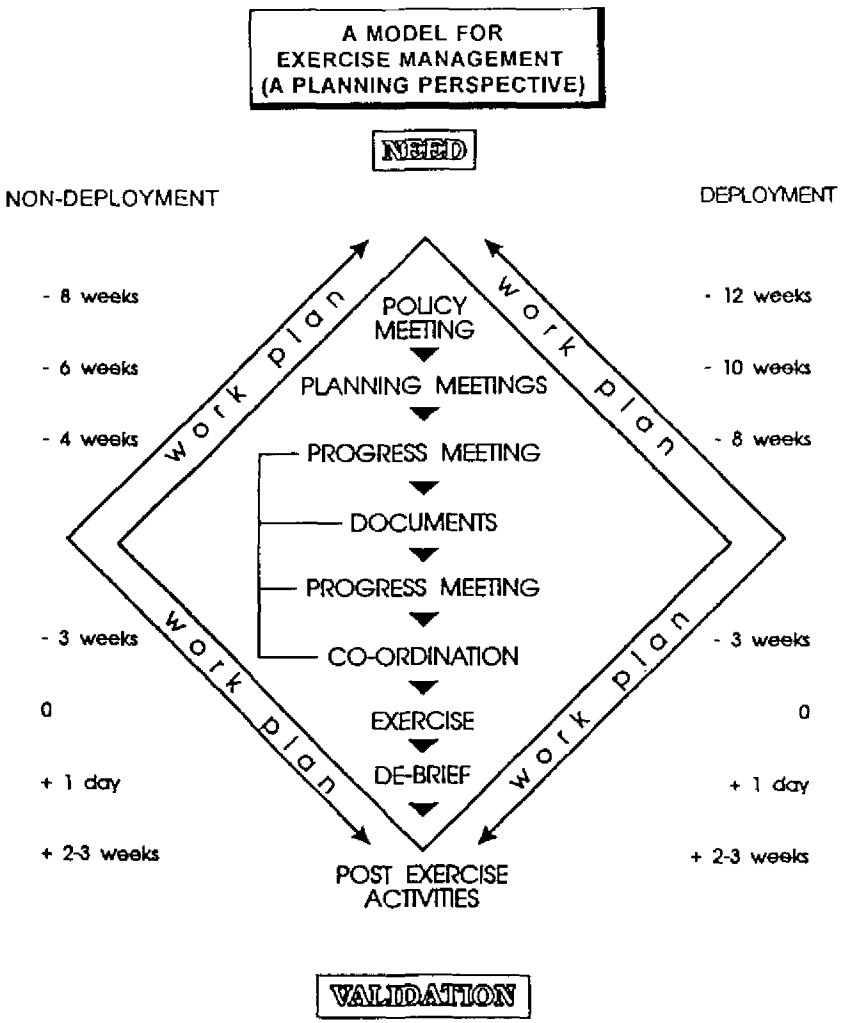
Commonwealth Department of Health, Housing and Community Services: **You Can Make a Difference (video); and Disasters are Different (video)**. Canberra, 1992

Natural Disasters Organisation: **Australian Emergency Manual - Training Management**. Canberra, 1992, ISBN 0 642 18005 9

South Australian Central Exercise Writing Team Report. 1985

ANNEX: A. Exercise Planning Model

EXERCISE PLANNING MODEL



CHAPTER TWELVE

OCCUPATIONAL HEALTH AND SAFETY ISSUES

INTRODUCTION

12.01 During a disaster occasional individual acts of heroism may occur Risks may be taken by rescuers which they perceive as appropriate to save life and these may well be successful.

12.02 Occasionally these risks can be justified However, in the emotive urgency of a disaster, normal occupational health and safety practices should not be overlooked Responders should follow normal procedures designed to protect them from illness and injury. Likewise, disaster planners should consider the training and resources necessary to ensure appropriate health and safety practices are observed.

Workers who become casualties, not only become ineffective, but impose an additional load on already limited resources.

TRAINING

12.03 Wherever possible, disaster responders should have been trained to work in a disaster environment This would include knowledge of safe lifting practices and patient handling, particularly in sites with uneven ground and debris Wearing personal protective clothing and being aware of environmental hazards to which they may be exposed, are also necessary. Rapelling and other rescue techniques are specialised fields and should normally only be undertaken by health workers properly experienced in these activities

PERSONAL PROTECTIVE CLOTHING

12.04 Personal protective clothing should be available for all members of medical teams. This is outlined in detail in Chapter Nine on Personal Equipment and Identification and includes the following:

a. **Overalls** - With padded knees/elbows (for prolonged kneeling).

b. **Vests** - With reflective tape to enhance visibility at night.

c. **Footwear** - To minimise ankle strains and foot crush injuries.

d. **Leather Gloves** - To avoid cuts from glass and sheet iron.

e **Helmets** - To protect from falling materials.

f. **Eye Wear (clear lenses)** - To protect from dust, grit and body fluids.

g. **Ear Plugs** - Required for working in a noisy environment with cutting equipment and compressors.

h **Respiratory Protection** - Against excessive dust or toxic fumes

OTHER PROTECTIVE EQUIPMENT

12.05 Sharps disposal containers should be available to minimise sharps injuries. Medical kits should utilise IV cannulae with self- retracting needles, IV lines with injection ports rather than bungs, and other recently available innovations which minimise the use of sharp needles in the field.

12.06 **GLOVES**

Ample supplies of clean latex gloves should be present for staff dealing with blood and other body fluids.

SUBSTANCE PRECAUTIONS

12.07 **HIV/HBV PROTECTION**

Blood and body substance precautions should be taken when dealing with all blood and body substances from all patients. 'Universal blood and body fluid precautions' were originally defined in the USA to cover blood and certain body fluids potentially infectious for human immunodeficiency virus (HIV), Hepatitis B virus (HBV) and other blood borne pathogens. Barrier methods were recommended for dealing with fluids including:

a. blood;

b. any body fluids containing visible blood;

c. semen;

d. vaginal secretions;

e. CSF;

f. synovial fluid;

g. pleural fluid;

h. peritoneal fluid;

i. pericardial fluid; and

j. amniotic fluid.

12.08 **GENERAL PROTECTION**

However, even through the risk of transmission of HIV and HBV is low, it is also appropriate to use methods to protect from exposure to:

a. faeces;

b. nasal secretions;

c. sputum;

d. perspiration;

e. tears;

f. urine; and

g. vomitus.

12.09 BASIC PROCEDURES

Health care workers in a disaster should follow these basic principles:

a. **Take Care** - To prevent injury with needles, scalpels and other sharp instruments during their preparation, use and disposal.

b. **Protective Barrier** - Use a protective barrier to prevent exposure to blood and body substances, e.g. gloves, gowns, masks and protective ear wear. The type of barrier used should be appropriate for the procedure being performed.

c. **Cleaning** - Immediately and thoroughly wash hands and other surfaces contaminated with blood or body fluids.

12.10 Where a disaster involves a widespread infectious illness eg. cholera or plague, additional special attention will need to be paid to mitigating transmission of disease. Some aspects of this are covered further in Chapter Twenty - Public Health, in this manual.

ENVIRONMENTAL CONTROL

12.11 Health staff should not be unduly exposed to toxic or other environmental hazards. They should normally only be employed in areas which have been cleared of hazards and deemed safe to work in by the co-ordinating agency.

12.12 PERSONNEL MOVEMENT PRACTICES

Sensible personnel movement practices should be followed. Health personnel should be deployed in teams and their locations should be known. Individuals should not work alone or drive cars during bushfires or severe storms. Caution should be exercised where staff are required to trek or drive across rough or unknown terrain. Individuals working at night should be clearly identified and vehicles driven cautiously through areas where teams are deployed.

12.13 UNFAMILIAR TRANSPORT AND MACHINERY

Specific safety measures are required when working in, and around helicopters, fixed wing aircraft and some types of machinery. Wherever possible, only personnel normally used to dealing with aircraft or machinery should work in close proximity. There are hazards associated with boats and other forms of transport. Where health responders are inexperienced, they should allow trained crews or emergency service staff to provide necessary transport.

12.14 CLIMATIC PROTECTION

Environmental control for workers would include protection from extremes of heat and cold where possible. Sunscreens should be used to prevent sunburn, and insect repellents available to protect from vectors of disease.

BRIEFING OF RESPONDERS

12.15 Where possible a pre-deployment briefing should be provided for all health teams. This should give information on the general situation, the role of the responders and identified risks in working at the site. This might include warnings as to risks of falling debris from unsafe buildings, or dangers from fire or hazardous fumes.

WORK PRACTICES

12.16 Personnel should endeavour to follow normal safe working practices, seek advice and assistance when possible and not undertake rash or heroic deeds when the task can be undertaken as effectively and more safely with other resources.

HEALTH OF RESPONDENTS

12.17 VOLUNTEER SUITABILITY

Volunteers to work in a disaster setting should be adequately fit for the task and have no chronic medical problems influenced by extremes of heat or cold, long periods of heavy physical activity or lack of meals. Individuals should not be dependent on taking regular medications. Staff at risk should maintain immunisation against tetanus and hepatitis.

12.18 VOLUNTEER WORKING CONDITIONS

Staff should only be expected to work for reasonable duty periods and have relief provided at regular intervals. This will prevent fatigue causing errors of judgment. Adequate food, drinks and rest breaks will prevent dehydration, hypothermia or heat illness and exhaustion, which may substantially reduce the effectiveness of volunteers.

12.19 INJURIES TO VOLUNTEERS

Any accident or health related incident occurring during a disaster, e.g. a sharps injury or back injury, should be reported promptly to the individual's employer or managing authority with full details of the date, time, location and circumstances. Where possible, records should be retained by the co-ordinating authority at a disaster to enable future follow-up.

12.20 COMPENSATION REQUIREMENTS

It is expected that where health teams are deployed by an institution or agency to work in a disaster, then compensation for work-related injuries or illness will be the responsibility of the employer. The situation for self-employed individuals or other volunteers not employed by an organisation at the time is less clear. Refer to Chapter Three on Legal Aspects and Finance Administration for further information on this subject.

FOLLOW-UP

12.21 As well as operational de-briefings, psychological de-briefings should occur, and the responders physical and mental well-being assessed. On-going health surveillance may be required.

REFERENCE

Victorian Health Department: **Guidelines for the Control of Communicable Diseases.** Melbourne, Infectious Disease Unit, 1992, Pages 206-207

CHAPTER THIRTEEN

OTHER RESOURCES

INTRODUCTION

13.01 By definition disasters cannot be managed through the routine procedures and resources of the community. Counter disaster measures require assistance from all possible sources.

13.02 There are a variety of resources and ancillary services available from individuals, private organisations, State and Commonwealth government bodies. These can be accessed through the normal lines of communication but the value of local knowledge and networking should not be underrated.

13.03 The ambulance services and local hospitals fall into State and local disaster plans and are not considered in this chapter.

13.04 The requirement for, and use of, additional resources will depend on local assets, and may vary considerably between remote and populated areas. Volunteers and community organisations are much more likely to be used in rural and isolated areas.

PERSONNEL

13.05 It is important that volunteer efforts are supervised and co-ordinated within the total medical disaster plan by the appropriate Medical Controller. These available services include:

a. local health care professionals;

b. first aid organisations;

c. non-government organisations; and

d. other voluntary groups.

13.06 **LOCAL PRACTITIONERS**

Medical practitioners and nurses may have clinic facilities and equipment in or near the disaster area. They will normally be able to assist with resuscitation and further treatment, and continue management of those who do not require further admission to hospital. General practitioners are usually substantially involved in disaster responses in country areas, whilst in metropolitan areas availability of emergency services will usually limit their participation.

13.07 The contribution of local health practitioners is maximised by appropriate planning and liaison.

13.08 FIRST AID ORGANISATIONS

St John Ambulance Australia - Operations Branch (formerly known as the St John Ambulance Brigade) and the Australian Red Cross organisations can contribute personnel, equipment and other supplies. Volunteers trained in First Aid will be able to assist in dressings, stabilisation of fractures, observation of casualties and some transport. Other organisations with voluntary First Aid capabilities include the Surf Lifesaving Association and other community groups.

13.09 Medical personnel and equipment are available from a variety of other sources, both private, industry and governmental. Ships and aircraft contain certain basic medical equipment sets and many ships carry antidotes, detoxification and hazardous materials handling equipment.

13.10 Airlines such as QANTAS and Ansett Australia, carry medical kits and larger airports should have access to stored First Aid supplies.

13.11 AUSTRALIAN DEFENCE FORCE

The Australian Defence Force (ADF) has health and other assets which may be available in the appropriate circumstances. These health assets are detailed in Annex A to this Chapter.

13.12 ROYAL FLYING DOCTOR SERVICE

The Royal Flying Doctor Service of Australia (RFDS) provides a comprehensive network of aeromedical evacuation resources servicing rural and remote areas. This includes a radio network which can be connected into the Telecom network, supplies of drugs and dressings in isolated areas, medically dedicated aircraft and staff. Bases within Australia are detailed in Annex A to this Chapter. Similar services are provided in the north of the Northern Territory by the Northern Territory Aerial Medical Service.

13.13 Other patient aeromedical evacuation organisations exist in some states including air ambulance operations, emergency medical and helicopter services. These organisations can provide aircraft, monitoring equipment and mobile medical teams.

13.14 BLOOD TRANSFUSION SERVICES

Although practices exist in a disaster to prevent blood and blood products from being wasted, whole blood may still be required for resuscitation of casualties. Urgent collection, supply and transport of products to the disaster site or hospital may be required.

13.15 Regional Blood Transfusion Services of the Australian Red Cross (ARC) are safe and reliable sources and should always be involved in the provision of blood and blood products. ARC, through its regional directors and the national body, can plan and provide for additional blood and blood products supplies on a larger scale. Appeals for blood during the actual disaster can cause more problems than they solve.

REMOTE AREA ASSETS

13.16 ROYAL FLYING DOCTOR SERVICE

The Royal Flying Doctor Service provides medical and communications services to remote areas of Australia.

13.17 HF RADIO NETWORK

The communication service is based on an HF radio network and large numbers of outpost radio stations and mobile HF sets exist across isolated areas. Many remote area emergency service vehicles (ambulance, SES, police and RFDS aircraft) have the RFDS network frequencies, as do isolated nursing posts, hospitals, pastoral stations, roadhouses and mine sites. Whilst the telephone has now become the predominant form of communication in these areas, most of these radio sets are maintained for emergency use, and make possible universal communication between hospitals, emergency services and remote locations in the event of an accident or disaster.

13.18 HF calls can be connected into the telephone system but quality of HF radio is not always good. (See Australian Emergency Manual on Communications).

13.19 RFDS MEDICAL CHESTS

Approximately 4,000 RFDS medical chests are located throughout rural and remote parts of Australia. These chests contain a range of dressings and pharmaceutical including S4 and S8 poisons ('prescription only' medications and narcotic analgesics). The chests are designed only to meet the routine and emergency needs of small numbers of patients. They allow continuing medical care to small communities which may become inaccessible as a result of natural events such as flooding or cyclones.

13.20 VISITING MEDICAL SERVICES

The RFDS currently has aircraft, medical and nursing staff based at 14 national locations. These are listed at Annex A. A visiting medical service, consisting of primary care clinics, visiting specialists, public health teams and allied health professionals, is provided to numerous small communities on a regular basis. These services can be extended to provide additional routine medical care to disaster affected victims in remote areas, provided that suitable airstrip and flying conditions still exist.

13.21 EMERGENCY EVACUATION

An aerial evacuation service is staffed with Flight Nurse or Flight Nurse/Doctor teams. There is a significant number of medically dedicated aircraft nationally, and each can normally take two stretcher patients and up to three sitting patients. Whilst capacity is limited, there is the opportunity to provide rapid air transport of additional medical teams and resources to incidents, and to evacuate patients over long distances.

13.22 NORTHERN TERRITORY AERIAL MEDICAL SERVICE

This service provides similar services to the RFDS in the northern half of the Northern Territory including medical chests, clinic services and air evacuation.

13.23 PROFESSIONAL RESCUE AND RETRIEVAL ORGANISATIONS

In many parts of Australia, professional rescue and retrieval organisations have been established, which have significant assets and expertise which may be appropriately utilised in disaster response.

13.24 BUSH NURSING POSTS

A variety of government and non-government agency nursing posts are scattered throughout isolated areas. These are often only staffed with one to four nurses with a modest pharmacy and clinic facility. At some, buildings remain from earlier years when they functioned as hospitals providing in-patient care. In the event of a disaster in a remote area, these facilities may be the closest to the scene and staff can be the first responders. They can, and have been, converted into acceptable staging posts for assessment and holding of casualties until further distribution of patients can be arranged.

MINING AND INDUSTRIAL SITES

13.25 Most mine sites and large industrial complexes carry well equipped medical centres and are normally well supplied with equipment for rescue and First Aid to accident victims. Mine rescue teams exercise regularly in extrication and transport of casualties resulting from rock falls and explosions. They are a useful resource for dealing with other types of disasters and must be incorporated into regional disaster plans.

SHIPS

13.26 MERCHANT NAVY

Australian merchant vessels contain a basic supply of drugs and dressings as required under the Marine Orders of the Department of Transport. The quantities are dependent on the size of the vessel and the nature and location of operations. Additional antidotes and hazardous agents handling equipment are also often carried.

13.27 ROYAL AUSTRALIAN NAVY

Her Majesty's Australian ships have a comprehensive supply of drugs and dressings depending on the size of vessel. Additional resources available may include a medical officer, medics and a helicopter and crew regularly exercised in extrication and casevac.

RAILWAYS

13.28 Railway resources should be considered for transport of large quantities of personnel or supplies to disaster areas and for transport of casualties or the uninjured away from the disaster site. This may be particularly useful when disasters or transport incidents are close to major interstate rail routes.

PRINCIPLE

Available resources can range from one individual to national multi-service assets. Identify your resources.

REFERENCE

Baskett, Peter J. F. and Weller, Robin M.: **Medicine for Disasters.** ISBN 0 7236 0949 7

ANNEX: A. Australian Defence Force Medical and Health Assets and Royal Flying Doctor Service Bases

AUSTRALIAN DEFENCE FORCE MEDICAL AND HEALTH ASSETS AND ROYAL FLYING DOCTOR SERVICE BASES

1. Medical response capabilities include those of the Royal Australian Navy (RAN), Army and Royal Australian Air Force (RAAF).

2. **RAN**

Ships tasked with disaster relief are fully functional and self-sufficient while at sea. Capabilities, which vary by ship, include operating facilities, sick bay beds, medical and dental officers, helicopter medivac capability and recovery and transport of survivors.

3. **ARMY**

Army is capable of providing a range of medical personnel, equipment, temporary facilities and limited medical and pharmaceutical supplies.

Contributions could include:

a. medical reconnaissance personnel to assess the health support requirement;

b. co-ordination and liaison groups to plan the health support, command the allocated Army medical assets, and regulate the evacuation and treatment of casualties;

c. surgical teams (including parachute surgical and mobile field surgical variations);

d. ancillary facilities such as pathology and radiology;

e. ward facilities ranging from intensive care to low dependency beds;

f. preventative medicine teams;

g. ground evacuation resources;

h. rotary wing (Iroquois and Blackhawk) aeromedical evacuation (AME) assets; and

i. field hospital, which is a transportable self-contained hospital with operating facilities, radiology and pathology support, pharmacy, intensive care facilities and 55 beds.

4. **RAAF**

RAAF is capable of deploying a range of health personnel, equipment, facilities and materiel. Such resources may be utilised both for on-site casualty management and aeromedical evacuation (AME). These include the following:

a. **Aircraft Assets** - These include C130 Hercules and Caribou, to deploy health resources and act as AME platforms;

b. **AME Teams** - Each of which usually consists of a RAAF Medical Officer, Nursing Officer and Medical Assistant, but which may be augmented to include specialist anaesthetists and other personnel. Such teams also undertake on-site triage, and resuscitation and preparation of patients for evacuation as required;

c. **Fly-Away Surgical Teams (FAST)** - Each self-supporting and consisting of a surgeon, anaesthetist, nursing officer, theatre technicians and equipment sufficient to perform limited surgical procedures on up to five casualties and subsequently undertake AME of the casualties;

d. **Air-Transportable and Self-supporting Operational Health Support Facilities** - These capabilities range from a combination of casualty holding for AME, outpatient care and environmental health services to the provision of inpatient, surgical and diagnostic services.

5. **ROYAL FLYING DOCTOR SERVICE OF AUSTRALIA**

RFDS aircraft bases are located as follows:

a. **New South Wales**

(1) Broken Hill*

b. **Queensland**

(1) Cairns*

(2) Charleville*

(3) Mt Isa*

c. **Western Australia**

(1) Derby*

(2) Carnarvon*

(3) Jandakot (Perth)

(4) Kalgoorlie*

(5) Meekatharra*

(6) Port Hedland*

d. **South Australia**

(1) Adelaide

(2) Port Augusta*

e. **Tasmania**

(1) Launceston

f. **Northern Territory**

(1) Alice Springs*

* Denotes outpost radio base location.