Framework for the evaluation of military health systems

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ABSTRACT

The organisation of a military health system (MHS) differs from the civilian system due to the role of the armed forces, the unique nature of the supported population and their occupational health requirements. A previously published review of the Military Medical Corps Worldwide Almanac demonstrated the value of a standardised framework for evaluation and comparison of MHSs. This paper proposes such a framework which highlights the unique features of MHSs not covered by health services research of national health systems. These include: national context and summary; organisational structure; firm base facilities, healthcare beneficiaries and medical research; operational capabilities, overseas deployments, collaborations and alliances; personnel including recruitment, training and education; and history and culture. This common framework can help facilitate international collaboration between military medical services including capability development, training exercises and mutual support during military operations. It can also inform national contributions to future editions of the Almanac.

INTRODUCTION

Two previous papers in this journal have highlighted the importance of understanding the relationships between the various providers of healthcare within a country, including the security sector and the armed forces, in order to inform Defence Health Engagement activities.[1 2] Military medical personnel need to understand how their health system interfaces with their country's wider health system and, if deployed overseas, the relationship between civil and military systems in the host nation. This requires a framework for the comparison of health systems, several of which already exist for the civilian context. International organisations like the World Health Organisation (WHO),[3] Organisation for Economic Co-operation and Development (OECD)[4] and non-profits like the Commonwealth Fund[5] provide health profiles of different nations in order to inform policies for health systems reform. However, these comparisons do not cover military health systems (MHSs). Military healthcare providers may be a significant supplier of government-funded healthcare and a substantial component of national and international responses to global health crisis, including the ongoing fight against SARS-CoV-2.[6–8] We recently published an analysis of the primary online summary of MHSs,[9] the Military Medical Corps Worldwide Almanac (Almanac).[10] We identified common features of MHSs and also highlighted the wide variation in breadth and depth of data in the Almanac on MHSs between countries. This paper proposes a framework for evaluating MHSs to improve mutual understanding for domestic and international collaboration between civilian and military healthcare organisations. It is summarised in Figure 1 and is matched to the WHO '6 Building Blocks of a Health System'. It has the following sections: national context and summary; organisational structure; firm base facilities, military-specific beneficiaries and medical research; operational capabilities, overseas deployments, collaborations and alliances; personnel including recruitment, and training and education; and history and culture. A blank framework is provided as an online supplemental file to this paper, including data tables to support each section.

Section 1: national context and summary for military health systems

This section provides an overview to the unique characteristics that apply to the MHS that supports a country's armed forces. The size and likely missions for the MHS will be dependent on the international and domestic security threats that determine the role of a nation's armed forces. This sets the requirement for healthcare for military personnel outside of a nation's borders in overseas garrisons and during military operations.[11] This crucial role requires the rapid deployment of human and material resources, and demands that key elements of the MHS can be released from responsibilities for domestic healthcare provision. Beyond deployments, a MHS is primarily an occupational health service, maximising the medical fitness of service-members through health protection, prevention and treatment, and recovery for sick and injured service-members. This is similar to a civilian health system and this role will be determined by national public health services and social security arrangements. Depending on national circumstances, the MHS may also have discrete research, training, personnel management, healthcare information, logistics and pharmaceutical services. The MHS will normally compete for resources from the defence budget rather than the health or social security budget. Therefore, its value and cost are measured against its outputs for defence rather than health.

Section 2: organisational relationships

This section covers leadership and governance of the MHS. It should include a structural diagram and a narrative to explain organisational relationships. The civilian system is ultimately under the jurisdiction of the Ministry of Health (MoH). However, MHSs are normally accountable to the Ministry of Defence (MoD). The relationship between the Chief of Defence and the head of the MHS is subject to variation between countries based on size and circumstances. Figure 2 shows the possible organisational choices for military health services, using filled lines to suggest the military structure, dashed lines to indicate choices about relationships and a dotted line to indicate the external connection from the military to the MoH. The diagram assigns the title of Surgeon General (SG) or Director Medical Services (DirMS) to the senior appointment in the MHS. This reflects the dual role of 'senior health adviser to Defence' as a 'staff function' (providing health intelligence, planning and logistical or operational health insights) to the Chief of Defence, and the 'senior leader of the medical services' as a 'chief executive' function (controlling operational medical units, garrison healthcare, training centres and research facilities). The choices indicated in the diagram reflect the range different governance models for a MHS. For example, the SG or DirMS may be directly subordinate to the MoD as a medical chief, as it is done in Germany, or subordinate to a joint chief as it is done in the UK.[9] The SG or DirMS may also directly command the all the medical services that support that

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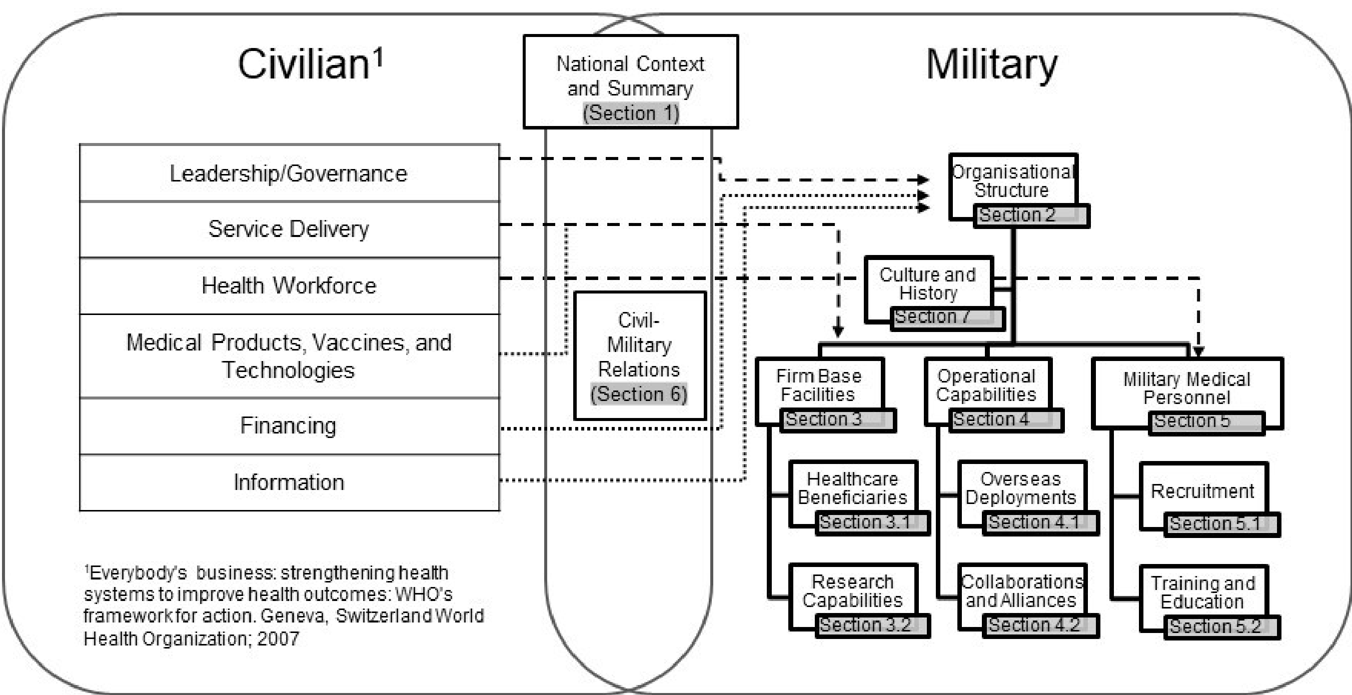

Figure 1 Framework for military health systems.

Army, Navy and Air Force (eg, Ireland and Israel), or coordinate between leaders of healthcare for each service (eg, Nigeria).

Section 3: the firm base health system

This section covers community-based services within military garrisons (primary medical care, dental care, physical rehabilitation and mental health) and hospital services.[12] This is often the largest component of the MHS and a vital part of the benefits of military service. The beneficiaries may dictate the breadth of clinical services provided (obstetrics to geriatrics) and the overall cost of the MHS.

Section 3.1: healthcare beneficiaries

This subsection provides a matrix to record the beneficiaries of the MHS. In addition to armed forces personnel, there

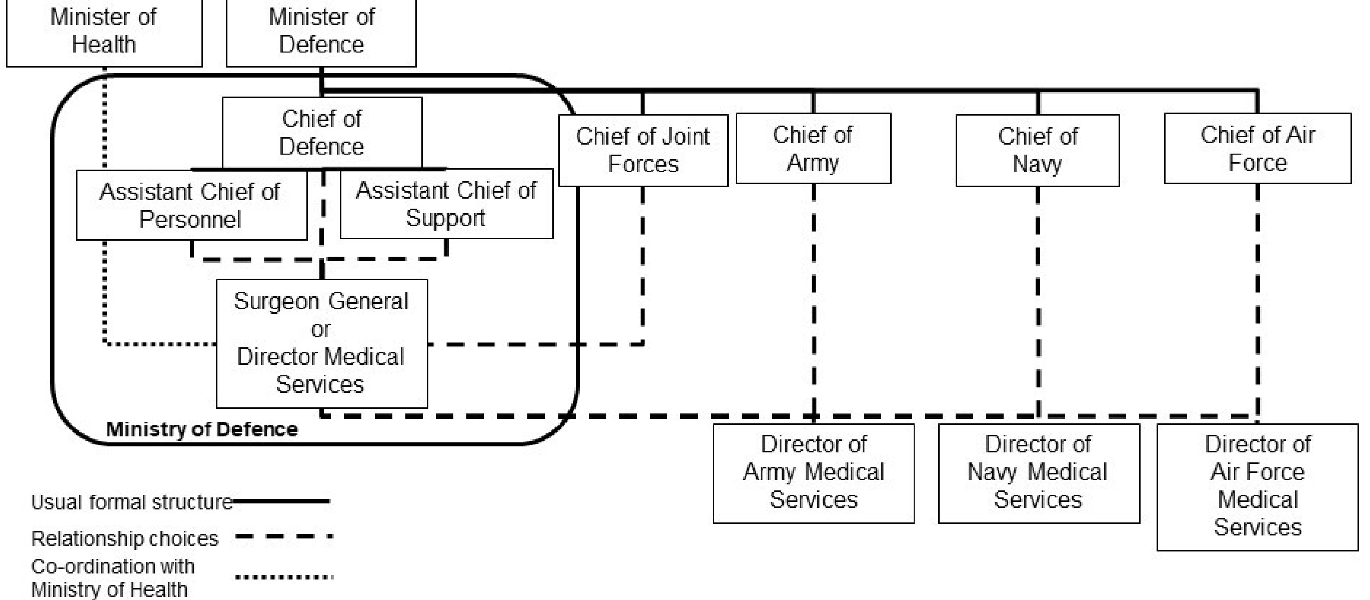

Figure 2 Organisational choices for military health systems.

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may also be an obligation to provide general medical services to beneficiaries, such as family members, retirees, veterans and designated civilians.[12] It may also care for law enforcement personnel or VIP patients, such as royalty and elected officials.[2]

Section 3.2: medical research and innovation

Military research has facilitated significant advances in healthcare from preventative medicine and vaccines, to acute trauma care and specialist rehabilitation.[13–15] A nations' military medical research capabilities and focus may be a significant additional component of the Firm Base health system. This subsection lists possible categories of research in the MHS, including whether there are physical military facilities for conducting this research, funding for relevant civilian sector research and military-specific medical journals.

Section 4: operational capabilities

This section covers the role of a MHS to treat and evacuate casualties from military operations from point of injury through different levels of care back to the home nation. Medical units may be codified according to the capability descriptions in NATO Allied Joint Medical Support Doctrine[16] and used to inform national and international military capability planning such as the NATO Defence Planning Process and the EU Capability Development Priorities.[17 18] A description might be supported by a graphic that illustrates the national casualty evacuation concept (eg, Taiwan and Thailand).[9] It is recognised that a full description of the number and size of military medical units might be classified.

Section 4.1: overseas and operational Deployments

This subsection covers the participation of the MHS in overseas combat missions, training exercises, disaster relief operations and UN peacekeeping operations. To understand the scale of such commitments, it is suggested that the annual number of each of these three deployment types is categorised by the number of missions and the level of resources committed each year. Additionally, the section could include a map to illustrate the breadth of their commitments (eg, Jordan and Israel).[9]

Section 4.2: collaborations and alliances

Military medicine is often a significant topic for international collaboration such as coordination of joint exercises in combat or disaster scenarios, presentation of research and production of common clinical standards. This subsection also covers the participation of the MHS in multinational medical collaborations such as the International Committee on Military Medicine and regional congresses,[19] the NATO Centre for Military Medicine[20] and the Balkan Military Medical Committee.[21]

Section 5: military medical personnel

This section covers the healthcare workforce which is a key building block of the MHS and is the principal cost. The WHO's mapping of healthcare occupations, based on the 2008 International Standard Classification of Occupations, combines armed forces providers under 'armed forces occupations'.[22] This obscures the detail necessary to understand a MHS's capability. There are three unique personnel aspects of MHSs. The first is that the 'combat medic' (service-members trained to deliver preventative, primary and combat casualty care) is often a unique military job. Though similar to paramedics or clinical officers, their training and employment may not align with civilian categories of healthcare providers.[23] The second is the employment status of the personnel. Military systems may include active-duty service-members, reservists or civilian personnel, with implications for their availability to work on overseas operations or domestically. The third is that serving military providers will have a military rank as either officer or enlisted. This may have implications for healthcare team structures and dynamics. A suggested list of professional categories is included in the online supplemental file.

Section 5.1: military medical recruitment

Armed forces compete in the national market for health professionals and many nations have difficulty recruiting to their full requirement. This subsection lists a range of recruitment 'incentives' from direct conscription, financial inducements, sponsored education, MOD-delivered professional education and access to non-military income that might be used to improve recruiting and retention in the MHS.

Table 1 Summary of the framework for military health systems

Section	Title	Summary
1	National context and summary for military health systems	Brief description of the country, its military system and its military health system.
2	Organisational relationships	Leadership and governance of the MHS.
3	The firm base health system	Community-based services within military garrisons (primary medical care, dental care, physical rehabilitation and mental health) and hospital services.
3.1	Healthcare beneficiaries	List of all beneficiaries of the MHS for example, armed forces personnel, families, retirees, VIPs and so on.
3.2	Medical research and innovation	Organisations and relationships for research in military healthcare and armed forces personnel.
4	Operational capabilities	Capabilities of the MHS to treat and transfer casualties from military operations from point of injury through different levels of care back to the home nation.
4.1	Overseas and operational deployments	Breadth and scale of overseas/operational commitments.
4.2	Collaborations and alliances	Participation of the MHS in international healthcare collaborations and alliances.
5	Military medical personnel	Professional categories and numbers of personnel in the MHS (including civilians).
5.1	Military medical recruitment	Method of recruiting personnel for the MHS, including scholarships and other incentives.
5.2	Military medical training and education	Arrangements for career development of military health personnel: military training and healthcare professional education.
6	Civil–military relations	Arrangements for collaboration between the civilian and military health systems, including in crisis.
7	History and culture	Cultural and historical features of a MHS that create a sense of unity, identity and loyalty.

MHS, military health system.

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Section 5.2: military medical training and education

This subsection covers the arrangements for the two requirements for career development of military health personnel: military training and healthcare professional education. This might be delivered through separate institutions: military training centres providing generic skills to the standards of the armed forces; military medical training centres that provide the unique medical skills needed for the military environment;[24] and professional educational pathways aligned to civilian competencies and qualifications. There may also be a specific training centre for military medical units.

Section 6: civil–military relations

This section covers formal relationships between the civilian and MHSs. The COVID-19 crisis has highlighted the contribution of military medical services to national crisis response. Military healthcare efforts may intersect with civilian efforts to improve trauma care, coordinate disaster response[25] and facilitate the provision of subspecialty care that is beyond the capability of military facilities.

Section 7: history and culture

The final section covers the cultural and historical features of a MHS that create a sense of unity, identity and loyalty.[26] The shared symbols of military culture, like badges, mottos and associations, may influence the perspectives of military healthcare providers. Additionally, the history of a nation's MHS may be a source of pride and a foundation for traditions, ceremonies, and rituals. This might be recorded in books or displayed within a military medical museum.

Limitations

There is potential for deeper international understanding of MHSs if this framework is used to record key features and data of a MHS . However, some nations may limit the description of their military medical operations and capabilities due to security concerns. Additionally, it is important to recognise that this framework concentrates on military-specific capabilities and that it does not capture health outcomes and other measures of health system responsiveness. This framework has been developed from 'best practice' information provided by nations for the Almanac. It may require further review if the Almanac receives more complete country profiles.

CONCLUSION

This paper proposes a framework to capture the unique features of MHSs. This framework can support comparative analysis between MHSs and facilitate cooperation and interoperability within national health systems. It might also provide a structure for national entries within the Almanac. The section headings and key information is shown in Table 1. A fuller description of each section and a blank framework is available as an online supplemental file to this paper.

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Contributors MB conceived the paper. RL conducted the primary research. ZH analysed case-studies. JW provided extensive revisions. LB provided source-specific insights, and all authors reviewed the drafts. MB is the guarantor for the paper.

Funding This study was funded by UK Research and Innovation GCRF Research for Health in Conflict (R4HC-MENA ES/P010962/1).

Competing interests MB retired from the appointment of UK Surgeon General in April 2019. JW is a serving member of the UK Defence Medical Services. LB is the Editor-in-Chief of the Worldwide Military Medical Almanac.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

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To cite Leone R, Whitaker J, Homan Z, *et al*. *BMJ Mil Health* Epub ahead of print: [*please include* Day Month Year]. doi:10.1136/bmjmilitary-2020-001699

Received 22 October 2020
Revised 2 January 2021
Accepted 9 January 2021

BMJ Mil Health 2021;**0**:1–5. doi:10.1136/bmjmilitary-2020-001699

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The Military Health Services of [insert country]

Section 1: National Context and Summary

This section provides an overview to the unique characteristics that apply to healthcare for a country's armed forces. Insert a brief description of the country, its military system and its military health system (MHS). This should include any unique characteristics of the wider national health system that impact on the military medical system. **Please include answers to the following questions.**

- How are the armed forces organised?
- Where are the main organisations located?
- Does the military and its medical services operate as Joint or Single Services?
- How are health and social care financed? Does the military replicate this for armed forces personnel, families and retirees?
- How is healthcare information managed across the civilian and military health system?

Section 2: Organisational Structure

This section covers leadership and governance of the MHS. Insert an organisational diagram plus a supporting narrative to illustrate the relationship between the Surgeon General function (technical health advice to the Ministry of Defence, and health policy direction to the army, navy and air force) and the Director General function (chief executive role over components of the military health system). **Please include answers to the following questions.**

- What is command and organisation structure of the MHS?
- Who does the head or heads of the military health system report to?
- What are the main medical formations and units at the strategic, operational and tactical levels and where are they located?
- Does the military use contractors to provide support in the firm base and on operations?
- How are financial resources allocated?

Section 3: Firm Base Health System

This section covers the Firm Base health system (see: Bricknell M, Cain P. 'Understanding the Whole of Military Health Systems - The Defence Healthcare Cycle,' *The RUSI Journal*. 2020. https://www.tandfonline.com/doi/full/10.1080/03071847.2020.1784039). This comprises community health services (family practice, occupational health, dental care, mental health, sports medicine/rehabilitation, community hospitals) and hospital services (either military hospitals or facilitated access to public/private hospitals). **Please include answers to the following questions.**

- What is the size of Firm Base health system?
- Is there a map showing the distribution of medical facilities?
- Are there any special military medical treatment capabilities? E.g. rehabilitation centre, mental health centre, cancer centre etc
- What is the relationship between military Firm Base healthcare and the civilian public health system?
- How is military medical/clinical information exchanged and managed in the Firm Base?

Section 3.1 – Healthcare Beneficiaries

This sub-section provides a matrix to record the beneficiaries of the MHS. In addition to armed forces personnel, there may also be an obligation to provide general medical services to beneficiaries, such as family members, retirees, veterans and designated civilians. Table 1 provides a suggested categorisation.

Table 3.1 - Beneficiaries of the Firm Base Military Health System.

Beneficiary	**Definition**	**Number**	**Remarks**
Active Duty	Full-time members of the Army, Navy, Air Force		
Other Security Forces	Personnel who serve in counter-terrorism teams, the gendarmerie, or other law enforcement representatives.		
Reserve	Non-full-time members of the Army, Navy, Air Force		Might be different categories of reserves
Family Members	Relatives of Active Duty members of the Armed Forces		Might include spouses, children, parents or other relatives

Beneficiary	Definition	Number	Remarks
Retirees	Personnel who have left Active Duty employment		
Veterans	Personnel who have left Active Duty employment with a medical condition attributable to military service		
Government Civilians	Personnel who work for the military and/or government as civilians.		
VIP Populations	Personnel who have privileged royal, elected, or otherwise important status who receive care from the military without qualifying due to other factors.		
Public Civilians	Members of the general public not fitting any of the above categories		This might be provided free or require co-payment

Section 3.2: Military Medical Research and Innovation

Medical research for the military environment is an important component of a military health system and is often linked to military medical education institutions. Table 2 lists categories of potential military medical research. This sub-section should include a description and link to any national academic journals in military medicine. **Please include answers to the following questions.**

- Does the military have physical infrastructure in place to research each topic?
- Are there civilian institutions and researchers who are funded by the military to conduct this research?
- Are there joint research projects conducted across the civilian and military spheres?
- Does the nation publish any academic journals in military medicine?

Table 3.2: Categories of Research Conducted by a Military Health System

Research Category	Description of Research Capability
Aviation and Aerospace	

Research Category	Description of Research Capability
Diving, Underwater and Naval	
Tropical and Infectious Disease	
Public Health	
Chemical, Biological, Radioactive, and Nuclear	
Mental Health	
Technology and Telemedicine	
Rehabilitation and Prosthetics	
Combat Casualty Care	
Human Performance in Austere and Extreme Environments (heat, cold)	

Section 4: Operational Capabilities

This section covers the role of a MHS to treat and transfer casualties from military operations from point of injury through different levels of care back to the home nation. The narrative might be supported by a graphic that illustrates the national military casualty evacuation system. The NATO capability definitions (Table 3) may be a helpful framework, though nations may combine more than one role into a single medical unit (regiment or battalion). There may be security constraints that prevent recording the precise numbers and capacity of medical units. **Please include answers to the following questions.**

- Does the military have any standing domestic and international military tasks?
- What is the operational capability and capacity?
- Are there capabilities for damage control surgery and in-theater surgery?
- What are the types of forward, tactical and strategic MEDEVAC capabilities and their capacities?
- How are new medical equipment or capabilities procured?

- How is medical logistics organised and managed during operations?

Table 4: Medical Operational Capabilities (see: Allied Joint Medical Support Doctrine AJP-4.10. North Atlantic Treaty Organization Standardization Office. 2019. At: https://coemed.org/files/stanags/01_AJP/AJP-4.10_EDC_V1_E_2228.pdf)

Capability	Definition	Numbers	Comment or Description
Role 1	Triage, pre-hospital emergency care, essential diagnostics, and limited holding capabilities.		
Role 2F	Mobile and deployable structures that may perform damage control resuscitation and damage control surgery in far-forward or unsecured environments.		
Role 2B	Mobile and deployable structures that may perform damage control resuscitation and damage control surgery.		
Role 2E	Mobile and deployable structures that may perform damage control resuscitation and damage control surgery, along with expanded capabilities that may include x-ray equipment, blood banks, pharmaceutical supplies,, and sterilization equipment.		
Role 3	Deployable hospital and specialist care that incorporates CT technology and oxygen production.		
Role 4	Full-spectrum capabilities outside of the deployed environment that include reconstructive surgery, rehabilitation, and other specialized techniques.		
Casualty Staging Units	Patient holding centers with nursing care that may hold and stabilize patients before transport between levels of care.		
Medical Emergency Response Team	Pre-hospital care teams that can provide care in non-combat operational environments.		
Forward Evacuation	Transportation from the point of injury to an initial medical treatment facility.		

Capability	Definition	Numbers	Comment or Description
Tactical Evacuation	Transportation from one medical treatment facility to another within the area of operations.		
Strategic Evacuation	Transportation from medical facilities within the area of operations to medical facilities outside of the area of operations.		
Maritime Evacuation Assets	Sea-based vehicles that may evacuate individuals from maritime or amphibious operations.		
Land Evacuation Assets	Ambulances that can transport casualties over difficult terrain.		
Air Evacuation Assets	Tilt rotor, rotary, or fixed wing assets such as helicopters and planes that may transport patients through the air.		

Section 4.1: Overseas or Operational Deployments

This section should indicate the breadth and scale of overseas/operational commitments by the military medical services. This might be illustrated on a map and supported by data entered into Table 4. **Please include answers to the following questions.**

- How many combat operations, disaster relief missions, and UN Peacekeeping Operations has the nation completed this year?
- What current medical operations are being conducted by the nation's military abroad?

Table 4.1: Operational Deployments

Resource Commitment	Combat Operations	Disaster Relief	UN Peacekeeping Operations
Individual Teams			
Role 1 Involvement			

Role 2 Involvement			
Role 3 Involvement			

Section 4.2: Collaborations and Alliances

This section summarises the participation of the MHS in international healthcare collaborations and alliances. Please list the alliances that the nation takes part in and fill out the table below. **Please include answers to the following questions.**

- Is the nation a member of any multi-national military medical organisations?
- Who are the nation's closest collaborators during operational and training missions?

Section 5: Military Medical Personnel

This section covers key aspects of military medical personnel management, training and recruitment. It should provide numbers of military personnel with a narrative that highlights key aspects such as: military medical technicians, extended training for military roles (e.g. nurse anaesthetists), and the balance between the active duty, reserve, and civilian workforce. **Please include answers to the following questions.**

- What is the total number of personnel in each the medical services of the Army, Navy, Air Force, civilian?
- What is breakdown of professions/specialities?
- What is the role of reservists and civilians in the military medical system?

Table 5: Categories of Healthcare Personnel in a Military Medical System

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Personnel Type	**Definition**[1]	**Active Duty #**		**Reservist #**		**Civilian #**	**Total #**
Rank		**Officer**	**Enlisted**	**Officer**	**Enlisted**	**N/A**	
Physicians	Clinicians who have obtained medical degrees with the proper licensing and training to practice in general medicine or in specialized disciplines.[15]						
Veterinarians	Certified clinicians who diagnose, treat, and prevent diseases in animals.[15]						
Dentists	Clinicians who are licensed to treat diseases of the mouth, teeth, jaws, and related areas.[15]						
Pharmacists	Professionals who are licensed to store and distribute medications.[15]						
Nurses	Clinicians with nursing degrees and credentials to provide care to patients.[15]						
Combat Medics	Clinical care providers who are trained by the military, but are not necessarily provided with the certification levels and education required for physician and non-physician clinician roles.[13]						
Healthcare Administrator	Any non-clinical personnel, such as NCO practice managers and medical support officers, who help with the management of domestic and international healthcare facilities.[28]						
Allied Health Professional	Personnel who support physicians and non-physician clinicians, including dental hygienists, physical therapists, medical technicians, radiographers, speech pathologists, respiratory therapists, among others.[29]						
Non-Physician Clinicians	Licensed clinical practitioners who are not certified physicians, including nurse practitioners, mid-wives, physician assistants, chiropractors, naturopaths, acupuncturists, optometrists, and podiatrists, among others.[30]						

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Section 5.1: Military Medical Recruitment

This sub-section should provide information about the recruitment pathways for military medical providers. **Please include answers to the following questions.**

- How are physician and non-physician providers recruited to the military?
- Which groups receive their primary professional training in the military? (doctors, nurses, AHPs, non-physician clinicians)

Table 5.1: Recruiting Mechanisms for Military Health Professionals

Recruiting Mechanism	Definition	Presence
Monetary	Physicians are offered monetary bonuses or higher compensation than civilian alternatives would provide.	
Scholarship or Repayment	Physicians are offered scholarships for schooling while in training or repayment programs after their training is completed.	
Mandatory Service	Physicians in the country are required to serve in the military.	

Section 5.2: Military Medical Training and Education

Many nations have institutions for the training and education of military healthcare personnel including field training centres, nurse and AHP training centres, military medical schools and collaborations for post-graduate training of healthcare professionals. These should be recorded in this section, including civil-military collaboration. **Please include answers to the following questions.**

- How are basic soldiering skills and medical specialist training delivered?
- Is there mandatory individual training in military skills such as weapon handling, CBRN protection and first aid?
- Are there specific military medical training institutions? E.g. field training centre, military medical school, military nursing school etc?
- How is the military collectively trained and validated to meet readiness?

Table 5.2: Education and Training Systems for Military Health Professionals

Training Mechanism	Definition	Presence
Civilian Education	Students pursue their education at a civilian university with no military component.	
Military Education	Students pursue their professional qualifications at a military university/training centre.	

Military Track Education	Students pursue their medical degree at a civilian university that possesses a military faculty and pathway.	
Foreign Military Education	Students pursue their education at a military medical school in a foreign, but allied, country.	

Section 6: Civil-military relations

This section covers formal arrangements for civil-military collaboration in health services and research. **Please include answers to the following questions.**

- Are there formal arrangements for co-ordination/collaboration between civilian and military health systems?
- Are the military health services included within national disaster risk reduction and resilience planning?
- Are there examples of military medical services being used as part of national crisis response?

Table 6: Examples of categories of Civil-Military Relationships

Activity	No	Yes - Briefly describe
Civil-military cooperation in a domestic trauma system		
Military providers working in a civilian context when not deployed		
Joint civil-military disaster operations domestically		
Joint civil-military disaster operations abroad		
Integration of military and civilian garrison hospitals		

Section 7: History and Culture

This section should summarize the historical and cultural of the military health system, tracing from its early stages to the current status of the military health system (see: Bricknell M. The Cultural Challenge of Leading in Military Medicine. *Military-medicine.com.* 2020. Retrieved from https://military-medicine.com/article/3839-the-cultural-challenge-of-leading-in-military-medicine.html). **Please include answers to the following questions.**

- When did the nation's military health system begin?
- What changes has the military health system undergone over time?

- What symbols and cultural structures have become shared across all military providers?

Table 7: Examples of cultural artefacts/symbols/features of a MHS

Category	Definition	Description
History	A narrative description of the initial founding and subsequent development of the military health system.	
Military badges or emblems	A badge/emblem that denotes an association with the MHS.	
Mission Statement or Motto	A statement of purpose or short phrase that defines the function of the military health system.	
Military Medical Associations	Organizations that facilitate community and socialization between military providers either during or after their service.	
Museums	Facilities that describe the history of a nation's military healthcare and store relics of the system's past.	
Historical Books	Literary descriptions of the historical development of a nation's military healthcare system.	
Websites	Links to any websites that provide information about a nation's past or present military health system.	

The Military Health Services of [insert country]

Section 1: National Context and Summary

This section provides an overview to the unique characteristics that apply to healthcare for a country's armed forces. Insert a brief description of the country, its military system and its military health system (MHS). This should include any unique characteristics of the wider national health system that impact on the military medical system. **Please include answers to the following questions.**

- How are the armed forces organised?
- Where are the main organisations located?
- Does the military and its medical services operate as Joint or Single Services?
- How are health and social care financed? Does the military replicate this for armed forces personnel, families and retirees?
- How is healthcare information managed across the civilian and military health system?

Section 2: Organisational Structure

This section covers leadership and governance of the MHS. Insert an organisational diagram plus a supporting narrative to illustrate the relationship between the Surgeon General function (technical health advice to the Ministry of Defence, and health policy direction to the army, navy and air force) and the Director General function (chief executive role over components of the military health system). **Please include answers to the following questions.**

- What is command and organisation structure of the MHS?
- Who does the head or heads of the military health system report to?
- What are the main medical formations and units at the strategic, operational and tactical levels and where are they located?
- Does the military use contractors to provide support in the firm base and on operations?
- How are financial resources allocated?

Section 3: Firm Base Health System

This section covers the Firm Base health system (see: Bricknell M, Cain P. 'Understanding the Whole of Military Health Systems - The Defence Healthcare Cycle,' *The RUSI Journal*. 2020. https://www.tandfonline.com/doi/full/10.1080/03071847.2020.1784039). This comprises community health services (family practice, occupational health, dental care, mental health, sports medicine/rehabilitation, community hospitals) and hospital services (either military hospitals or facilitated access to public/private hospitals). **Please include answers to the following questions.**

- What is the size of Firm Base health system?
- Is there a map showing the distribution of medical facilities?
- Are there any special military medical treatment capabilities? E.g. rehabilitation centre, mental health centre, cancer centre etc
- What is the relationship between military Firm Base healthcare and the civilian public health system?
- How is military medical/clinical information exchanged and managed in the Firm Base?

Section 3.1 – Healthcare Beneficiaries

This sub-section provides a matrix to record the beneficiaries of the MHS. In addition to armed forces personnel, there may also be an obligation to provide general medical services to beneficiaries, such as family members, retirees, veterans and designated civilians. Table 1 provides a suggested categorisation.

Table 3.1 - Beneficiaries of the Firm Base Military Health System.

Beneficiary	**Definition**	**Number**	**Remarks**
Active Duty	Full-time members of the Army, Navy, Air Force		
Other Security Forces	Personnel who serve in counter-terrorism teams, the gendarmerie, or other law enforcement representatives.		
Reserve	Non-full-time members of the Army, Navy, Air Force		Might be different categories of reserves
Family Members	Relatives of Active Duty members of the Armed Forces		Might include spouses, children, parents or other relatives

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Beneficiary	Definition	Number	Remarks
Retirees	Personnel who have left Active Duty employment		
Veterans	Personnel who have left Active Duty employment with a medical condition attributable to military service		
Government Civilians	Personnel who work for the military and/or government as civilians.		
VIP Populations	Personnel who have privileged royal, elected, or otherwise important status who receive care from the military without qualifying due to other factors.		
Public Civilians	Members of the general public not fitting any of the above categories		This might be provided free or require co-payment

Section 3.2: Military Medical Research and Innovation

Medical research for the military environment is an important component of a military health system and is often linked to military medical education institutions. Table 2 lists categories of potential military medical research. This sub-section should include a description and link to any national academic journals in military medicine. **Please include answers to the following questions.**

- Does the military have physical infrastructure in place to research each topic?
- Are there civilian institutions and researchers who are funded by the military to conduct this research?
- Are there joint research projects conducted across the civilian and military spheres?
- Does the nation publish any academic journals in military medicine?

Table 3.2: Categories of Research Conducted by a Military Health System

Research Category	Description of Research Capability
Aviation and Aerospace	

Research Category	Description of Research Capability
Diving, Underwater and Naval	
Tropical and Infectious Disease	
Public Health	
Chemical, Biological, Radioactive, and Nuclear	
Mental Health	
Technology and Telemedicine	
Rehabilitation and Prosthetics	
Combat Casualty Care	
Human Performance in Austere and Extreme Environments (heat, cold)	

Section 4: Operational Capabilities

This section covers the role of a MHS to treat and transfer casualties from military operations from point of injury through different levels of care back to the home nation. The narrative might be supported by a graphic that illustrates the national military casualty evacuation system. The NATO capability definitions (Table 3) may be a helpful framework, though nations may combine more than one role into a single medical unit (regiment or battalion). There may be security constraints that prevent recording the precise numbers and capacity of medical units. **Please include answers to the following questions.**

- Does the military have any standing domestic and international military tasks?
- What is the operational capability and capacity?
- Are there capabilities for damage control surgery and in-theater surgery?
- What are the types of forward, tactical and strategic MEDEVAC capabilities and their capacities?
- How are new medical equipment or capabilities procured?

- How is medical logistics organised and managed during operations?

Table 4: Medical Operational Capabilities (see: Allied Joint Medical Support Doctrine AJP-4.10. North Atlantic Treaty Organization Standardization Office. 2019. At: https://coemed.org/files/stanags/01_AJP/AJP-4.10_EDC_V1_E_2228.pdf)

Capability	**Definition**	**Numbers**	**Comment or Description**
Role 1	Triage, pre-hospital emergency care, essential diagnostics, and limited holding capabilities.		
Role 2F	Mobile and deployable structures that may perform damage control resuscitation and damage control surgery in far-forward or unsecured environments.		
Role 2B	Mobile and deployable structures that may perform damage control resuscitation and damage control surgery.		
Role 2E	Mobile and deployable structures that may perform damage control resuscitation and damage control surgery, along with expanded capabilities that may include x-ray equipment, blood banks, pharmaceutical supplies,, and sterilization equipment.		
Role 3	Deployable hospital and specialist care that incorporates CT technology and oxygen production.		
Role 4	Full-spectrum capabilities outside of the deployed environment that include reconstructive surgery, rehabilitation, and other specialized techniques.		
Casualty Staging Units	Patient holding centers with nursing care that may hold and stabilize patients before transport between levels of care.		
Medical Emergency Response Team	Pre-hospital care teams that can provide care in non-combat operational environments.		
Forward Evacuation	Transportation from the point of injury to an initial medical treatment facility.		

Capability	Definition	Numbers	Comment or Description
Tactical Evacuation	Transportation from one medical treatment facility to another within the area of operations.		
Strategic Evacuation	Transportation from medical facilities within the area of operations to medical facilities outside of the area of operations.		
Maritime Evacuation Assets	Sea-based vehicles that may evacuate individuals from maritime or amphibious operations.		
Land Evacuation Assets	Ambulances that can transport casualties over difficult terrain.		
Air Evacuation Assets	Tilt rotor, rotary, or fixed wing assets such as helicopters and planes that may transport patients through the air.		

Section 4.1: Overseas or Operational Deployments

This section should indicate the breadth and scale of overseas/operational commitments by the military medical services. This might be illustrated on a map and supported by data entered into Table 4. **Please include answers to the following questions.**

- How many combat operations, disaster relief missions, and UN Peacekeeping Operations has the nation completed this year?
- What current medical operations are being conducted by the nation's military abroad?

Table 4.1: Operational Deployments

Resource Commitment	Combat Operations	Disaster Relief	UN Peacekeeping Operations
Individual Teams			
Role 1 Involvement			

Role 2 Involvement			
Role 3 Involvement			

Section 4.2: Collaborations and Alliances

This section summarises the participation of the MHS in international healthcare collaborations and alliances. Please list the alliances that the nation takes part in and fill out the table below. **Please include answers to the following questions.**

- Is the nation a member of any multi-national military medical organisations?
- Who are the nation's closest collaborators during operational and training missions?

Section 5: Military Medical Personnel

This section covers key aspects of military medical personnel management, training and recruitment. It should provide numbers of military personnel with a narrative that highlights key aspects such as: military medical technicians, extended training for military roles (e.g. nurse anaesthetists), and the balance between the active duty, reserve, and civilian workforce. **Please include answers to the following questions.**

- What is the total number of personnel in each the medical services of the Army, Navy, Air Force, civilian?
- What is breakdown of professions/specialities?
- What is the role of reservists and civilians in the military medical system?

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