Chapter 31
Military Health Services Support in Conflict

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Abstract This chapter summaries the principles and practice of military health service support in conflict. The language for this chapter is chosen for a non-military audience but is consistent with more detailed descriptions contained in military publications and procedures. The chapter covers the breadth of military health services and includes the practice of medicine, nursing, dentistry and those of allied health professions in the relief of suffering in multinational and joint military operations. The chapter will start by placing health in the context of the military environment. It will then describe the organisation and resources required to provide military health services and the military-specific issues associated with the planning, preparation and deployment of health service support to operations. It will conclude by describing the command and control arrangements for the conduct of military health services support operations.

Keywords Military health service support • Organizations • Resources

Objectives
- To summarise the principles and practice of military health service support in conflict

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Introduction

This chapter summaries the principles and practice of military health service support in conflict. The language for this chapter is chosen for a non-military audience but is consistent with more detailed descriptions contained in military publications and procedures [1, 2]. The chapter covers the breadth of military health services and include the practice of medicine, nursing, dentistry and those of allied health professions in the relief of suffering in multinational and joint military operations. The chapter will start by placing health in the context of the military environment. It will then describe the organisation and resources required to provide military health services and the military-specific issues associated with the planning, preparation and deployment of health service support to operations. It will conclude by describing the command and control arrangements for the conduct of military health services support operations.

Health Care in the Military Environment

Health is a key element of an Armed Forces military capability: only a healthy force can function at, and sustain, maximum effort. In the context of military operations, health is the ability to carry out duties unimpeded by physical, psychological or social problems. The health services have a substantial role in the prevention of disease, rapid evacuation and treatment of the sick and injured and the return to duty of as many individuals as possible. However, creating and maintaining a healthy force is also the responsibility of commanders at all levels of the Armed Forces. The scope of health services support to military forces is summarised in Fig. 31.1.

Whilst many nations utilise military medical personnel for the provision of health services for military personnel in a wider context, military medical organisations exist for the relief of suffering on the battlefield though the provision of deployed military health services. Although nations have a moral and legal duty to provide health services support for their own troops, not all nations can provide the full capability themselves, and so there may be substantial multinational collaboration to ensure sufficient deployed medical capability and capacity for a military force (possibly including the military forces of the destination country). The deployed military health services may also need to collaborate with national and international civilian health agencies in the destination country. These issues are covered in more detail in Chap. 30 on Military Assistance to the Civilian Sector and Military Assistance to Security Sector Reform.

A residual military medical organisation is required in the home nation in order to generate both a healthy military force and the military health services for deployment. The clinical personnel and medical organisations require both individual and organisational training in order to be prepared for deployment. Clinical training is best achieved through direct patient care and so military clinical staff are frequently employed in the provision of clinical care to military personnel as part of a military

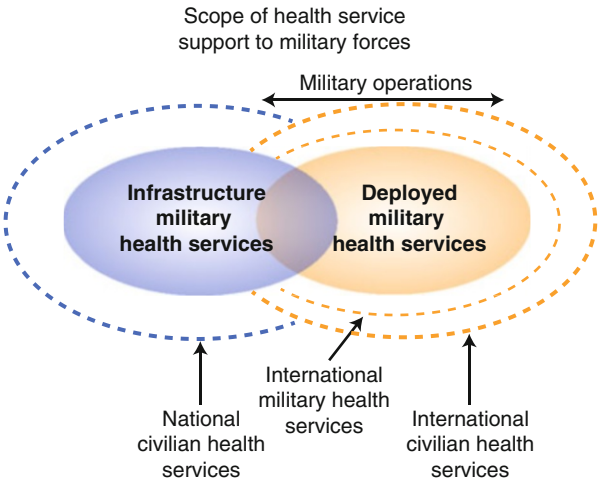

Fig. 31.1 Diagram showing the scope of health service support to military forces

infrastructure health service. This also ensures the delivery of health service support during the pre- and post-deployment phases of operations. In many countries, there is co-operation between the military health service and civilian health services in order to achieve economic efficiencies between the Ministries of Defence and Health. During the recruiting process there will be a handover of clinical responsibility for members of the Armed Forces from civilian to military health services. The range of beneficiaries for military health services varies from country to country with some nations providing full health services to family members and retirees and even civil servants using military resources.

Military health services personnel and organisations are bound by military law, international law and professional ethics and codes of conduct. These separate military health services from combat and combat-supporting forces. There is a general obligation to treat the wounded and sick solely on the basis of clinical need to the extent that it is practicable to do so. There is a specific obligation to treat prisoners of war, internees and detainees and not to engage in any aspect of obtaining information from these individuals. Under the Geneva Conventions, medical personnel and units are to be protected from armed conflict and are only allowed to utilise armed force for the protection of themselves or their patients.

Time is a fundamental factor in patient survival and recovery. Indeed, the history of combat casualty care is the story of getting medical care closer to the casualty in time (evolution of medical evacuation from horses to helicopters) and space (moving surgery closer to the front line). Evidence from accumulated experience in lraq and Afghanistan and from earlier campaigns shows that there are three key timelines from point of injury (PoI) to first surgical intervention (summarised as the 10-1-2 guidelines). The first is the so-called platinum 10 min in which control of bleeding and the airway is given to the most severely injured casualties by personnel trained in military first aid. Damage control resuscitation measures must be commenced by emergency medical personnel within 1 h of wounding (the "golden hour"). Finally, casualties that

require surgery should be under treatment in a facility manned and equipped for this (noting the complexity of injuries on operations) no later than 2 h after wounding. Additional to this guideline, primary surgery should be provided within 4 h. The 10-1-2 guideline is a pragmatic planning tool that simplifies clinical imperatives to enable synchronisation of the medical plan with the wider military plan. It is not a justification for delaying evacuation but provides a benchmark against which the effectiveness of the military medical support arrangements can be measured.

Military health services support is a specialist area of medical practice because of the environment and conditions in which it is delivered. The aim is to provide a standard of medical care to achieve outcomes of treatment equating to best medical practice delivered using the principles of evidence-based medicine and clinical governance. Clinical care in the military environment differs from civilian practice in that the individual patient may receive care from multiple clinical teams during the course of a single clinical episode. Single clinicians or clinical teams are unlikely to generate the personal experience and case series that usually drive clinical knowledge transfer. Thus, effective clinical governance in a military environment requires the generation of a robust evidence base for clinical practice through medical research, the dissemination of clinical protocols and procedures and an assurance process to measure outcomes.

Military Health Service Support Organisations and Resources

The principal components of operational health service support are medical force protection, emergency medicine, primary health care, secondary health care (hospital services) and medical evacuation (MEDEVAC). Casualties passing through the medical system must be provided with clinical support that is continuous and appropriate.

Medical force protection (MFP) is “the conservation of the fighting potential of a force so that it is healthy, fully combat capable and can be applied at the decisive time and space. It consists of actions taken to counter the debilitating effects of environment, disease and selected special weapon systems through preventive measures for personnel, systems and operational formations”. MFP is based upon 4 principles: measured assessment of the threat, risk assessment, health risk management and audit and surveillance. General medical staff and specialists in occupational medicine, public health, environmental health and veterinary medicine conduct the MFP analysis. MFP is implemented through a combination of individual pre-deployment medical preparation, personnel policies and medical supervision and surveillance.

The roles and organisations that provide health service support on military operations have evolved to reflect developments in clinical technologies and changes in the military operational environment [3–7]. Medical Treatment Facilities (MTF) are defined by their capability and capacity into one of 4 “roles”. The minimum capability of each role is intrinsic to each higher role. Under battlefield conditions, patients generally flow from a lower to a higher medical facility but they can be

discharged at any level and do not have to be evacuated if the clinical capability of the receiving facility is no better than the current holding MTF. As medical capabilities increases so does their demand for support thus increasing the medical and logistic footprint and diminishing their mobility. Definitions of roles and tasks are shown in Box 31.1.

Box 31.1. Definitions of roles and tasks

Role 1. Task: "*provides primary healthcare* (*PHC*), *specialised first aid*, *triage*, *resuscitation and Stabilisation*". This includes the provision of basic occupational and preventative medical advice to the chain of command, routine "sick call" and the management of minor sick and injured personnel for immediate return to duty, casualty collection from the point of wounding and preparation of casualties to the next MTF, primary dental care. Additional capabilities may include minimal patient holding capability, basic laboratory testing and initial stress management.

Role 2 Light Manoeuvre. Task: "*provides triage and advanced resuscitation procedures up to damage control surgery* (*DCS*)". It will usually evacuate its postsurgical cases to Role 3 (or Role 2 E) for stabilisation and possible primary surgery (PS) prior to evacuation to Role 4. This includes DCS with postoperative care, field laboratory, basic imaging, reception, regulation and evacuation of patients and a limited holding capacity.

Role 2 Enhanced MTF. Task: "*provides basic secondary care facility built around PS*, *intensive care* (*ICU*), *and beds with nursing support*". A Role 2 E facility is able to stabilise postsurgical cases for evacuation to Role 4 without the need to put them through Role 3 MTF first. This includes surgical and medical ICU capability, beds with nursing support, enhanced field laboratory including blood provision, casualty decontamination facilities (dependent on operational risk assessment).

Role 3 MTF. Task: "*provides theatre secondary health care within the restrictions of the Theatre Holding Policy* (*THP*)". This includes primary surgery, intensive care, surgical and medical beds with nursing and diagnostic support. A Role 3 MTF can include mission-tailored clinical specialities (specialist surgery (neurosurgery, burns, ophthalmology, etc.)), advanced and specialist diagnostic capabilities to support clinical specialists (CT scan, sophisticated laboratory tests, etc.) and major medical and nursing specialities (internal medicine, neurology, etc.).

Role 4 MTF. Task: "*provides the full spectrum of definitive medical care that cannot be deployed to theatre or is too time consuming to be conducted there*". This includes definitive specialist surgical and medical procedures, reconstructive surgery and rehabilitation. This care is highly specialised, time consuming and usually provided in the casualties' home country either in military or civilian facilities.

Medical evacuation (MEDEVAC) is the process of moving a casualty to and between MTFs under clinical supervision. It forms part of the continuum of a casualty's treatment and care and should be managed under medical oversight though often requires close co-ordination with other military functions such as ground and air operations staff. An effective MEDEVAC system includes:

- A 24-h all-weather transport capability able to operate over all terrain and in any operational environment. These should have the same mobility and protection as the military forces that they are supporting.
- Appropriately trained clinical staff equipped for in-transit medical care to enable rapid and safe transfer between aircraft, ambulances and MTFs.
- A system of command and control, patient regulation and patient tracking so that the flow and types of patients can be managed throughout the medical system.

Planning and Mounting Medical Support to Military Operations

Medical planning is about achieving the optimum efficiency and effectiveness between capability, capacity and evacuation to support the military mission to achieve the best outcome for the patient. Chapter 55 describes the military approach to medical planning. In the military context, the medical function exists to support the military operation, and so medical staff must be fully embedded with the military planning process. There should be medical representation on any reconnaissance visit to the potential area of operations and the timing for deployment of medical capabilities should be matched to the increase of the deployed population at risk.

Military doctrine describes 4 levels of military activity. The highest level is the grand strategic and is concerned with inter-ministerial co-ordination to implement national policy in a comprehensive approach integrating all of the instruments of state (diplomatic, economic and military activities). The military strategic level is concerned with the allocation of military resources to support the grand strategic plan. The operational level is about the employment of military forces to achieve strategic goals through the design, organisation, integration and conduct of campaigns. The lowest level, the tactical level, is the level at which actual combat is orchestrated and battles are fought. Table 31.1 summarises key medical planning and execution activities for each level.

Conducting Military Health Services Support Operations

There will be a formal military command and control (C2) structure on any military operation. This defines the responsibilities, authorities and communications support for the military commander at each level of military activity. There will be military

Table 31.1 Medical activities at each level of military activity

Level	Activities	Remarks
Grand strategic	Balancing health resources between civil and defence requirements Generating health manpower to support national requirements Integrating military and civilian resources to care for military casualties at Role 4	National health service resources are finite. In WW2 a national committee managed mobilisation of civilian medical staff in the Armed Forces to ensure balance between military and civilian requirements
Strategic	Allocation of resources to the medical function Determining the medical support capabilities and capacities required to support campaigns Balancing medical resources between active duty and reserve forces Predicting the casualty load for campaigns	The medical function has to compete will all other military functions for defence resources
Operational	Determining the medical resources required for specific operations Balancing medical resources between nations and between army, navy and air force medical services on operations Establishing and monitoring the medical evacuation chain from point of wounding to Role 4	This requires an understanding of the medical implications of operational design and balancing economy with risk This is about allocation of medical resources (especially Role 2E and Role 3, and MEDEVAC airframes) for a particular operation
Tactical	Assigning missions and tasks to individual medical units Planning for and managing casualty evacuation and care during and after battles Responding to medical emergencies	This requires an understanding of military and medical tactics and the potential casualty flows. This is about siting of Role 2E and Role 2LM units and managing MEDEVAC from point of wounding to Role 4

medical staff embedded into the C2 structure who will be responsible for the planning and execution of the health services support arrangements for the operation. These medical staff have a combination of military functions for medical units and specialist medical functions for both medical units and the whole force. This multi-agency approach is very similar to the arrangements for the management of major incidents in civilian practice involving command and co-ordination arrangements

Table 31.2 Military medical command and clinical functions

Medical command and staff functions	Clinical functions
Supporting casualty tracking and casualty notification	Developing and communicating clinical policies specific to the operation
Managing MEDEVAC and patient regulation	Clinical governance of medical system
Oversight of medical logistics	Conducting health intelligence assessments and producing medical force protection advice
Developing and communicating the medical plan	Epidemiological health surveillance
Oversight of medical information systems	Co-ordination of the management of specific clinical cases
Managing military medical contribution to humanitarian relief and civilian reconstruction and development	
Medical contribution to crisis management	

between health, police, fire and rescue, civil government and other agencies. See Table 31.2.

Commanders of medical units and medical personnel embedded with military units will be responsible for the execution of the health service support plan. These units and individuals need to be able to operate in the military environment (including personal survival skills and organisational skills such as camouflage and protection) and also deliver their medical skills (both generic professional skills and also military-specific clinical skills such as the management of chemical casualties).

Summary

This chapter has summarised the principles and practice of military health service support in conflict. The chapter links Chap. 55 on Military Approach to Medical Planning, Chap. 30 Military Assistance to the Civilian Sector and Military Assistance to Security Sector Reform. This chapter considered the context of health in the military environment, discussed the organisation and resources required to provide military health services and examined the planning and mounting of health service support to operations. The chapter concluded by describing the command and control arrangements for the conduct military health services support operations.

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References

1. NATO Standardisation Agency. Allied joint medical support doctrine. Allied Joint Publication 4.10(A). Mar 2006.
2. Ministry of Defence. Medical support to joint operations. 3rd ed. Joint Warfare Publication 4-03. May 2011. Defence Development, Concepts and Doctrine Centre, Shrivenham.

3. Bricknell MCM. The evolution of casualty evacuation in the 20th century in the British Army (part 1) – Boer War – 1918. J R Army Med Corps. 2002;148:200–7.
4. Bricknell MCM. The evolution of casualty evacuation in the 20th century in the British Army (part 2) -1918–1945. J R Army Med Corps. 2002;148:314–22.
5. Bricknell MCM. The evolution of casualty evacuation in the 20th century in the British Army (part 3) – 1945 – present. J R Army Med Corps. 2003;148:33–7.
6. Bricknell MCM. The evolution of casualty evacuation in the 20th century (part 4) – an international perspective. J R Army Med Corps. 2003;149:166–74.
7. Bricknell MCM. The evolution of casualty evacuation in the British Army (part 5) – into the future. J R Army Med Corps. 2003;143:357–63.