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Preface

01. **Aim**. The aim of this Canadian Forces Health Services publication (CFHSP) is to set forth doctrine governing health services (HS) in land operations.

02. **Policy context**. This publication has been harmonized with Canadian Armed Forces (CAF) joint doctrine and the environmental support doctrine publications of the Canadian Army and the Royal Canadian Air Force. As the CAF will often be working alongside allies, this publication incorporates HS doctrine published by the North Atlantic Treaty Organization (NATO), and standards published by the American, British, Canadian, Australian and New Zealand Armies Program (ABCANZ).

03. This document does not address medical planning for chemical, biological, radiological, and nuclear (CBRN) environments. Greater detail is found in Canadian Forces Joint Publication (CFJP) 3-8.1 *Chemical, Biological, Radiological, and Nuclear Defence Operations*, B-GJ-005-311/FP-020 *Canadian Forces Chemical, Biological, Radiological and Nuclear Defence Tactics, Techniques and Procedures,* Allied Joint Medical Publication (AJMedP)-7 *Allied Joint Medical Doctrine for Support to Chemical, Biological, Radiological and Nuclear (CBRN) Defensive Operations* with its subordinate publications, and CFHSP-7 *HS in CBRN Environments* (to be issued).

04. **Scope**. CFHSP-2 *Health Services in Land Operations* focuses on brigade level operations and briefly discusses elements of division level support. Due to a lack of current tactics, techniques, and procedures (TTP) this document includes more detail than would normally be the case. As these are developed, some of the detail in this publication will be reduced.

05. **Content Overview**. This publication is organized into the following chapters:

a. **Chapter 1 – Context of Deployed Health Care**

b. **Chapter 2 – Generic Planning Considerations**

c. **Chapter 3 – The Field Ambulance – Role 1 Medical Support to the Brigade or Brigade Group**

d. **Chapter 4 – Role 2 and 3 – Deployed Surgical Capability**

a. **Chapter 5 – Medical Evacuation**

a. **Chapter 6 – Health Services Logistics**

b. **Chapter 7 – Tactical Employment of Health Services Units**

c. **Chapter 8 – Operations in Specific Environments**

06. NATO Standardization Agreements (STANAG) referred to in this document have been ratified by Canada. HS related ABCANZ standards referred to in this document have been approved by the Director General Health Service (DGHS).

07. In order to enhance interoperability this document uses NATO terminology where applicable. NATO terminology is found in NATO*Term*. Canadian terminology is found in the *Defence Terminology Bank* (DTB). In some instances the term “medical” is used rather than “health services”. For example, “medical treatment facility” is NATO terminology and it includes dental.

08. Where possible hyperlinks have been included; however, due to changing websites the links are not guaranteed. The reference section at the end of the document includes a list of current websites.

09. DGHS is the approval authority for this publication.

10. Recommendations for amendments to this publication are welcomed and should be forwarded to the Canadian Forces Health Services (CFHS) Headquarters/Director Health Services Strategy/Staff Officer Doctrine.

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TABLE OF CONTENTS

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Chapter 1
Context of Deployed Health Care

0101. **Health Services** (HS) is defined as, "Medical or dental services intended directly or indirectly to contribute to the health and well-being of patients or a population. Health Services are not restricted to clinical, curative or preventive services and include food inspection and environmental protection."[1] HS supports the operational mission through conservation of personnel, preservation of life, and minimization of residual physical and mental disabilities.

0102. This publication focusses on the provision of HS during operations in the land environment in expeditionary operations. The emphasis is on brigade (Bde) level operations, but does include some discussion on the division (Div) level. For general information on Bde operations see B-GL-321-003/FP-001 *Brigade Tactics*.

0103. With a view to improving interoperability with our principal allies, NATO concepts and terminology have been adopted where appropriate. Any substantial deviation from NATO doctrine is identified in the text.

0104. CAF HS resources do not belong to the Canadian Army; however, resources are allocated for training and operations. Most contemporary operations are conducted in a joint and usually multinational context. HS elements in support of Canadian Army operations will often be part of a Canadian Joint Health Services unit or formation as part of a multinational medical system. For information on HS in joint operations see CFJP 4-10 *Health Services*.

Operational Context

0105. HS elements must be able to support land forces across the full spectrum of conflict from large-scale peer-on-peer warfighting to stabilization, peace support, disaster relief, humanitarian assistance, and domestic operations involving aid to the civil authority. HS elements supporting the Canadian Army may be deployed into challenging conditions which may be characterized by:

a. regular or irregular threats;

b. multinational alliances or coalitions;

c. remote and austere locations with a high prevalence of health threats and hazards;

d. adversaries' cyber, space, and electronic warfare capabilities could degrade, disrupt, and/or compromise communications and information systems, and medical equipment;

e. no guarantee of air superiority;

f. long-range fires that will increase the scale, tempo, and distribution of casualties, and require the frequent repositioning of units in order to improve survivability;

g. extended and limited lines of communication;

h. extended periods in challenging climatic, geographic, socio-cultural, environmental, economic and political conditions;

i. degraded infrastructure;

[1] DTB, record 43636.

j. non-linear and non-contiguous battlespace. Adversaries combat operations in the friendly rear areas may interdict lines of communication and disrupt vital combat support and combat service support (CSS) activities, to include patient evacuation and medical resupply;

k. wide dispersion of HS elements throughout the battlespace placing heavy demands on communications resources;

l. non-state paramilitary, terrorist, and criminal organizations targeting civilians as well as CAF and coalition forces;

m. the proliferation of uncrewed aircraft systems (UAS) for reconnaissance and attack by state and non-state actors;[2]

n. pervasive globalized information and social media environment;

o. adversaries that employ deterrence capabilities by generating social, political, and economic disorder to gain operational advantages;

p. mass fires, thermobaric, directed energy, high energy lasers, and hypersonic weapons that may create previously unseen wounding patterns;

q. potential new bioweapons (biological warfare) or natural pandemics;

r. threat or use of CBRN weapons;

s. targeting of HS facilities and personnel from non-traditional adversaries who do not respect the Laws of Armed Conflict (LOAC); [3]

t. little or no host nation support available;

u. dense urban areas with a large civilian population where a clear distinction between combatants and the civil population may not be possible. Military operations and engagements in an urban environment are likely to result in exceptional high casualty rates and a critical deterioration of public health related to collateral damage of health relevant infrastructure;

v. large numbers of refugees or displaced persons requiring medical care and potentially causing congestion on roads; and

w. an absence of host nation civilian medical personnel in threatened areas may lead to the burden of military medical personnel caring for civilian casualties.

0106. Modern weapon systems produce more combat power utilizing fewer operators than was previously the norm. Individual soldiers have highly specialized training, and combat elements are more geographically dispersed. Consequently, there is a larger loss of combat capability when an individual becomes a casualty.

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[2] Canada has adopted “uncrewed” instead of “unmanned.” Some older NATO and Canadian publications use the older “unmanned” terminology.

[3] In this context, LOAC includes The Hague and Geneva Conventions, applicable weapons conventions, and customary international law (which are laws applicable to all States). The Geneva Conventions of 1949 and much of their Additional Protocols are widely accepted as customary international law.

0107. As globalisation and the media increase the public's awareness of operations, the perception of appropriate casualty management becomes increasingly important. Ubiquitous global and social media ensures that conflicts are becoming more transparent and creating risks for both military and political leaders. Adverse reporting over both the taking of casualties and any mismanagement of those casualties could dramatically influence political opinion and public support for operations. An effective HS system helps mitigate some of these risks.

0108. **Increased clinical capability forward in the battlespace**. With a view to decreasing mortality and morbidity, and based on medical successes of recent operations and rapidly changing clinical technology and procedures, there is an emphasis of bringing enhanced treatment capability to the patient. This places ever increasing clinical capabilities further forward in the battlespace than has been the historical norm. These capabilities include advanced damage control resuscitation (DCR), damage control surgery (DCS), and enhanced forward aeromedical evacuation (Fwd AE) and ground evacuation capabilities. This, in turn, necessitates more advanced clinical capabilities on board the evacuation platforms.

0109. The increased lethality and range of some weapon systems, and the possible widely distributed nature of some threats (e.g., insurgents), leads to force elements being more dispersed which drives the need to have HS capabilities pushed further forward and long lines of evacuation. There is a requirement for more ambulances than was heretofore the case.

0110. The proliferation of irregular and insurgent forces that do not respect the LOAC places additional risks on HS units which do not have robust force-protection capabilities.

0111. **Survivability of injuries**. Ever improving ballistic protection for personnel (e.g., body armour), combined with continually improving clinical processes means more soldiers survive catastrophic wounds than was the case in previous conflicts. This increases the demand for medical treatment and evacuation capabilities forward in the battlespace.

0112. **Emerging technology**. Technological advances in health care, clinical equipment, and supporting capabilities (e.g., remotely piloted or autonomous ground and air evacuation assets, 3D printers, point of care testing, artificial intelligence to support operational and clinical decision making) increase the chances of survival in the modern battlespace. The pace of change requires constant evaluation to determine the impact on organization, training, procedures, and procurement. Future technological advances must balance the clinical capability and capacity to deliver medical care with the requirements for mobility, agility, survivability, and supportability.

Land Operations

0113. Within a tactical land force, a brigade may operate under a divisional-level headquarters (HQ). The Div HQ may be Canadian, allied or multi-national and could additionally act as a tactical land component or operational-level HQ. See B-GL-300-001/FP-001 *Land Operations* and B-GL-300-003/FP-001 *Command in Land Operations* for details of Army elements and organization, defining the operating environment, and the nature of land operations.

0114. Land operations vary considerably both in campaign type and characteristics. They can include amphibious, airborne and follow-on force deployments. HS requirements derive from the overall size and nature of the area of operations (AO), along with the size and distribution of military forces and the disposition of the civilian population.

0115. The universal requirement for HS on combat operations, the clinical time imperatives and the relative scarcity of 'high end' clinical capability calls for health effects to be delivered in a

seamless, coordinated continuum that runs from point of injury/illness (POI) through to evacuation out of theatre. This end-to-end HS system may be part of a CAF-only or a multinational effort. The system must account for every soldier anywhere in the battlespace.

The Health Risk[4]

0116. The health risk is the composite of all ongoing or potential enemy actions and the occupational, environmental and epidemiological factors that could degrade the combat effectiveness of soldiers through wounding, injury or illness. It includes the following potential health threats and health hazards facing CAF personnel:[5]

Chemical[6]	conventional chemical agent threats plus toxic industrial chemicals, riot control agents and chemical hazards derived from pharmaceuticals
Biological	live organisms, toxins and biological hazards deliberately employed to harm the population at risk (PAR)
Radiological	material or events that release ionizing (alpha, beta, gamma radiation and neutrons) and non-ionizing radiation (including directed energy weapons)
Nuclear	weapons or events that result in nuclear fission/fusion reactions
Explosive and ballistic	consequences of explosive activity on human bodies including gunshot wounds, indirect fire, improvised explosive devices (IED), shells and bombs
Environmental and occupational	environmental conditions likely to cause harm such as heat, cold, dust, humidity, and altitude disruption of sanitation services/facilities (sewage and waste disposal) industrial noise sleep deprivation
Endemic disease, flora and fauna	infectious diseases (biological agents of operational significance) that are not deliberately released but which pose a hazard to the health of the PAR epidemics foodborne, waterborne, arthropod borne, zoonotic, vectors and breeding grounds toxic poisonous plants and bacteria poisonous reptiles, amphibians, arthropods, and animals
Traumatic	non-battle injuries such as vehicle accidents or crush injuries
Psychological[7]	operational tempo, nature and duration of deployment, status of training (including resiliency training), wearing of personal protective equipment, home front issues, physical health and occupational stressors

[4] Health risk - The combination of the probability of an incident and any health consequences it may have (NATO*Term* 38847).
[5] Health threat - A circumstance that can cause harm to health and that is linked to an adversary's intent and/or capability, as well as a target's vulnerability (NATO*Term* 38848). Health hazard - Any element, within a defined space and time, with the potential to cause harm to health (NATO*Term* 38849).
[6] For more information on the CBRN threat see CFJP 3-8.*1 Chemical, Biological, Radiological, and Nuclear Defence Operations*.
[7] See AMedP-8.6 *Forward Mental Healthcare* for additional information.

Responsibilities of the Commander[8]

0117. The duty of care for all personnel within a formation/unit is a Command function and rests with every Commander/Commanding Officer (CO). This includes mechanisms of activation and use of medical evacuation (MEDEVAC) assets, medical treatment facilities (MTF)[9], and force health protection (FHP).

0118. Commanders at all levels must consider the impact of casualties on the operations plan, and how the resultant sick and injured are to be evacuated and provided health care. Consequently, commanders need the support of a dedicated HS staff, sufficient in number, training and experience to interpret and advise on health risks, and to plan and execute HS operations.

0119. Commanders at all levels must plan mass casualty (MASCAL)[10] incident response. A MASCAL may happen at any location in the battlespace. A MASCAL incident may have a significant impact on current operations in that it causes culmination or renders a force as combat ineffective. It requires cross-functional cooperation, support from superior HQ and their resources and a single command authority, which in most cases will be executed by the commander of the affected force. Clearance of explosives, force protection, special equipment for the extraction of injured personnel or extinguishment of fires might have to be initiated and coordinated before medical personnel can treat or evacuate casualties. See Allied Medical Publication (AMedP)-1.10 *Medical Aspects in the Management of a Major Incident/Mass Casualty Situation* for more information.

0120. Commanders at all levels have a significant role in enforcing FHP measures. This includes down to the section commander level where maximum control and close supervision are exercised. See Chapter 8 paragraph 0807 for details.

0121. Military leaders at all levels have a key role in sustaining the mental readiness of service members under their command and play an important part in maintaining morale on the home front for military families. AMedP-8.10 *A Psychological Guide for Leaders across the Deployment Cycle* provides military leaders with information and practical strategies for dealing with stress and the provision of psychological support in order to enhance unit effectiveness in modern military operations.

0122. A commander who, because of military necessity has decided to abandon patients, is obligated by the LOAC, as far as military considerations permit, to leave sufficient and adequate HS personnel and materiel for the care of the patients until the opposing forces assume responsibility for their care (see CFJP 3-0.1 *Law of Armed Conflict at the Operational and Tactical Levels*, Article 913 for more information).

0123. Commanders should consider the potential impact of military operations on host nation civilian health care services including disruption to essential utilities (electricity, water, logistics, etc). The loss of civilian health care services may place an extraordinary burden on military HS.

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[8] Throughout this publication the use of the term "commander" refers to the operational commander, unless otherwise specified as the "HS commander".
[9] A facility established for the purpose of furnishing medical and/or dental care (DTB, record 47830).
[10] Any number of casualties produced in a relatively short period of time that overwhelms the available medical and logistic support capabilities (NATO*Term* 9433).

0124. **Access to Commanders**. The Senior Medical Authority (SMA) is the generic term applicable at any level of command to the individual holding professional-technical authority over the clinical aspects of medical support. This individual is also the person responsible for provision of clinical advice to the supported commander. The SMA requires unimpeded access to the commander in order to ensure timely intervention in all health and medical support matters that require the commander's attention, decision or action.

Principles of Medical Support

0125. HS strives to fulfil the laws, rules, and requirements set out in Canadian civilian practice or by international organizations; however, operational circumstances may limit what is achievable in support of deployed forces, requiring the acceptance of risk. The following paragraphs provide a set of fundamental principles to deal with this challenge during operations.

0126. **The primacy of clinical need**. The clinical need of the patient is the principal factor governing the priority, timing and means of medical and dental care and evacuation afforded to a patient. The resulting requirements then need to be balanced with the operational objectives and their possible impact on the accomplishment of the mission.

0127. **Best health care practices**. Accepting the challenges associated with conducting health care in an operational environment, every effort should be made to ensure that health care is based on accepted best practices. Compliance with this principle is ensured by a quality assurance system to achieve continuous improvement in health care support on operations.

0128. **Timeliness of treatment**. Time is a fundamental factor in the effectiveness of health care and will affect the general outcome, including the risk of death, the speed of recovery, and the level of residual disability. Evidence-based treatment and evacuation timelines in operations have been incorporated as the basis for medical doctrine. See paragraph 0208 for information on the treatment timelines.

0129. **Continuity of care**.[11] Continuity of care is, "A medical support principle that states that relevant, constant and progressive care must be given to a patient during their entire medical treatment, whether in a medical treatment facility or in transit."[12] The patient's clinical condition is the key factor governing the timing, means, and destination of their evacuation. Recovery will depend on the medical attention and quality of care provided throughout the chain of MEDEVAC and treatment. The patient's condition and the operating environment, as well as evacuation and treatment capacities, might require bypassing the nearest MTF. It is important that the health records follow the patient. This is closely tied to en route care [see Chapter 5 MEDEVAC].

0130. **The universal provision of acute emergency care**. Acute emergency treatment of life-threatening conditions must not normally be denied within the capability/capacity of deployed HS resources; however, the operational commander has the authority to limit the availability of military health care to third parties (e.g., host nation civilians).

0131. **Compliance with the law of armed conflict**. The CAF must comply with Canadian and international law, including international humanitarian law, during all deployed operations. In addition, they may have to comply with the laws of the territory in which operations take place. The conduct of HS activities will comply with the rules and spirit laid down by the LOAC. In

[11] Often referred to as continuum of care.
[12] NATO*Term* 27532.

circumstances where specific provisions of these laws or conventions may not be directly applicable, the principles expressed in the LOAC still define the minimum acceptable standard.

0132. While not limited to the framework of the established mission PAR, HS must bear in mind that all sick, injured, or wounded shall be treated—without discrimination—solely on the basis of clinical need and the availability of HS resources. This could include enemy wounded, detainees, prisoners of war, etc. See paragraphs 0243-0251 for more information. CFJP 3-0.1 *Law of Armed Conflict at the Operational and Tactical Levels* and CFJP 3-14 *Prisoners of War and Detainees* provide details on the HS obligations with respect to LOAC.[13]

0133. **Clinical ethics and legal constraints**. While all military personnel are bound by Canadian laws, CAF regulations, orders, Code of Service Discipline, and Code of Ethics, HS personnel have additional individual responsibilities to the ethical and legal requirements of their own clinical profession.

0134. **Privacy and medical confidentiality**. Personal information is not to be communicated to any individual or organisation that does not have a medical need-to-know or without legal authority. The release of personal health information is governed by federal law. See CFHS Instruction 5020-20 *Disclosure of Personal Health Information*.

0135. **Patient welfare**. The welfare of patients involves more than just HS. Other military staff functions such as J1 (Personnel), J4 (Logistics), and the chain of command have important responsibilities (e.g. communication with command, staff, and relatives for the management of personal affairs, and social and spiritual welfare) regarding the general welfare of patients.

0136. **Compatibility of the HS system**. Adequate HS support is a fundamental element of any force development/generation/employment process. HS elements need to be as well prepared, equipped, trained, and readily available for deployment as the forces they support. HS support must be task-tailored to match the supported force attuned to the operating environment.

0137. **Proximity**. Health care must be provided as soon as possible after the injury/illness to reduce morbidity and mortality. HS personnel and MTFs must be located as far forward as tactically possible, yet must not be positioned so far forward as to interfere with operations or needlessly be subject to enemy harassment.

0138. **Mobility**. Medical units must maintain close contact with the manoeuvring elements they support. In particular, ground ambulances require the same all-terrain capability, armoured protection, night-vision, and communication capability as the supported force. MTFs in forward areas should, to the extent possible, work out of shelters on the back of vehicles to minimize set up and tear down times.

0139. The mobility of an MTF is gained by the prompt evacuation of patients. In forward areas no patient should be held in situ any longer than necessary to stabilize and prepare them for evacuation, or for them to return to duty.

0140. Generally, increasing the clinical capability and capacity of a MTF decreases its mobility. Efficient and well-rehearsed tear-down and set-up drills, with sufficient material handling equipment and integral lift capacity help ensure the mobility of HS units. Mobility is enhanced by

[13] See B-MD-101-007/FP-001 CFHSP-1 *Health Services Planning* Annex E-Law of Armed Conflict.

using existing infrastructure (gymnasiums, warehouses) for MTFs whenever possible to reduce setup and teardown time.

Components of Deployed Health Care

0141. Deployed HS capabilities must correspond to the mission, strength, and composition of the force they support and the assessed environmental and health risks the deployed force will face. Deployed HS comprises six components [*see* CFJP 4-10 *Health Services* for information]:[14]

a. **Command and Control (C2)**. In addition to operational C2 similar to all Army units, HS has some unique clinical professional-technical control aspects to include oversight, clinical standards and policies on treatment, and authorization and direction to health care providers in the course of providing care;

b. **Communications and Information Management**. The effective C2 of a HS system requires a capability to exchange information to and from the furthest forward medical personnel through all levels of command in order to seek professional-technical guidance and effect timely MEDEVAC. The increased use of telemedicine and network based medical applications requires a large bandwidth and dedicated technical support to maintain communication links;

c. **Force Health Protection (FHP)**. The prevention of illness and injuries is the most effective means of maintaining the health of the force. FHP measures contribute to overall force protection and mission success by minimizing casualties from natural and human caused threats.[15] The primary aim of FHP is casualty prevention through the robust implementation of comprehensive disease and injury prevention, health protection and surveillance capabilities (including environmental health) that will promote, improve, or conserve the mental and physical well-being of the deployed force. FHP includes preventive medicine as well as medical intelligence. For more information see AJMedP-4 *Allied Joint Medical Force Health Protection Doctrine* and its subordinate standard related documents;

d. **Military Health Care** focusses on medical, dental, and mental health treatment. It includes the roles of medical care and medical treatment facilities. See Chapter 3 for information on Role 1 and Chapter 4 for information on Role 2 and Role 3;

e. **Medical Evacuation (MEDEVAC)**. To reduce mortality and morbidity an effective MEDEVAC system is required from the POI all the way to definitive care in Canada. See Chapter 5; and

f. **Health Services Logistics**.[16] HS equipment, supplies, and pharmaceuticals have some unique handling requirements, and are governed by LOAC rules. See Chapter 6.

Population at Risk (PAR)[17]

0142. The traditional PAR that the CFHS would expect to treat (i.e., CAF personnel) has changed in the modern battlespace. The PAR may include public service employees and contracted

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[14] The six components align with NATO.
[15] See CFJP 3-13 *CF Joint Force Protection Doctrine* for information on the link between FHP and force protection.
[16] NATO uses the term Medical Logistics.
[17] A group of individuals exposed to conditions which may cause injury or illness (NATO*Term* 24624).

civilians in support of the CAF or coalition, as well as other government departments and agencies. Some of these personnel will be older and have chronic medical conditions not seen in soldiers.

0143. When deployed on NATO or United Nations (UN) missions the expectation is that at levels above Role 1, nations are to treat personnel from any other nation within the coalition. Although Role 1 is a national responsibility there will be occasions when CFHS can be expected to provide Role 1 to other nations' soldiers, (e.g., a Dutch air defence troop and a Norwegian civil-military cooperation team within the Canadian Brigade Group (Bde Gp) AO, or Danish staff officers within a Canadian led multinational Div HQ).

0144. Also, there may be host nation civilians injured by coalition activities with no host nation medical facilities in which they can receive treatment. This may include pediatric, geriatric and chronic condition patients. All these factors impact the clinical skills and the type and quantity of medical equipment and consumables required. The PAR is determined as part of the medical estimate and a necessary tool to properly force generate capability prior to deployment. The PAR is identified in the Medical Rules of Eligibility [see CFJP 4.10 *Health Services* Chapter 2 for details].

0145. HS units may require reinforcement to support additional patient workloads when a large number of prisoners of war or detainees may result from an operation.

0146. **Females**. Women's specific health care requirements will inform clinical competencies for medical personnel, supplies, and pharmaceuticals. For more information see AMedP-8.9 *Minimum Requirements for Medical Care of Women in Joint/Combined Operations.*

0147. **Health care for child soldiers**. An enemy or belligerent's use of child soldiers must be considered in order to determine potential resource requirements for their health care (clinical skillsets, equipment, and supplies), and the need to separate them from the general population of detainees or prisoners of war. Legal and military police advice is required. See Joint Doctrine Note 2017-01 *Child Soldiers* for planning considerations.

Organization of the Health Services Deployable Field Force

0148. This publication includes the doctrinal structures for a field ambulance (Fd Amb), and Role 2 and Role 3 MTFs. These structures are the foundation used to develop detailed Tables of Organization and Equipment (TO&E) for each element. The HS elements described in this publication are designed to support a doctrinal Canadian Bde Gp in a warfighting campaign in a generic temperate environment. Different campaigns, environments, or multinational operations may require modifications to TO&Es.

0149. **Task-Tailoring**. To meet specific operational demands some Bde Gp elements may be grouped into task-tailored Battle Groups or Combat Teams. These force elements will normally be based on a standing unit (i.e. infantry battalion, armour regiment). The HS element supporting such force elements will in turn be task-tailored.

0150. **Capability**[18] **and Capacity**.[19] MTFs are task-tailored for capability and capacity based on the expected numbers and types of patients to be seen in a day determined in the HS estimate.

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[18] "The ability to carry out a military operation to create an effect," e.g., surgery (DTB, record 36730).
[19] "A capability expressed in quantitative terms," e.g., number of surgical cases that can be performed in one day (DTB, record 13800).

Similar size MTFs in the same theatre may not have the same configuration. The capability and capacity of an MTF may change as the mission matures.

Command and Administrative Relationships

0151. CFHS is a component of Military Personnel Command; however, Commander HS retains the responsibility for all aspects of HS force generation. CAF HS capabilities supporting operations are normally assigned Operational Command to the Commander Canadian Joint Operations Command, and in turn assigned Operational Command to the Canadian Joint Task Force commander.[20] A Canadian land component may have HS elements attached under Operational Control. The professional-technical control remains through the Canadian Task Force Surgeon (TF Surg).

0152. The task-tailored HS element may vary in size from a single person to multiple HS units or a HS formation. The size, scope, and command relationships of the HS elements are dependent on the nature, type and size of deployment and campaign and are determined during the operations planning process.

0153. The complexity of delivering operational HS to deployed forces requires unity of health command. The range of military operations, the myriad of medical functions and assets, and the requirement to provide health care to diverse populations (CAF single service or joint, multinational, host nation, and civilian) necessitate a HS command authority, exercised at the highest practical level, which is capable of utilizing the limited HS resources available to their full potential and capacity.

0154. Command relationships are described in B-GL-300-003/FP-001 *Command in Land Operations* and are equally applicable to the command of HS resources. Operational Command, Tactical Command, and Operational Control usually include the administrative responsibility - Attached for Daily Maintenance.[21] If the relationship is other than for normal combat supplies (rations, ammunitions, water, fuel), the exact relationship must be specified.

0155. An HS element attached under Operational Control to an Army unit is under the command of its senior HS member, who reports either directly to the unit CO or a delegated sub-unit commander. The SMA utilizes the professional-technical[22] chain to the parent HS unit for clinical oversight matters, and acts as a specialist advisor to the commander.

> Example of a command and administrative relationship: A first line medical platoon from the Fd Amb is attached under operational control of an infantry battalion. The battalion CO attaches the medical platoon to Administration Company. The platoon receives all combat supplies from the battalion, but all Class VIII medical supplies are provided by the Fd Amb. The platoon commander, a physician, provides clinical advice to the CO. The platoon commander receives clinical professional-technical guidance from the Brigade Surgeon.

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[20] Joint Doctrine Note 02-0214 *Command & Control of Joint Operations*.

[21] Attached For Daily Maintenance: A relationship in which the gaining commander has authority to direct and responsibility for meeting the routine requirements for combat supplies of the transferred unit or formation. The parent unit or formation retains responsibility for all personnel and logistics support other than fuel and lubricants, ammunition, rations and water.

[22] Clinical professional-technical control refers to all aspects of the provision of clinical care. It includes oversight, clinical standards and policies on treatment, and authorization and direction to health care providers in the course of providing care (CFJP-4.10 *Health Services*).

Roles of Medical Support

0156. **Role of medical support** is, "A category that identifies the functions and capability of a medical unit or element. Medical care is categorized into four roles. Most of the care capabilities of each role are intrinsic to the next higher role."[23] To be consistent with NATO, Canada uses the term medical rather than health services when describing Roles. In this case medical includes dental.

0157. Roles of medical support are **not** tied to levels of command. Rather, the term "role" is based on the clinical functions it provides. See below for the descriptors of each role.[24] Likewise, roles of medical care do **not** equate to levels of sustainment or lines of support which are described in B-GL-300-004/FP-001 *Sustainment of Land Operations*.[25]

0158. A certain role of medical support does **not** imply a particular size or location in the battlespace. For example, Role 1 medical support is provided throughout the battlespace, from the sub-unit medic[26] in forward infantry companies up to, and including, the unit medical station (UMS), brigade medical station (BMS), division medical station (DMS), and into the rear areas such as a medical detachment supporting a sea port of disembarkation.

0159. Roles of medical support may be co-located. For example, during a counter-insurgency operation a Forward Surgical Team (a subset of Role 2) may be co-located with a UMS (a subset of Role 1) at a battalion-sized forward operating base. When this occurs they will grouped as a single task-tailored HS element under one HS commander (e.g., unit, company, platoon, as required). This grouping will have start and end timings specified in orders.

The First Response Capability: Point-of-Injury Care

0160. Although not a doctrinal role of medical care, the first response capability is listed in this section to emphasize its importance for the outcome of clinical treatment and to showcase where the continuum of care begins. Clinical outcomes are influenced by those who apply the first field dressing. For more information see Chapter 3.

0161. **Point-of-injury care**. The aim of the care given at the POI is to remove the casualty from immediate threat and to avoid further deterioration of vital functions through immediate lifesaving measures. Whenever practicable, first aid for the most seriously injured should take place immediately, but not longer than within **10 minutes** of injury.[27] Often this is conducted by non-medical personnel trained to deliver combat first aid or tactical combat casualty care (TCCC).

0162. Security is the foundation of safe and effective care. Before rushing to treat casualties, effective enemy action must be suppressed. The best medicine on the battlefield is to win the firefight.

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[23] NATO*Term* 26136.
[24] See AMedP-8.13 *The Extent of Dental and Maxillofacial Treatment at Role 1-3 Medical Treatment Facilities* for information on dental capabilities at the different roles of medical support.
[25] Some older tactical level publications use the terms integral, close and general support rather than lines of support.
[26] Medic refers to a Medical Technician or Medical Assistant (Reserves).
[27] This is the "10" of the 10-1-2(+2) Treatment Timeline (see paragraph 0208).

Role 1 Medical Support – Emergency and Primary Health Care

0163. Role 1 medical support, "Provides routine primary health care, specialized first aid, triage, resuscitation**,** and stabilization."[28] Role 1 medical support provides:

a. advice to the chain of command on basic occupational and preventive health issues;

b. routine, daily sick parade and the management of minor sick and injured personnel for immediate return to duty;

c. a minimal patient holding capacity; and

d. preparation of patients for evacuation to the next appropriate higher-level treatment.

0164. In accordance with the mission, a Role 1 MTF may include some, or all, of the following capabilities:

a. DCR Teams;[29]

b. a dental module (e.g., dental teams at a BMS);

c. basic diagnostics;

d. initial stress management;[30]

e. limited medical supply; and

f. physiotherapy.

0165. Unless enhanced by a surgical capability, a Fd Amb provides **only** Role 1 medical support. Examples of Role 1 MTFs are the UMS, the BMS, and the airfield medical station.[31]

Role 2 Medical Support – Surgical Care Capability

0166. Role 2 medical support, "Provides a capability for the reception and triage of casualties, as well as the structure to perform treatment of wounded, injured and diseased at a higher technical level than Role 1, including resuscitation and surgery."[32] Role 2 MTFs capabilities routinely include emergency intake, DCS, diagnostics, a post-operative capability, medical supply, C2, and a limited holding facility for the short-term holding of casualties until they can be returned to duty or evacuated. There are three types of Role 2 MTFs - Forward Surgical Team (FST), Role 2 Basic (Role 2B), and Role 2 Enhanced (Role 2E). See Chapter 4 for details.

Role 3 Medical Support - Deployed Hospital Care Capability

0167. Role 3 medical support, "Provides the structure for deployed hospitalization with the elements required to support it, including a mission-tailored variety of clinical specialties and

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[28] NATO*Term* 26133.
[29] A highly mobile five person team which includes an Emergency Medicine physician capable of providing advanced DCR in forward areas.
[30] Initial stress management is a chain of command responsibility. It may be supported by the Role 1 MTF. Further details are outlined in AMedP-8.6 *Forward Mental Healthcare*, Annex A: *Psychological Management of Potentially Traumatizing Events.*
[31] An airfield medical station is the same as a UMS except it includes a flight surgeon and pharmaceuticals appropriate for flight crew.
[32] NATO*Term* 26134.

support functions."[33] Clinical capabilities and holding capacity of Role 3 MTFs must be sufficient to allow diagnosis, treatment, and holding of those patients who, on receiving adequate treatment, would be able to return to duty in accordance with the theatre patient return policy.[34] Dental capabilities comprise comprehensive dental care and oro-maxillofacial surgical capability. Patients who cannot be returned to duty in accordance with the theatre patient return policy are evacuated out of theatre.

0168. A Role 3 MTF must provide all the capabilities of the Role 2E MTF and be able to conduct specialized surgery, specialized care, computed tomography, oxygen production and additional services such as neurosurgery and internal medicine as dictated by mission and theatre requirements. See Chapter 4 for more information.

Role 4 Medical Support - Full Spectrum Hospital Care Capability

0169. Role 4 medical support, "Provides the full spectrum of definitive medical care that cannot be deployed in the theatre or is too time-consuming to be conducted there."[35] Role 4 includes highly specialized medical procedures, specialist and reconstructive surgery, and rehabilitation. It is normally provided in Canadian civilian facilities.

Interdependence of Roles of Medical Support and Medical Evacuation

0170. The flow of casualties and acute medical cases usually follows a linear continuum of care; however, as depicted in Figure 1-1, one or more roles of medical support may be bypassed due to patients' needs, the proximity, workload and capacity of MTFs, and the en route care capabilities of the MEDEVAC team.

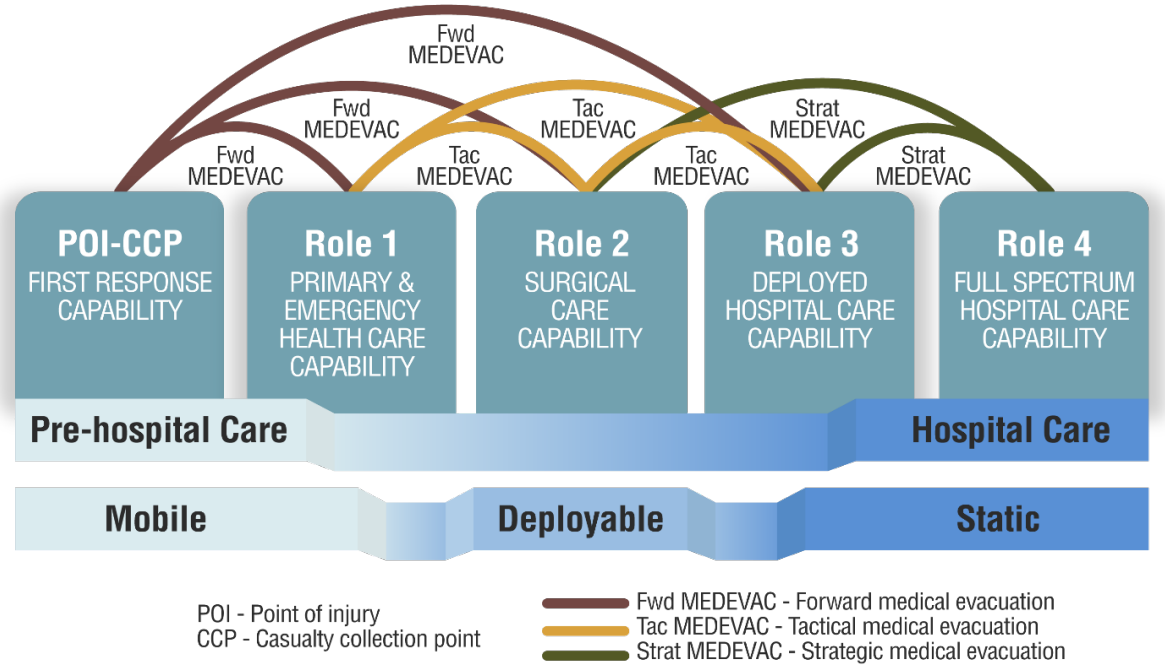

Figure 1-1: Roles of Medical Support and Medical Evacuation

[33] NATO*Term* 27544.
[34] See Chapter 2 for details on the theatre patient return policy.
[35] NATO*Term* 26135.

Example of bypassing Roles: A severely wounded soldier in a forward infantry company is evacuated by helicopter from a casualty collection point (CCP) to a Role 2E located in the Division AO. In this case, the wounded soldier bypassed the UMS, the BMS, and the Role 2B within the Bde Gp AO.

Disease and Non-Battle Injuries (DNBI)

0171. History has shown that more casualties are lost to DNBI than to combat wounds and the scale of DNBI casualties has often decided or strongly contributed to the outcome of conflicts. Treatment and evacuation priorities for some DNBI may be as urgent as for those with traumatic injuries (e.g., a heart attack or cerebral malaria). MTFs, particularly Role 2E and Role 3, must have clinicians trained in internal medicine, medical ward nursing, and where necessary infectious diseases / tropical medicine. This includes a robust laboratory capability to support diagnosis.

0172. Given the lack of expertise, capability and equipment at Role 1 MTFs, many DNBI casualties will be evacuated to Role 2 or 3 MTFs for further evaluation, treatment and hospitalization. An increase in DNBI rates should be expected in prolonged static defensive operations, on operations in urban areas, hot or cold environments, in the tropics, and in those situations where the military operates in close proximity to a civilian population that has marginal public health practices.

Mental Health

0173. The effective management of mental health problems is a force multiplier and specialist mental health capability should be included in operational medical support. Operational stress management is primarily a chain of command responsibility.[36] Although assessment and treatment by specialized mental health professional may be required, far forward stress management should involve buddy aid, command interventions and other non-medical means (e.g., management of stressors).

0174. Battle stress casualties should not be evacuated unless absolutely necessary. See AMedP-8.6 *Forward Mental Healthcare* for planning considerations.

Dental Care

0175. Dental care on operations is provided at deployed MTFs to varying degrees based on the requirements of the particular mission. AMedP-8.13 *The Extent of Dental and Maxillofacial Treatment at Role 1-3 Medical Treatment Facilities* describes the different dental care modules required to treat dental (and maxillofacial) conditions.

Physiotherapy

0176. Musculoskeletal injuries are the leading cause of non-battle related injury MEDEVAC. Physiotherapy is a force multiplier, returning injured soldiers to operational duty within the limits of the patient return policy. Physiotherapy may be provided at deployed MTFs to varying degrees based on the requirements of the particular mission.

[36] AMedP-8.10 *A Psychological Guide for Leaders across the Deployment Cycle.*

Animal Care

0177. Animal care encompasses first aid, treatment, care and welfare to military working animals. The CAF does not have a veterinary service; however, these services may be contracted or arranged with other nations when the CAF employs military working dogs or other animals. Contracting of veterinary services is a G4 function. Veterinary services may co-locate with a CAF Role 2 or 3 MTF. Some CAF medical resources may be requested to assist with animal care, (e.g., the use of x-ray or MEDEVAC for military working dogs).

Nurse Practitioner (NP)

0178. The introduction of the NP occupation to the operational force is under development and may impact TO&Es. Until a NP concept of employment is finalized they will not be discussed further in this publication.

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Chapter 2
General Planning Considerations

Tactical Level Health Service Planning

0201. The commander's tactical plan must be considered from a health risk perspective to determine the likely location of areas of casualty densities and the best placement of MTFs, MEDEVAC assets, and FHP measures. See B-MD-101-007/FP-001 CFHSP-1 *HS Planning* for the medical estimate format.

0202. Patients should be examined, treated, and returned to duty as far forward as practicable and HS resources employed to provide the utmost benefit to the maximum number of personnel in support of the mission. When a wide disparity develops between the patient workload and the treatment capability, it may be necessary to concentrate that capability upon those patients who can be returned to duty quickly, and those for whom resuscitation can be accomplished with a minimum expenditure of personnel, supplies, and time.

0203. The following are key considerations for the tactical employment of HS assets:

a. patients must not be evacuated further to the rear than their physical condition, mental health, or the military situations demands; and

b. HS resources should, from the outset, be distributed so that they can cover each component of the force and be immediately available to provide support.

Medical Treatment Facility (MTF)

0204. A MTF is a facility established to provide medical and/or dental care.[37] MTFs are normally described as Role 1 to 4.[38] Enhancing and upgrading the clinical capabilities of MTFs requires additional complex equipment, personnel and supplies, which in turn increases supply, transport and other support requirements, (i.e.) higher roles are less mobile. Examples of MTFs are the UMS, BMS, DMS, airfield medical station, Role 2B, Role 2E, and Role 3.

0205. MTFs should be situated in the battlespace by taking into account the tactical situation, expected casualty rates, likely locations of most casualties, and the 10-1-2(+2) treatment timelines [*see* below]. To ensure continuous medical coverage during mobile operations the time to clear patients, tear-down, move, and set up MTFs must be considered. Chapter 4 Section 3 provides some MTF siting considerations.

0206. Both hypothermia and hyperthermia are major factors in casualty survivability; therefore, all MTFs, to the extent possible in the tactical situation, should have a climate control ability.

0207. **Tailgate operations**.[39] Each MTF is designed to ensure patient treatment is not compromised during construction of new areas. This is achieved by sequencing construction of key components in such a manner as to be able to have an initial operating capability to start receiving patients before the full MTF is established, (i.e.) emergency services at a Role 1 MTF before the shelter is constructed, or resuscitation and surgical capabilities at a Role 2 MTF are constructed first.

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[37] DTB, record 47830.
[38] See Chapter 3 for the details of Role 1 and Chapter 4 for the details of Role 2 and 3.
[39] In hasty operations, use of military vehicle tail-gate as an improvised work surface (DTB, record 32946).

Treatment Timelines

0208. To achieve the best possible outcome after serious trauma or acute failure of vital functions, appropriate treatment should be provided as soon as possible in every case of major medical emergency. Based on clinical evidence, HS aims to provide appropriate life, limb and function[40] saving treatment, wherever practicable, within specific **treatment timelines** known as the **10-1-2 (+2) Timeline**.[41] It is important to note that **not** every case is urgent (see Table 5.1 Patient Categorization). The 10-1-2 (+2) timeline is tied to Priority 1 patients.

0209. The 10-1-2(+2) Timeline provides guidance regarding the siting and distribution of MEDEVAC assets and MTFs throughout the battlespace. It consists of:

a. **combat first aid immediately** after wounding. This is either provided by the injured soldier (self-aid) or by a fire team partner (buddy aid). It uses medical equipment carried by the wounded soldier;[42]

b. **advanced first aid** within **10 minutes** after injury, wounding, or onset of acute symptoms consisting of immediate life-saving measures applied by non-medical personnel trained in TCCC[43], or a medic;

c. **damage control resuscitation (DCR)**[44] within **1 hour** after injury, wounding, or onset of acute symptoms consisting of DCR measures and pre-hospital and advanced life support commenced by medical professionals and/or physicians trained in emergency care;

d. **damage control surgery (DCS)**[45] optimally within **1 hour, but not later than 2 hours** after injury or wounding consisting of procedures where the completeness of the immediate surgical repair might be sacrificed to achieve hemorrhage and contamination control and restore circulation to stabilize the patient's condition for further evacuation and treatment. This is conducted at an FST or Role 2B MTF; and

e. further surgical, resuscitative, diagnostic and specialist care capabilities necessary to stabilize the patient for strategic evacuation should be available within **2 hours** of tactical evacuation following initial DCS. This is conducted at Role 2E and Role 3 MTFs.

0210. The 10-1-2 (+2) timeline notes that, while it remains desirable for a patient to receive DCS within one hour of wounding, this may not always be possible. The tactical situation or resource limitations may not allow surgical capabilities sufficiently far forward. Under these circumstances,

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[40] Including functions such as eye-sight, use of extremities, etc.
[41] Adopted by NATO, see Allied Joint Publication (AJP)-4.10 *Allied Joint Medical Support Doctrine*.
[42] All personnel are qualified in combat first aid prior to deployment on operations.
[43] A TCCC provider is a non-clinician who receives speciality training in lifesaving techniques and strategies for providing immediate trauma care in the battlespace. They provide care prior to the arrival of the medic or under the direction of the medic. The target density of personnel with this qualification is two per section sized element.
[44] A systematic approach to dealing with major trauma combining the catastrophic bleeding, airway, breathing and circulation paradigm with a series of clinical techniques from immediate life-saving measures up to surgical interventions in order to minimise blood loss, maximise tissue oxygenation and optimise outcome (NATO*Term* 6477).
[45] A surgical intervention where the completeness of the immediate surgical repair is sacrificed to achieve haemorrhage and contamination control, in order to avoid a deterioration of the patient's condition (NATO*Term* 6321).

pushing an enhanced DCR capability forward is a mitigation strategy [see textbox below for an example].

0211. The treatment timelines must be translated into time and space. The time it takes to cover a particular distance differs based on the terrain, weather conditions, day or night, method of transportation, enemy activity, and condition of the patient. These factors must be considered when determining the placement of medical elements and evacuation routes within the battlespace.

0212. In peer-on-peer warfighting the 10-1-2 (+2) treatment timeline would often likely not be achievable. This would require prolonged patient holding and treatment, often in austere conditions.

0213. **Risk acceptance.** The treatment timelines are a tool to assist operational commanders in assessing risk and planning medical support to their tactical actions. To make an informed decision, the commander must understand the **likelihood** and **impact** of injuries/illnesses occurring (informed by both operational and medical personnel) and set that against the tactical **necessity** of undertaking the activity in both time and space. With a view to achieving the treatment timelines, mitigation strategies may include the forward placement of additional medical treatment and evacuation assets or temporarily prioritizing the use of helicopters for MEDEVAC during expected periods of high casualties.

Example of 10-1-2(+2) timeline: During a firefight an infantry soldier is severely wounded. The wounded soldier's fire team partner pulls them behind cover. The section wins the firefight and the casualty's fire team partner applies the casualty's tourniquet and field dressing (**buddy aid**). One of the section's TCCC-trained soldiers arrives and commences with advanced first aid (**10 minutes**). The casualty is carried to a CCP, where the Company medics continue medical treatment to include securing intravenous access and administering antibiotics and pain control. The medics package all casualties for evacuation. One of the company ambulances takes the casualties to the UMS where a DCR team has been attached. At the UMS advanced pre-hospital care protocols are applied to include placing a chest tube and giving fresh whole blood (**1 hour**). After treatment the patient is evacuated to the Role 2B attached to the Bde Gp where the patient receives DCS (**2 hours**). Once stabilized following the surgery the patient is evacuated to the Div level Role 3 where specialized surgery is conducted (**+2 hours**).

Prolonged Field Care[46]

0214. In forward areas, medical elements do not have the equipment nor space to hold patients; however, due to delays in evacuation they may be forced to hold patients longer than expected. Evacuation may be interrupted due to enemy action, weather, blockage of roads, or lack of evacuation assets.

0215. Prolonged field care is field medical care, applied beyond 'doctrinal planning timelines' in order to decrease patient mortality and morbidity. It utilizes limited resources, and is sustained until the patient arrives at an appropriate level of care. It sees the application of holistic evidence-based medicine in the management of complex patients over extended periods of time in an

[46] Some nations use "delayed evacuation care", "casualty sustainment" or "prolonged care" rather than "prolonged field care".

austere, resourced constrained environment as a treatment paradigm in response to evacuation system failure.

0216. The requirement to provide prolonged field care may occur from sub-unit medics up to, and including, the UMS in forward areas. Prolonged field care is holding onto a sicker patient than should be cared for in that location, for longer than desired, with fewer resources than required, in a place in the battlespace where that casualty should not normally be receiving care.

0217. Prolonged field care is not a planned activity. Rather it is in response to unplanned events. If it is known that there will be disrupted evacuation then the medical plan should be adjusted to account for this by adding resources.

Infection Prevention and Control

0218. The rapid transmission of infectious diseases within a population can quickly impact the combat effectiveness of deployed elements. All HS elements shall maintain an infection prevention and control program in accordance with CFHS Advisory 4070-02 *Infection Prevention and Control in the Deployed Healthcare Environment*. Dental specific direction is found in A-MD-005-000/AA-001 *Royal Canadian Dental Corps Infection Prevention Program*.

Area Support

0219. Many force elements do not have HS resources attached or may be away from their parent unit. These element may be under tactical control to a unit or Bde for a set period of time, or may be transiting through the unit or Bde's AO. HS elements attached to one unit may be expected to treat soldiers of other units, including from other nations, that are within the vicinity (e.g., a Military Police patrol or Czech Air Defence detachment). In order to allocate sufficient resources HS planners must be aware of what elements will be in what area at what time.

0220. Planners must account for these elements and ensure that:

a. the supporting HS element is aware;

b. the supported element is aware of how it will receive HS; and

c. the HS element is properly resourced.

Example of area support: A Military Police section conducting traffic control for a forward passage of lines receives its health care from the nearest UMS within each respective unit's AO.

Medical Common Operational Picture (MedCOP)[47]

0221. At every level, HS elements require information regarding the location and status of subordinate evacuation and treatment capabilities, as well as information regarding the health of the PAR. At Div and higher formations, the MedCOP will include information from flanking and supporting formations. The MedCOP provides real-time decision support allowing the next higher HS element to:

a. allocate its evacuation and treatment assets in support of subordinate elements with a view to achieving the treatment timelines, and adjust accordingly;

[47] Common operational picture. A shared and dynamic representation of information that can be tailored to facilitate situational awareness, collaborative planning and decision-making (DTB, record 694399). Note: Often referred to as common operating picture.

b. minimize gaps or duplication in HS coverage;

c. conduct medical regulating (patient flow management) and patient tracking;

d. quickly respond to non-routine HS logistics requirements;

e. conduct health surveillance to recognize trends which may require preventive or controlling FHP measures; and

f. conduct HS planning and provide advice to supported commanders and staff.

Administrative Responsibility for Patients

0222. Starting rearward of the UMS, the HS system is responsible for the feeding, clothing, protection, discipline, general welfare, and the movement of all patients from the time they come under medical care until they are discharged to duty or evacuated from the theatre of operations.

0223. **Patient's weapons**. As early as possible in the evacuation process, preferably at the CCP, litter patients should be disarmed of both weapons and ammunition. Walking wounded will normally retain their weapons. If the disarming happens within an MTF, the items are turned over to the supported unit or Service Battalion (Svc Bn).

0224. Unless the patient's injuries do not permit their use, all patients should retain the personal protective equipment such as their fragmentation jacket, helmet and CBRN protective equipment only as far rearward as tactically required.

0225. **Personal effects**. All other articles in the patient's possession are checked and recorded. Care must be taken to safeguard the personal belongings of individual patients so that no loss occurs. Items are turned over to the supported unit or Svc Bn.

0226. **Enemy patients**. Weapons, documents, maps, personal communication devices, etc discovered by medical personnel will be turned over to the capturing unit or escort elements. Special care must be taken when handling enemy weapons, ammunition and explosives to prevent accidental discharges and explosions. When HS personnel are unfamiliar with any of these items and do not feel they can safely handle them they are to set them aside and seek guidance from subject matter experts.

0227. **Disability Administration**. The effective administration of disability compensation and benefits is reliant on the timely and accurate provision of information related to the incident or circumstance, along the chain of command. Medical information is the responsibility of medical staff while all other information requirements is the responsibility of Unit and Formation G1 Personnel staffs.[48]

Handling of Human Remains

0228. The HS system is not responsible for the collection and burial of the deceased. Mortuary affairs is a logistics function managed by the Svc Bn and overseen by the Brigade G1 and G4 staff.

0229. The use of ambulances to transport human remains should be avoided because ambulances are a high-value low-density asset and must be responsive to the supported population. Also, there may be adverse psychological impact to patients.

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[48] The release of medical information is governed by CFHS Instruction 5020-20 *Disclosure of Personal Health Information*.

0230. For own personnel or those who die while under medical care, bodies should be placed in casualty bags, if available, or covered with a ground sheet or blanket. Within first line units, the unit retrieves the bodies. Within the Fd Amb the respective Company Quartermaster Sergeant retrieves and holds human remains of company personnel or patients who die while in the care of the company until they can be transferred to Fd Amb's Service Company (Svc Coy) or the Bde Svc Bn. Each Role 2 and Role 3 MTF should have a morgue capability from which mortuary affairs retrieves the bodies. At all times human remains will be handled with dignity and respect.

0231. A physician will produce the death certificate, DND 2317 *Canadian Forces Medical Certificate of Death*. When a soldier dies outside of Canadian lines, a death certificate may have to be obtained from an allied nation's or host nation's MTF or coroner.

0232. For low intensity operations, *CDIO 1000 series – Section 4 – Personnel Services*, Article 1.4-4 *Casualty Management* provides guidance on the handling of human remains. In the rare circumstances when it may be necessary for HS to conduct emergency burial of their own dead and those who die while under its care see B-GL-334-001/FP-001 *Standing Operating Procedures (SOP) For Land Operations* SOP 504 for procedures.

0233. See CFJP 3-8.1 *Chemical, Biological, Radiological and Nuclear Defense Operations* and AMedP-7.1 *Medical Management of CBRN Casualties* for additional direction regarding handling of contaminated human remains.

0234. **Identification of human remains**. If there is an in-theatre requirement to identify the remains of CAF personnel, the Canadian Forces Forensic Odontology Response Team[49] may deploy on an as required basis. This activity would be a national command element responsibility which may be supported by Bde or Div dental personnel. See CFJP 4.10 *Health Services* for more information.

The Patient Return Policy[50]

0235. The patient return policy is a command decision based on advice from the formation medical advisor indicating the maximum length of time (in days) that a patient will be allowed to remain in situ to receive treatment, recover and return to duty. If the clinical prognosis suggests that recovery will take longer than the limit set by the patient return policy, patients should be evacuated as soon as it is considered appropriate.

0236. The patient return policy will be influenced by the availability of assets (MTF capacity and capabilities, and evacuation assets), constraints on movement, operational imperatives (e.g., the requirement for MTF mobility), distances, weather and topography. It will also be affected by factors such as welfare considerations, public expectations, and national policy. The patient return policy in low intensity operations (e.g. peace support operations) will usually be longer than in high intensity operations with a large casualty rate.

[49] Odontology is synonymous with dentistry.
[50] Formerly known as the evacuation policy or holding policy, NATO has changed it to patient return policy. See CFJP 4.10 *Health Services* for info on theatre patient return policy.

0237. The patient return policy should be dynamic and responsive to changes in the operational situation. It should ensure that:

a. appropriate medical capacities and capabilities can be sustained and are flexible enough to meet operational challenges, such as fluctuations in casualty numbers due to enemy action;

b. patients with minor or easily-resolved medical concerns are managed and returned to duty at the appropriate level of care; and

c. patients with serious illness or injury are evacuated to appropriate MTFs as rapidly as possible.

0238. To achieve the maximum effectiveness of HS resources and the conservation of personnel strength without compromising the mobility and flexibility of manoeuvre formations, the recommended patient return policy is two days within brigades and divisions, and seven days within rear support areas. These timelines can be increased or decreased depending on the force posture of the organization that the MTF supports, forecasted casualties and mobility requirements.

0239. The length of time identified in the patient return policy never negates the requirement to ensure capacity is maintained in MTFs at every level. If an MTF has minimal holding capacity, it must be cleared as early as possible in order to be ready for the next casualties (e.g., a Role 2B should not hold on to a patient any more than four to six hours).

Abandonment of Patients

0240. In certain extreme conditions such as, but not limited to, the withdrawal, failed main defensive area battle or operations whilst encircled, it may be impossible to evacuate all patients. When patients are subject to capture, they are left with the minimum number of medical personnel necessary for their treatment, and only such supplies as are required until the enemy becomes responsible for them.

0241. The decision to abandon casualties to the enemy belongs to formation commanders. Formation surgeons are responsible to provide commanders with the clinical information necessary for them to make their decisions. Ideally, contact should be established with the enemy, generally through International Committee of Red Cross or other relevant and neutral actors, to discuss the details of the handover.

Prisoners of War and Detainees

0242. Health care to any prisoner of war (PW) or person detained (detainee) by CAF must be consistent with medical/dental ethics, applicable law (domestic, international, and potentially host-nation law), and also international agreements and arrangements. International humanitarian law requires that PWs and detainees be provided the health care and attention required by their condition and that they be treated, evacuated, and discharged from medical care using the same clinical criteria that are applied to CAF personnel. See CFHSP-1 *Health Services Planning*, Annex E for the impact of the LOAC regarding the treatment of PWs.

0243. CFJP 3-0.1 *Law of Armed Conflict at the Operational and Tactical Levels* and CFJP 3-14 *Prisoners of War Handling, Detainees and Interrogation & Tactical Questioning* provides information on the obligations regarding the provision of health care and evacuation of PWs from time of capture up to and including when the PWs are in a PW facility. They include information on the repatriation of sick and wounded PWs.

0244. The basic principles of the LOAC must be applied, as a minimum, by all members of the CAF taking part in all Canadian military operations. Although the PW provisions only pertain to certain people during an international armed conflict, it is CAF policy that all detainees be treated to the standard required for PWs, as this is the highest standard required under international humanitarian law.

0245. PWs and detainees of the CAF shall be treated humanely in all circumstances. Their health care shall be consistent with the following principles:

a. their physical health, mental health, and the integrity of their persons are not to be endangered;

b. all necessary sanitary measures are to be taken to ensure the cleanliness and healthfulness of detention facilities and to prevent epidemics;

c. as far as necessary, they are to be provided with an adequate and, if possible, culturally appropriate diet;

d. the state of their general health is to be examined by medical personnel as soon as possible after deprivation of liberty and thereafter at least once a month;

e. they are not to be prevented from presenting themselves to the medical authorities for examination at any time;

f. they should be supplied with any apparatus necessary for their maintenance in good health, such as spectacles, dentures, and other prostheses; and

g. where their state of health requires it, they are to be transferred to specialized establishments for special treatment or surgery.

0246. During armed conflict, captured enemy medical facilities, medical materiel, and retained enemy HS personnel may be used to provide health care to PWs and detainees. This can contribute to the medical management of these persons, particularly where there would otherwise be language or cultural challenges. It can also be useful where the retained enemy medical personnel have a particular expertise of endemic disease not normally seen in the CAF.

0247. It can be difficult to calculate the holding capacity required for PWs and detainees because they may not be subject to evacuation policies and may not have ready access to definitive Role 4 care capabilities. Therefore consideration should be given during planning to determine when additional MTF holding capacities may be required. CAF may also wish to cooperate with other nations to provide centralized treatment facilities for PWs and detainees, although Canada may retain legal responsibility for the treatment of any person transferred to the custody of another nation.

0248. HS staffs need to be involved in the planning and operation of detention facilities, particularly when the persons held in them may pose a risk to those guarding them from bad hygiene practices or endemic disease. The medical authorities need to develop a preventive medicine strategy, ensure the provision of primary health care services within the facility and ensure that the guarding force has adequate medical support.

0249. HS personnel are not used to guard or escort prisoners or detainees. [51] The capturing unit must arrange for security of the prisoners and detainees.

0250. Planning considerations can be found in ABCANZ Publication 365, *Health Support to Detainee Operations* and CFJP 3-14 *Prisoners of War and Detainees*.

Care for Wounded Hostile Combatants

0251. Though wounded, enemy personnel may still act as hostile combatants. They may employ weapons or detonate ordnance they are carrying. Medical personnel should not attempt to provide medical care until sure that the wounded hostile combatant has been rendered safe by other members of the capturing unit. Once the hostile combatants have been searched and secured, the care provided should be the same as for CAF personnel and coalition forces in accordance with the LOAC. Enemy casualties should be searched prior to entering a surgical facility.

WARNING: Enemy casualties are ***hostile combatants*** until they:

a. indicate surrender;
b. are disarmed; **and**
c. are proven to no longer pose a threat.

Gender Based Analysis Plus (GBA+)

0252. As directed in the Chief of the Defence Staff (CDS) Directive for *Integrating UNSCR 1325 and Related Resolutions into CAF Planning and Operations* GBA+ considerations must be a part of every operations planning cycle. See *Integrating Gender Perspectives in Operations* (A Gender Aide-memoire for the Canadian Armed Forces) for planning considerations.

0253. GBA+ analysis will determine any gender based issues regarding health care to CAF personnel. This may impact clinical equipment, medications, clinical skills, and training.

0254. As part of the overall cultural analysis conducted for the mission GBA+ may identify a potential PAR that will require health care. There may be legal and force protection considerations to be addressed. GBA+ analysis can help identify local national, cultural and religious sensitivities for the clinical treatment of women. It can identify medical response obligations to conflict-related sexual and gender-based violence (e.g., conflicts where adversaries use rape as a weapon of war), and to sexual exploitation and abuse by coalition forces. For PWs/detainees segregation may be required based on gender.

Force Protection

0255. In order to align with the LOAC and NATO the term medical includes dental throughout this section.

0256. **Threat**. Medical elements must be able to operate in the face of regular, irregular and hybrid threats posed by a variety of adversaries who may seek to exploit our weaknesses to achieve success.[52] Lines of communication are particularly vulnerable to attack. There is an increasing cyber and electronic warfare threat to communications and information systems, and

[51] CFJP 3-14 *Prisoners of War and Detainees*, Annex B.
[52] CFJP 3-13 *CF Joint Force Protection Doctrine*, Preface, page I, para 1.

medical equipment. Also, the pervasive use of UAS for reconnaissance and attack poses a threat to medical elements.

0257. In accordance with the LOAC medical personnel, medical establishments and units, medical aircraft, and medical transports including ambulances are entitled to protection so that they may be free to pursue their duties and under no circumstances be attacked. Legal advice must be sought regarding the ramifications when it is known, or suspected, that the adversary will not respect the provisions of the LOAC.

0258. **Protected personnel**. Under the provisions of the LOAC, protected personnel include:

a. medical personnel exclusively engaged in the search for or collection, transport or treatment of the sick or injured, the prevention of disease and the administration of medical units and establishments; and

b. non-medical personnel while assigned to medical units, (e.g., cooks, drivers, maintainers, etc).

0259. Protected personnel are required to carry a Geneva Convention identification card and wear on the left arm an armlet bearing the Red Cross emblem of the Geneva Conventions.[53] See paragraph 0264 for circumstances were the Red Cross may be hidden.

0260. **Identification of medical units, facilities and vehicles**. Medical units, facilities and vehicles may be distinguished by the conspicuous display of the distinctive emblem (Red Cross, Red Crescent, Red Chrystal, or Red Star of David) on a white background.[54] All medical facilities and vehicles are protected by the Geneva Conventions and may display the Red Cross even if not engaged in direct patient care, (e.g., Fd Amb HQ and CSS shelters and vehicles, Forward Medical Equipment Depot, etc).

0261. **Camouflage**.[55] The responsible authorities (unit and formation commanders) shall ensure that medical units and establishments are, as far as military considerations permit, situated in a manner that attacks against military objectives cannot imperil their safety, and their distinctive medical emblems are clearly visible.[56]

0262. The purpose of the distinctive emblem is to provide a means to identify objects and persons entitled to special protection. The object and personnel are entitled to protection whether or not they display the distinctive emblem. If they do not display the distinctive emblem, it is more likely they will be incorrectly identified as legitimate military targets and attacked. Medical personnel must operate in the same manner regardless of whether or not their protective emblem is camouflaged (i.e., their intended use must be humanitarian or non-combatant).

0263. The marking of medical units, facilities and vehicles in conjunction with the use of camouflage is incompatible and should not be attempted concurrently. When the use of highly visible and prominently displayed medical emblems could compromise military operations, camouflage of medical personnel and/or facilities may be ordered by a commander (normally at

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[53] CFJP 3-0.1 *Law of Armed Conflict at the Operational and Tactical Levels*, article 915.
[54] Canada uses only the Red Cross.
[55] CFJP 3-0.1 *Law of Armed Conflict at the Operational and Tactical Levels*, article 922.
[56] Allied Tactical Publication (ATP) 79, *Orders for the Camouflage of Protective Medical Emblems on Land in Tactical Operations.*

the formation level) with the necessary insight to balance operational concerns with the protection of medical facilities and personnel.

0264. Such a decision could be made due to deliberate targeting by the enemy, as part of the deception plan, or in an attempt to deny the enemy intelligence as to future actions of the fighting force as part of the counter-intelligence plan and/or operational security plan. In such circumstances, the camouflage of medical units will follow that of the supported units.[57] See B-GL-364-001/FP-001 *Camouflage and Concealment*.

0265. Since the camouflage may have the effect of depriving the sick and injured of the protection to which they are entitled under LOAC, any order to conceal the Geneva emblem should be given in exceptional circumstances, be temporary in nature, and rescinded as soon as circumstances permit.

0266. **Self-defence**. Medical elements have minimal self defence capability and are governed by strict rules of the LOAC.[58] Medical personnel must be prepared to defend themselves, patients and facilities against direct attack. These skills must be practised in both static and mobile situations.

0267. Medical personnel are not permitted to take offensive action against attack. They must not be employed as perimeter guards of other than medical units or facilities.

0268. B-GL-340-003/FP-001 *Logistics and Combat Service Support Tactics, Techniques And Procedures* provides information on defence and protection measures that are applicable to medical elements. Medical assets and facilities may require security by combat units, particularly when operating in austere or hostile environments.

0269. **Siting of MTFs**. The adversary's known level of compliance with the LOAC will influence the siting of MTFs, (e.g., what level of visibility is desirable, or the requirement to be in a defensive perimeter, etc). Medical elements are often co-located with logistic or support elements. This can provide protection in the form of mutual support. The drawback is that logistic facilities may be prime targets. In urban settings it may be desirable to use improvised facilities that are shielded from surveillance such as underground parking lots.

0270. **Static**. In the event of ground attack medical elements must be prepared to defend their location until other forces arrive or the threat is repelled. Each level of medical command must implement defensive measures to include:

a. intelligence visibility on the potential threats;

b. camouflage or counter-camouflage (Red Cross and lighting). See paragraphs 0262-0266;

c. alarm and warning systems;

d. protection from direct and indirect fire, such as shell scrapes, trenches, sandbags;

e. standoff devices such as razor wire, vehicle check point kits, etc;

f. links to reserves in the area (often termed quick reaction forces);

g. tasks for all individuals under various threats;

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[57] ATP 79 *Orders for the Camouflage of Protective Medical Emblems on Land in Tactical Operations*.
[58] See B-MD-101-007/FP-001 CFHSP-1 *HS Planning* Annex E for the application of the LOAC on medical elements.

h. sentries (land, air and CBRN as required based on the threat); and

i. rehearsals.

0271. Shelters should be constructed adjacent to MTFs to protect patients and staff from indirect fires. Due to the nature of their injuries some patients cannot be moved from their beds when the facility is threatened by indirect fire. Every MTF **shall** have a readily available supply of ballistic blankets and helmets which can be placed on these patients.

0272. **Mobile**. Whether administrative moves, convoys or ground MEDEVAC, there is a pervasive threat of attack, both targeted and incidental, (e.g., by ambush or IED). This is of particular concern when facing an irregular threat that seeks asymmetric advantage and may not adhere to the LOAC. Medical personnel must know and rehearse the defensive drills required to react to these situations. See B-GL-340-004/FP-001 *Convoy Operations Tactics, Techniques and Procedures* and B-GL-340-003/FP-001 *Logistics and Combat Service Support Tactics, Techniques And Procedures* Chapter 2, Section 6 for information regarding defence on the move.

0273. Medical vehicles may mount up to a medium machine gun, including in a remote weapons system, for the protection of crew and patients.[59]

0274. Movements may be restricted and will have to be coordinated with Operations staff for authorization and force protection elements. The tasking of combat troops to provide escort protection for HS is often not feasible and should not be expected; however, the use of manoeuvre forces as escorts may, at times, be unavoidable due to irregular threats.

0275. Medical elements are sited in, or travel through, other units' areas of operations. Care must be taken to avoid compromising another unit's security by any unnecessary movement of ambulances in and out of harbours and hides. There may be a requirement to hold patients and provide prolonged field care when movements are restricted.

0276. **Passive countermeasures**. In addition to the active measures to ensure the protection of HS elements there are a number of passive countermeasures that can reduce the threat [see B-GL-300-004/FP-001 *Sustainment in Land Operations* and B-GL-372-009/FP-001 *Counter Unmanned Aircraft Systems Defence* (hyperlink not yet available)].

0277. **Light discipline**. Light discipline could be key to passive measures and medical units and personnel must be adept at operating in limited visibility and dark conditions. Light discipline measures must align with flanking units so as to not compromise their locations.

0278. **Mobility and survivability**. Medical units operate across the battlefield and across all types of terrain. In order to successfully accomplish their mission HS personnel, vehicles, and equipment must have the same mobility, survivability, communications, night-vision capability, combat identification (CID), and sustainability as the fighting force they support. Without comparable vehicles and equipment, the medical force will be unable to maintain the pace set by the combat forces. This may result in slowing down the manoeuvre element they are supporting, lengthening lines of communications, longer MEDEVAC distances, longer response times to provide initial lifesaving interventions at the POI, and increased deaths.

0279. **Armour**. Ambulances must be afforded the proportionate protection as the combat vehicles they are supporting, i.e., armoured ambulances to support armoured elements.

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[59] Directorate of Law – Strategic Operational Law opinion 30 May 2019.

0280. **Electromagnetic spectrum**. All communication and information systems are increasingly under a cyber and electronic warfare threat. For medical this threat includes C2 systems, Global Positioning System, the electronic collection, storage, and transmission of HS information (e.g., HS software programs, telemedicine), and advanced medical equipment. Military reliance on information systems has dictated that greater emphasis be placed on security of electronic means. Proper electronic and communication security measures must be well known and practised by all ranks. Units must be prepared to work around disruptions and must retain the ability to perform critical functions manually. See Joint Doctrine Note 2017-02 *Cyber Operations* for more information on the cyber threat, cyber defence and cyber security. See also CFJP 3-6 *Electronic Warfare*.

0281. **Combat identification (CID)**.[60] CID devices are used in conjunction with appropriate acquisition and identification procedures for identification of friendly forces. They are a supplement to aid in identification of friendly forces on the battlefield or in an area of operation in order to reduce the risk of fratricide.[61] Examples of CID devices are infrared patches, chemical lights (glow-sticks), infrared reflective tape vehicle markings, and thermal identification panels.

0282. CID include passive and active systems and operate in the visual and infrared spectrums. CID devices are required for identification from air and ground elements. Due to their potential for compromise, CID devices should be employed or activated only for a specified and fixed period of time. The appropriate level of command (Bde Gp or higher) will issue time guidelines/limitations for use of these devices.

0283. Regardless of any requirement to maintain visibility when the LOAC is respected by the adversary, all medical personnel, vehicles, and facilities must follow the CID requirements of their parent formation.

0284. All commanders have the responsibility to ensure that personnel under their operational command are trained in the recognition of both friendly and enemy forces likely to be met on the battlefield.

0285. **Counter uncrewed aircraft system**. An adversary's use of low cost commercially available UAS can compromise a friendly force's ability to conduct operations. The lowest level sensor is the soldier; therefore, all soldiers must be trained and equipped to conduct counter UAS defence. When there is a known UAS threat air sentries must be deployed. B-GL-372-009/FP-001 *Counter Uncrewed Aircraft Systems Defence* provides information regarding the threat, planning considerations, passive air defence, air sentry techniques, all arms air defence techniques, and sub-unit training considerations.

0286. **Counter-improvised explosive device (C-IED)**. The threat of IED is ever increasing in the contemporary and future operating environments. Prior to any move personnel must be briefed on the IED threat and trends. All personnel must be trained in C-IED procedures [see B-GL-365-022/FP-003 *Tactical Counter-IED Aide Memoire* for more information.]

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[60] The use of identification measures to reduce friendly fire and increase the operational effectiveness of forces and weapons systems (DTB, record 34151).

[61] See ATP-91 *Identification of Land Forces on the Battlefield and in an Area of Operation* and B-GL-334-001/FP-001 *Standing Operating Procedures (SOP) For Land Operations* SOP 108 for more information.

0287. Medical vehicles may mount electronic counter measures (ECM) equipment to counter the threat of radio controlled IEDs. When HS units are issued ECM equipment, COs shall appoint an ECM advisor to coordinate technical support and training.

Military Training

0288. In order to shoot, move, communicate, and survive in the battlespace medical personnel attached to another unit must have the same military training as those of the supported force. This includes advanced fieldcraft, weapons handling, and specialist skills to match the operational environment and those of the supported forces (e.g., parachute, mountain operations, cold weather training). Medical personnel, particularly those operating as part of infantry sub-units and other combat arms must be physically fit, able to carry full battle order and medical packs in conditions of rugged terrain and extreme temperatures.

0289. Standing affiliations (e.g., the same medic supporting the same rifle company during training and operations), and regular training with supported forces will help ensure medical personnel are prepared for operations and well-integrated to their supported units and sub-units.

Division Level

0290. **Canadian lead of a multinational division**. If Canada is the lead nation for a multinational Div, responsibilities include providing or arranging:

a. Role 1 within the Division Support Area (DSA) for elements that do not have their own;[62]

b. Role 2 where required and Role 3 for the entire Div;

c. evacuation, both ground and air, from all subordinate formations and within the DSA;

d. Medical Advisor (Div Surg) to provide advice to Commander and staff, as well as medical advice to supported brigades;[63]

e. Medical Director to coordinate HS planning and operations within the division and liaison[64] with corps or theatre-level HS elements, flanking formations, host nations, non-governmental organizations and international organizations;

f. Medical Coordination Centre (MEDCC) to coordinate multinational, joint and multifunctional medical issues (subordinate doctrine regarding the composition and functions of the MEDCC is to be developed based on ABCA Report 207 *Health Coordination Center – ABCA 2 Star Headquarters*). See paragraph 0295 for a generic composition of a MEDCC;

g. Patient Evacuation Coordination Cell (PECC).[65] The PECC is a sub-element of the MEDCC responsible for:

   (1) coordinating ground evacuation from Bde MTFs to Div MTFs;

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[62] Role 1 is a national responsibility; however, in multinational operations there may be many multinational elements, e.g., multinational HQs, multinational logistics units. The lead nation provides or arranges for Role 1 care.
[63] The Medical Advisor is always a physician. The Medical Advisor may be double-hatted as the Medical Director.
[64] The contact, intercommunication and coordination maintained between elements of military forces and/or other non-military actors to ensure mutual understanding and unity of purpose and action (DTB Record 806).
[65] See Chapter 5 for duties of the PECC.

(2) coordinating Fwd AE within Div boundaries;

(3) arranging ground and air evacuation out of the Div area;

(4) medical regulating (patient flow management) within the Div; and

(5) patient tracking.

h. medical intelligence. This capability may be located in the Div HQ G2 Branch or the Div Intelligence Company;

i. casualty staging unit (CSU) [*see* Chapter 5];

j. veterinary services;

k. CAF specific HS logistics to include Class VIII supplies and equipment for all CAF elements within the Div;

l. multinational HS logistics to include common Class VIII[66] supplies and equipment for the entire Div;

m. medical and dental equipment repair and maintenance, and optical repair;

n. blood management for the entire Div;

o. advice regarding medical waste management for the entire Div, in conjunction with Div Engineers;

p. FHP – preventive medicine for Div troops;

q. HS Civil-Military Co-operation;[67] and

r. Div-level patient decontamination.

0291. **Specialist Consultant Staff**. Professional consultants may be added to Role 2E or Role 3 MTFs, or the Div and higher formation medical staff where warranted by operational or environmental considerations. These services or specialties may include radiology, psychiatry, entomology, epidemiology, environmental medicine, nuclear medicine, optometry, dentistry, etc.

0292. **Division Health Services Group (Div HS Gp)**.[68] If there is more than one Canadian brigade or Bde Gp within a Canadian Division, all HS assets would normally be grouped under an HS Gp with elements detached to Bdes, e.g., one Fd Amb and minimum of one R2B to each Bde. At a minimum, the Div HS Gp would include a Role 3, Forward Medical Equipment Depot, Division Medical Battalion, and a Fwd AE capability (medical personnel attached to the Div tactical aviation squadron).

0293. **Division Medical Battalion (Div Med Bn)**. The Div Med Bn provides Role 1 to all Div-level elements, including a DMS. It provides ground evacuation from the rear of the brigades and within the DSA, and is capable of deploying two CSUs [*see* Chapter 5]. It provides preventive medicine capability within the DSA and includes a patient decontamination capability. It can

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[66] NATO uses "Class II" for medical and dental supplies and equipment.

[67] See B-GL-355-001/FP-001 *Civil-Military Cooperation Tactics, Techniques and Procedures* and AJMedP-6 *Allied Joint Civil-Military Medical Interface Doctrine.*

[68] The term "Group" is equivalent to the Army use of "Brigade". A Canadian HS Group is similar to a US Medical Brigade.

reinforce Bde Gp Fd Ambs. The Div Med Bn is similar to, but has a different composition than, the Fd Amb in a Bde. Its composition is under development.

0294. **Forward Medical Equipment Depot (FMED)**. An FMED provides formation or theatre level medical materiel management. A division will have an FMED. See Chapter 6 for information on the FMED.

0295. **Division Medical Coordination Centre**. Figure 2.1 is a generic organization for a MEDCC. The actual size and composition of a MEDCC will depend on the type of mission (e.g., peace support or peer-on-peer warfighting) and what level of multinational integration is required. A medical CBRN cell may be required.

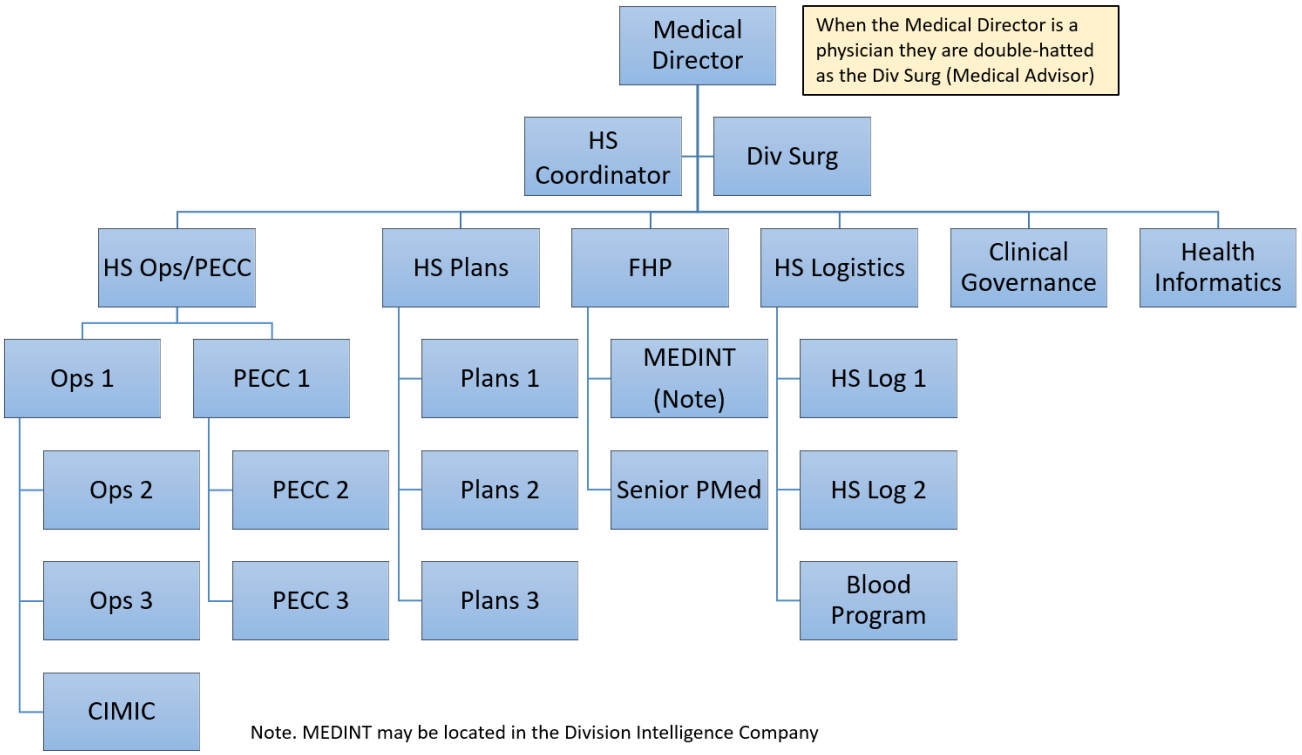

Figure 2.1 Generic composition of a Division Medical Coordination Cell

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Chapter 3
The Field Ambulance – Role 1 Medical Support to the Brigade or Brigade Group

Introduction

0301. A doctrinal Canadian Mechanized Brigade Group (CMBG) consists of approximately 6500 personnel. It has four major manoeuvre units and various Combat Support and CSS elements. A CMBG usually operates within a division construct. The Bde Gp AO may be up to 15 kilometres by 90 kilometres. See B-GL-321-003-FP-001 *Brigade Tactics* for more information.

0302. The conceptual organization provided in this chapter is designed to support the Canadian Army doctrinal Bde Gp. This doctrine includes new clinical capabilities forward in the battlespace, (e.g., blood, DCR Teams, and Fwd AE). As these concepts solidify the doctrine will be updated.

General

0303. One Fd Amb unit is allocated under operational control to each Regular Force CMBG.[69] The Fd Amb provides Role 1 medical support and ground MEDEVAC within the Bde Gp's boundaries. With appropriate tailoring of equipment, establishment and training, it is capable of providing Role 1 medical support in all types of operations and environments.

0304. All Role 1 HS elements, except some ambulances [*see* below], within the Bde Gp belong to the Fd Amb. The Fd Amb allocates medical platoons or sections to units or sub-units as required.

0305. **Unit ambulances**. Bde units (e.g., infantry battalion, artillery regiment) have integral ambulances to which the Fd Amb allocates medics. See paragraph 0333.

0306. **Surgical capability**. On most operations a surgical capability is required at the Bde Gp level. This is usually a Role 2B MTF, and could include a FST. These elements may be attached from Div assets to a Fd Amb to create a task-tailored HS unit (HSU).

0307. If a Role 2B is attached to a Fd Amb the Bde Gp G4, engineers, and Svc Bn must be made aware of any unique support requirements (large volume of water, biohazardous waste, levelling of ground, electricity). See Chapter 4 for more information on Role 2 requirements.

0308. On some missions (e.g., peace support operations) elements may be attached to the Fd Amb in order to create a Joint HSU to include support to maritime or air operations.

Organization

0309. The Fd Amb is composed of a unit HQ, an integral support medical company (IS Med Coy), a close support medical company (CS Med Coy), an evacuation company (Evac Coy), the Bde pharmacy, a dental platoon, a preventive medicine (PMed) section, and a services company (Svc Coy).[70]

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[69] The composition of Reserve Force Fd Ambs is under development.
[70] The Fd Amb does not include the in-garrison clinic.

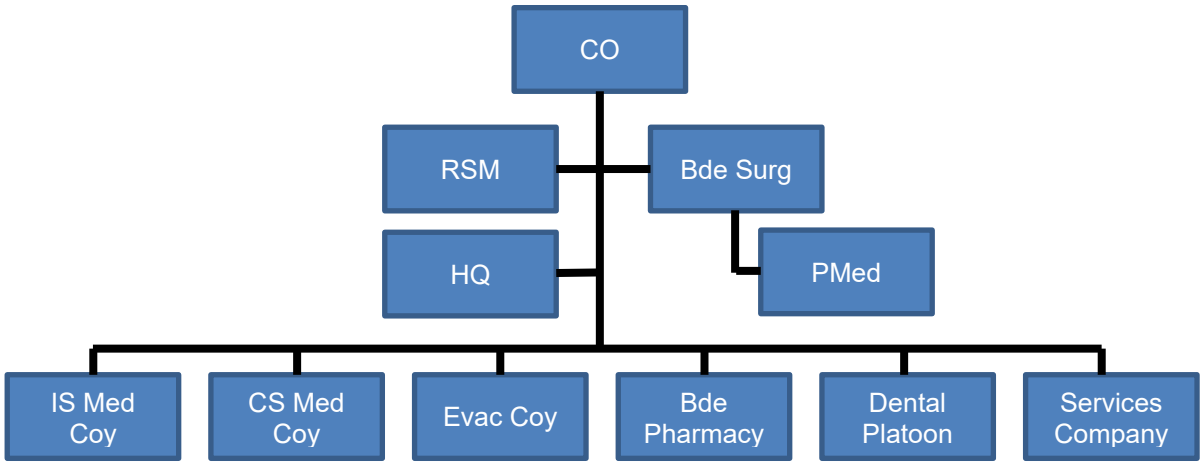

Figure 3.1 Field Ambulance Organization

Tasks

0310. Fd Amb tasks include:

a. provide C2 of all HS resources in the Bde Gp;

b. provide clinical advice to the brigade commander and staff;

c. command a task-tailored HSU, which may include a surgical element and a Fwd AE element (there will usually be a minimum of a Role 2B attached);

d. provide Role 1 medical support, including dental, to all brigade personnel;[71]

e. conduct ground evacuation of patients from UMSs to the BMS or Role 2 MTF (when one is attached to the Bde Gp);

f. hold non-surgical/non-critical sick and wounded within the Bde Gp's patient return policy and during periods of interrupted evacuation;

g. prepare patients for evacuation outside the Bde Gp AO;

h. manage medical supplies (Class VIII), including blood and blood products, within the Bde Gp;

i. provide aerospace medicine if aviation elements are attached to the Bde Gp;

j. provide dive medicine capability in support of combat engineers;

k. provide preventive medicine services;

l. coordinate with Special Operations Forces medical elements in the Bde Gp AO, within the bounds of operational security;

m. coordinate with host nation medical elements in the Bde Gp AO; and

[71] See Chapter 1 for information on Role 1 medical support.

n. conduct patient decontamination (this task requires special training and equipment). See AJMedP-7 *Allied Joint Medical Doctrine for Support to Chemical, Biological, Radiological, and Nuclear (CBRN) Defensive Operations*.

0311. The Fd Amb structure has no redundant capacity from which it can provide humanitarian assistance. This activity requires deliberate planning, skills sets, and supplies (e.g., pediatrics, geriatrics, public health).

Field Ambulance Headquarters

0312. **General**. A Fd Amb HQ includes a command group, operations sections, a signals section, an administration section, and a medical operations/plans staff detached to the Bde HQ. If the Fd Amb is to form the basis of a task-tailored HSU, the HQ may require staff and communications augmentation.

0313. **Command Group**. The command group provides all aspects of C2 of the Fd Amb and consists of:

a. **Commanding Officer (CO)**. The CO is responsible for commanding the Fd Amb and is responsible to the brigade commander for the provision of effective and efficient Role 1 medical support to the brigade. The CO may be a Health Services Operations Officer, Medical Officer, or Dental Officer;

b. **Deputy Commanding Officer (DCO)**. The DCO is responsible for C2 of the unit in the absence of the CO. The DCO also has primary responsibility for conducting detailed reconnaissance of new locations prior to a move and for organizing and controlling the layout, defence and movement of Fd Amb elements within the Brigade Support Area (BSA).[72] The DCO is responsible for advising the CO on all matters concerning the welfare and conduct of the officers;

c. **Brigade Surgeon (Bde Surg)**. The senior physician within the Bde Gp is the Bde Surg. As the senior clinician within the Bde Gp, the Bde Surg is responsible for the technical control of all medical activities in the Bde Gp. The Bde Surg provides clinical input to the medical plan. The Bde Surg, as a specialist advisor, always has direct access to the commander on clinical matters and maintains contact with medical counterparts at higher and lower levels of command on technical matters [*see* paragraph 0315 for Bde Surg responsibilities]. If the CO is a physician they are not double-hatted as the Bde Surg (each role is distinct). Also, the Officer Commanding (OC) Close Support Medical Company is not double-hatted as Bde Surg; and

d. **Regimental Sergeant Major (RSM)**. The RSM is responsible for advising the CO on all matters, in particular the welfare and conduct of non-commissioned members. The RSM is responsible for the defensive plan of the Fd Amb HQ.

0314. The command group is responsible for:

a. C2 of the unit;

b. advising the Commander and staff on the Fd Amb's capabilities, limitations, employment, and support requirements;

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[72] For information on the BSA see B-GL-345-001/FP-001 *Combat Service Support (CSS) Units in Operations*.

c. developing the medical estimate and medical threat assessment for inclusion in the Bde Gp planning process;

d. preparation of the Bde Gp HS support plan;

e. determining and advising the Commander on the allocation of HS resources (e.g., task-tailoring, re-grouping, etc);

f. assisting the Bde Gp Command, Operations, and Force Protection staff to develop the formation MASCAL plan;

g. liaising with flanking HS elements to coordinate HS matters;

h. establishing priorities for the procurement, distribution and repair of medical equipment and supplies; and

i. keeping higher-formation medical staffs (own and coalition) aware of the HS situation within the Bde Gp.

0315. The Bde Surg splits time between the Bde Gp and Fd Amb HQs. Responsibilities include:

a. providing clinical advice to the commander and staff;

b. providing clinical input to the HS plan;

c. reviewing all Bde Gp plans to identify potential medical hazards associated with geographical locations, and climatic conditions;

d. providing advice to the commander on the medical effects of the environment, accumulated fatigue, CBRN, and directed-energy devices on personnel, rations, and water;

e. planning and coordinating FHP and mental health services;

f. providing professional-technical supervision of subordinate physicians, physician assistants (PA), and all medics;

g. analyzing data to determine emerging disease trends, and patterns of combat, non-battle injury, and operational stress injuries within the Bde Gp;

h. advising on work/rest cycles and acclimatization to environmental conditions (temperature, altitude);

i. advising on combat related first-aid and TCCC[73] training within the formation;

j. bringing to the attention of unit COs any unsatisfactory medical conditions and the necessary corrective measures;

k. advising on infection prevention and control;

l. providing advice to the commander on the use of medical countermeasures and pre-treatments;

m. advising on the policy for personnel exposed to lethal but not immediately life-threatening doses of radiation or chemical and biological agents;

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[73] The Army is the training authority for the TCCC program and the CFHS is the Centre of Excellence for the clinical content.

n. liaising with Div Surg and flanking formation surgeons on clinical matters;

o. liaising with host nation military and civilian medical authorities within the Bde Gp AO;

p. authorizing the issue of controlled substances from the Bde Pharmacy to medics to perform within delegated scopes of practice or under approved protocols for which they are trained and certified; and

q. reviewing medical documentation for technical accuracy and standards.

0316. **Operations Section**. The operations section forms the unit command post (CP) under the direction of the Operations Officer. Tasks include:

a. maintaining situational awareness of Bde Gp operations;

b. maintaining situational awareness of the status of all Fd Amb subordinate elements;

c. supporting Bde Gp operations and planning activities;

d. assisting the CO in the preparation of the tactical plan;

e. coordination of evacuation outside the Bde Gp, including with Fwd AE;

f. liaising with HS elements outside the Bde Gp. This includes national, alliance/coalition, flanking, supporting, host nation, international organizations, and non-governmental organizations;

g. liaising with Special Operations Forces medical elements in the area, to the extent permitted by operations security;

h. coordinating with Bde Gp G3 for allocation of real estate, evacuation routes, and force protection. Coordination ensures that HS elements are not placed in the way of friendly maneuvering forces, in line of fires, or in areas subject to be overrun by rapidly advancing enemy forces;

i. coordinating, through Svc Coy, with the Bde Gp Logistics Operations to move medical supplies forward within their replenishment runs when required;

j. conducting patient tracking for patients within the Bde Gp AO;

k. conducting medical regulating (patient flow management) within the Bde Gp AO;

l. preparing operational reports and returns, instructions and orders; and

m. maintaining the unit's war /operations diary in accordance with the *War/Operations Diary Instructions* available at http://cmp-cpm.mil.ca/en/honours-history/publications-history/Ops-diary-instructions.page.

0317. **Alternate Command Post**. The Evac Coy CP is the alternate Fd Amb HQ CP. It will be the alternate CP when the main CP is moving. It is never co-located with the Fd Amb HQ.

0318. **Signals Section**. The signals section provides all communications support within the Fd Amb. This includes the establishment of unit and sub-unit networks, and out-stations on the Bde Gp command and administration nets. The signals section has a limited maintenance and repair capability. It is normally located with the Fd Amb HQ complex.

0319. **Administration Section**. The administration section provides unit orderly room services. It consists of the unit adjutant, chief human resource administrator, and human resources and

financial administrators. The Adjutant is responsible for overseeing all unit administration, commanding the administration section (unit orderly room) and serving as the principle staff officer to the CO. Personnel administration is conducted in accordance with B-GL-312-011/FP-001 *Personnel Administration in Battle*.

0320. The administration section services include:

a. personnel administration for unit personnel and patients;

b. notification to units of admissions and discharges of patients, rearward evacuation or return of patients;

c. collecting and collating subunit strength returns as well as maintaining statistics on strengths and casualties;

d. receiving and disposing of the personal effects of Fd Amb personnel who are killed, missing, wounded or evacuated, and of any patients who die within the BMS (disposal is through the Fd Amb quartermaster to the Svc Bn);

e. financial services such as payment of out-sourced medical services; and

f. providing postal services for the unit.

0321. **Brigade HQ medical staff**. A four person medical operations and plans team is attached to the Brigade HQ.[74] Two officers are attached to the G3 cell for medical coordination and evacuation (Medical Operations) and one officer to the G5 cell for planning (Medical Plans). These tasks often require reach-back to the Fd Amb Operations Officer and/or DCO. These officers are assigned a medic driver who reports to the G5 Medical Planner. The primary function of the driver is to allow for mobility and message running in low emission control states between the Brigade CP Main and the Fd Amb CP.

0322. **Chaplain**. The chaplain provides non-denominational services to the Fd Amb and patients to include:[75]

a. religious services as required;

b. moral and spiritual advice on matters affecting the spiritual welfare of the troops;

c. counselling services and spiritual comfort to Fd Amb members and the ill and injured; and

d. conducting burial services.

Preventive Medicine (PMed) Section

0323. The **PMed section** reports directly to the Bde Surg and provides PMed services to the Bde Gp. The PMed section is led by a PMed Warrant Officer (WO) who has seven subordinate PMed Technicians. They may be allocated to units for set periods of time, or they may be retained in the PMed Section and tasked forward on an as required basis. The Bde Surg provides professional-technical oversight. Tasks include:

a. sanitation advice;

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[74] These positions do not yet officially exist. To be discussed with the Army.
[75] Refer to B-GL-346-001/FP-000 *Army Chaplain Manual*.

b. vector and pest control;

c. advice on care or treatment of animals;

d. water testing, in conjunction with the Engineers;

e. inspection of feeding facilities;

f. supervision of immunization and drug prophylaxis;

g. advice on limiting excessive exposures to occupational hazards; and

h. hygiene and sanitation training for Bde Gp personnel.

Integral Support Medical Company (IS Med Coy)

0324. **General**. IS Med Coy consists of first line medical platoons which provide Role 1 to units within the Bde Gp.

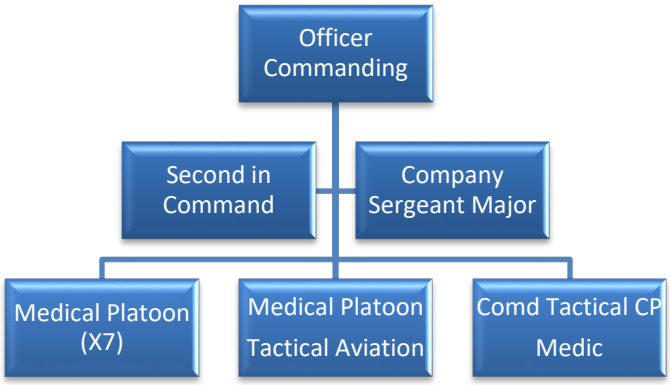

Figure 3.2 Integral Support Medical Company

0325. **Tasks**. The IS Med Coy is responsible for the following:

a. medical platoons to units sized elements of the Bde (to include task-tailoring them to support Battle Groups (BG))[76], and medical sections or detachments to sub-unit sized elements;

b. aerospace medicine for attached aviation elements;

c. dive medicine for the combat engineer regiment; and

d. one medic to the Bde Gp Commander's tactical CP.

0326. **Company headquarters**. The officer commanding (OC) is a Health Care Administration officer (HCA). The Company HQ has no CP and it usually collocates with the Fd Amb HQ working as duty staff when not otherwise engaged in company business. The HQ is responsible for the administration of the company, ensuring subordinate medical elements have Class VIII logistics support, and maintaining situational awareness of supported units' operations. The Bde Surg provides clinical professional technical control.

[76] For information on the BG see B-GL-321-005/FP-001 *Battle Group in Operations*.

First Line (Unit) Medical Platoons

0327. **General**. A first line medical platoon is the medical personnel, equipment, supplies and vehicles that provide integral health care to a unit. The medical platoon comprises a UMS [*see* paragraph 0337], sub-unit combat medical teams [*see* paragraph 0344], and ambulances. The Fd Amb provides all the medical personnel, shelters and vehicles, except the ambulances which are held by the supported unit [*see* paragraph 0333]. The medical platoon must have the same mobility, night-vision capability, communications, CID, and protection as the unit they support.

0328. Normally one first line medical platoon is allocated for each battalion sized unit [*see* paragraphs 0355- 0357]. The medical platoon is force generated from the Fd Amb and is normally detached under operational control to the unit for deployments. The medical platoon will normally be attached to the supported unit's CSS sub-unit (e.g., Administration Company, CSS Battery, or Headquarters Squadron). The medical platoon will assume call sign (C/S) 83 on the supported unit's radio net. Combat medical teams are allocated to the sub-units.

0329. A DCR Team or FST may be attached to a UMS for short periods of time. A PMed Technician may be attached to the medical platoon particularly if the unit will be in a static location for an extended period of time.

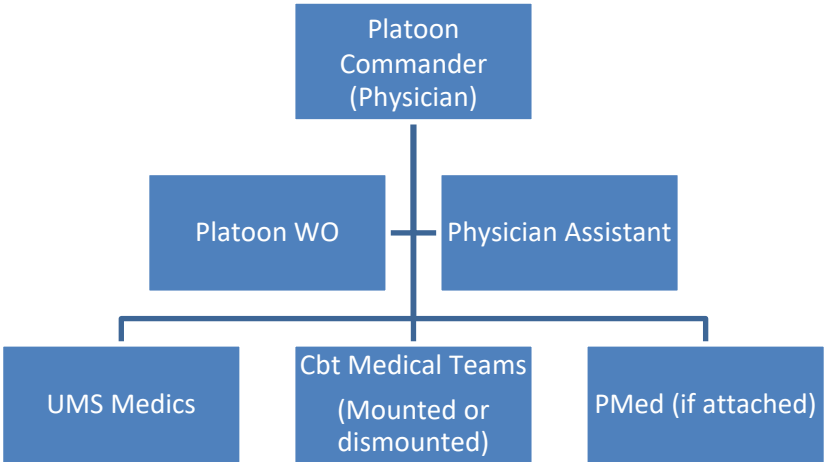

Figure 3.3 First Line Medical Platoon Organization

0330. **Affiliation**. To the extent possible, personnel who form a medical platoon in support of a particular unit should be affiliated with that unit in garrison, act as the UMS for that unit in the field, conduct daily sick parade for it, and train with it. The platoon commander is an advisor to the CO and should routinely attend in-garrison unit meetings/Orders Groups. Sub-units undergoing field training should have their assigned combat medical team with them. This establishes relationships and enhances mutual understanding of TTPs, and ensures that the medical personnel are not strangers to the unit upon deployment. In order to work with some units, medical personnel may require particular military or clinical qualifications, (e.g., parachute training, aerospace medicine, etc).

0331. **Composition**. The size and composition of the platoon will vary depending on factors such as the type of forces they support (heavy, medium, or light), casualty estimate, dispersion, time and space, size of the unit, type of operation, etc. The platoon commander is a physician. All of the non-commissioned member positions are medics. The following chart is for a generic composition.

Position	Rank	Remarks
Platoon Commander	Captain	General Duty Medical Officer
Physician Assistant	Lieutenant	May be filled by a captain
Platoon WO	WO	
Platoon Sergeant	Sergeant	
UMS medics	2 x Master Corporal 6 x Corporal	2 x ambulances Ambulance driver and crew commander (for armoured ambulances only) provided by the supported unit
Combat Medical Team (number of teams varies based on type of unit)	1 x Master Corporal 1 x Corporal	One or two teams per sub-unit Mounted or dismounted Ambulance driver and crew commander (for armoured ambulances only) provided by the supported unit

0332. When high casualty numbers are anticipated a first line medical platoon may be augmented with a medical detachment or section from a second line medical platoon.

0333. **Unit ambulances**. Depending on the type of unit, it may have armoured ambulances, light ambulances, or a combination. The two-person crew for light ambulances[77] is two medics from the Fd Amb, one of whom is the driver. The driver and crew commander for the armoured ambulances is provided by the supported unit, while the two medics come from the Fd Amb. In order to maintain the vehicles, and understand the unit they support, medics affiliated with the unit must routinely conduct driver or crew maintenance in accordance with the unit's standard operating procedures and schedule.

0334. Ambulances require the same mobility, protection, CID, night-vision, and communications capabilities as the element they support (armoured, light, all-terrain vehicles, over-snow, etc).

0335. **Administrative relationship**. On operations and exercises, the medical platoon's administrative relationship with the supported unit is attached for daily maintenance in accordance with B-GL-300-004/FP-001 *Sustainment of Land Operations*.[78] The platoon commander must advise the supporting unit whenever a DCR Team or FST (defined in chapter 4) is attached.

0336. **Responsibilities**. The physician attached to a unit commands the medical platoon, is the SMA, is the medical advisor to the CO, is responsible to the CO for the duties listed below, and is responsible to the Bde Surg for the clinical professional-technical aspects of those same duties. General responsibilities include:

a. providing advice to the unit CO on medical matters to include the medical situation, and the capabilities of the platoon;

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[77] Light ambulance means unarmoured.

[78] Attached For Daily Maintenance. The gaining commander has authority to direct and responsibility for meeting the routine requirements for combat supplies of the transferred unit or formation. The parent unit or formation retains responsibility for all personnel and logistics support other than combat supplies.

b. recommending PMed measures;

c. establishing a UMS;

d. preparing the medical and evacuation plans to support unit operations;

e. providing medical input to the unit's MASCAL plan;

f. providing medical resources to sub-units;

g. conducting routine sick parade;

h. conducting MEDEVAC within the unit AO, (e.g., from sub-unit CCP to the UMS). See figure 5.2;

i. requesting MEDEVAC to higher roles of medical support, when required;

j. providing combat related medical, hygiene and sanitation training;

k. manage unit medical materiel to include medical supplies and equipment for combat medical teams and TCCC trained personnel;

l. providing aerospace medicine for aviation units;

m. providing dive medicine advice to combat engineer units;

n. preparing and tracking medical reports and returns;

o. maintaining medical records;

p. ensuring the Fd Amb and supported unit is kept informed of the location of the UMS and the local medical situation; and

q. in conjunction with unit Operations Officer, develop the unit MEDEVAC trace (evacuation routes, any pre-determined CCPs, ambulance exchange points, proposed UMS locations) and ensure it is issued to sub-units and all combat medical teams.

0337. **Unit medical station (UMS)**.[79] The first MTF in the continuum of care is the UMS. It is normally established as far forward as practicable. Siting considerations are:

a. to achieve the treatment timelines no more than one-hour evacuation time away from the expected location of casualties; however, closer is better when the tactical / force protection situation allows;

b. as close as possible to the unit HQ to ensure effective communications and situational awareness;

c. accessible by road with room for ambulances to manoeuvre and park for off-loading; and

d. close to a hasty helicopter landing site (HLS).

0338. To enhance flexibility and mobility, UMSs have two shelter options – a truck mounted sea container size shelter which may be placed on the ground if required, or tentage.

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[79] UMSs are not a fixed in-garrison entity; however teams of medical personnel may be detached to Bde units in garrison to assist with liaison, coordination, planning, equipment maintenance, support to exercises and training as required.

0339. **Tasks**. Tasks of the UMS are to:

a. receive, examine and sort patients into priorities for treatment and evacuation;

b. check first aid that has already been given, and provide emergency medical treatment necessary to preserve life or limb, and relieve pain;

c. prepare/stabilize patients requiring further evacuation;

d. return to duty patients with minor illness or injury as soon as possible (every effort must be made to prevent unnecessary evacuation);

e. provide shelter, protection and sustaining care to patients, particularly while awaiting evacuation;

f. aid tactical commanders in preparation of MEDEVAC requests;

g. initiate or continue field medical documentation; and

h. provide general support to DCR Teams or FST when attached.

0340. Patient holding and food service are not available at the UMS. Therefore, only procedures necessary to preserve life or limb, or enable a patient to be moved safely, are performed at the UMS.

0341. The UMS will usually have two ambulances to allow for an ambulance shuttle within unit boundaries. The medical platoon sergeant manages the ambulances to ensure that as one ambulance is coming back from a sub-unit CCP one is sent forward to rendezvous with the ambulance to transfer the patient, or to replace the ambulance at the sub-unit.

0342. Patients requiring dental treatment are provided pain relief, and, if required, evacuated to the supporting BMS where operational dental care (emergency and essential dental treatment) is provided.

0343. **Medical evacuation** from the UMS is performed by ground ambulances from the Fd Amb Evac Coy and/or by Fwd AE teams of the supporting aviation element.[80]

0344. **Combat medical team**. Depending on the type of unit, type of operation, dispersion, and the medical estimate, sub-units are allocated two to four medics. In mounted operations, the medics will normally be in one to two ambulances (if an armoured ambulance, the driver is provided by the parent unit).

0345. In operations, the medics remain with their sub-units except when accompanying seriously wounded or ill patients to the UMS. When their sub-unit is not actively engaged, medics may be temporarily withdrawn to the UMS for consultation and proficiency training.

0346. To understand the sub-unit's TTP, and to foster good interpersonal relations and morale of supported soldiers, every effort should be made to attach the same medic to the same supported sub-unit each time the unit trains and deploys [*see* paragraph 0332].

0347. **Tasks**. The combat medical team tasks include:

a. provide medical care within their scope of practice;

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[80] Although, by definition an AE conducted from a UMS to another MTF could be considered "tactical AE", in practice it is called "forward AE" when it is conducted by helicopters in the forward battlespace. This is common understanding in NATO and Five–eyes patient evacuation.

b. keep the sub-unit commander and the unit medical officer advised regarding the location, numbers, and types of patients, and the local medical situation;

c. depending on the severity of the injuries removal of weapons and ammunition, which are turned over to the sub-unit Sergeant Major [*see* paragraph 0223];

d. consolidate medical supply requests within the sub-unit and pass to the medical platoon WO via the unit's daily replenishment process. This may be directly through radio or through the sub-unit's quartermaster sergeant; and

e. advise on personal hygiene and field sanitation.

0348. **Casualty collection point (CCP)**. The CCP is the first location where casualties are collected and sheltered from enemy direct fire. It is, "A specific location where casualties are assembled to be transported to a MTF."[81] See figure 3.4 for possible layout of a CCP. See paragraph 0547 for information on how the CCP fits into the chain of evacuation.

0349. A CCP may be established anywhere in the battlespace and is normally controlled by the affected platoon's WO or sub-unit's Sergeant Major.[82] Its location may be in response to casualties or it may be pre-determined in anticipation of where casualties are likely to occur.

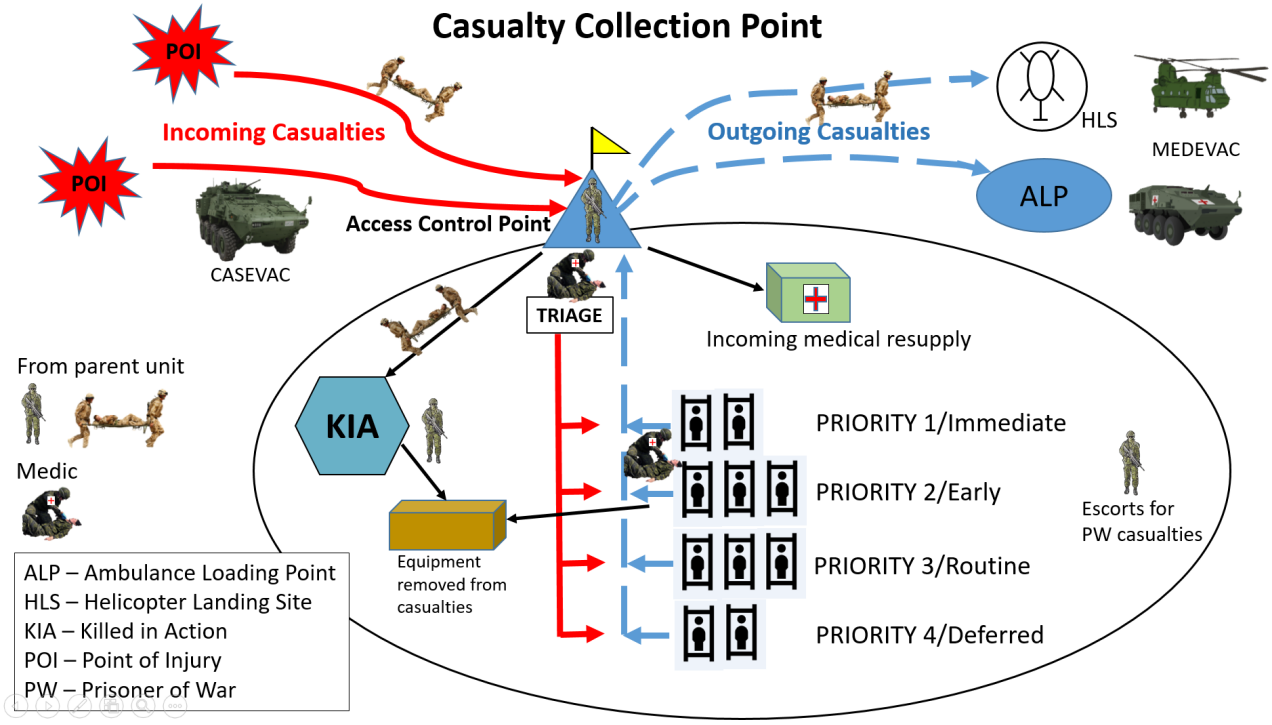

Figure 3.4 Casualty Collection Point

0350. It is staffed with one or more medics. Casualties are moved to a CCP by any means available. A CCP should:

a. be as far forward as the tactical situation permits;

b. hidden from enemy direct observation and protection from enemy fires;

[81] NATO*Term* 27627.
[82] TTPs may differ between different types of units.

c. be defensible and accessible to both ground and air ambulances;

d. if possible, be inside a building (an exclusive CCP building limits confusion in built-up areas);

e. be marked with natural (e.g., near a distinctive tree) or man-made objects (e.g., coloured flag or panel marker);

f. at night be marked with coloured or infra-red glow-sticks (if tactically permissible); and

g. be sited to allow for rapid transit of vehicles.

0351. At the CCP the medics focus on clinical tasks as described in Figure 3.5:

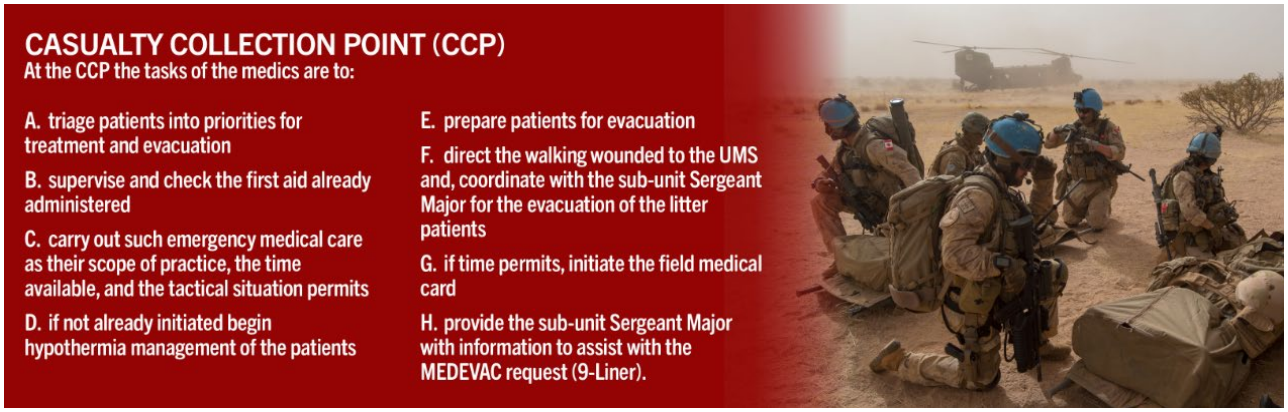

Figure 3.5 Medic's Tasks at a CCP

0352. The affected platoon's WO or sub-unit's Sergeant Major assigns the following **non-medical** tasks:

a. security for all-around defence and observation. Casualties with minor injuries should remain with their original elements or assist with CCP security if possible;

b. litter bearers [*see* paragraph 0353];

c. remove and manage casualties' non-essential equipment. Litter patients should be disarmed of weapons, explosives, sensitive stores, classified material, and tactical gear. Walking wounded will retain their weapons. Depending on the severity and location of wounds, patients should retain their personal protective equipment to include ballistic jacket, helmet, and CBRN individual protective equipment including respirator;

d. escort wounded prisoners;

e. track casualties into and out of CCP and report to higher command;

f. send the MEDEVAC Request (9-Liner) and track timings for incoming evacuation assets;

g. manage human remains; and

h. if available, TCCC trained soldiers to assist the medics.

0353. **Litter bearers** are personnel assigned by platoon WOs or the sub-unit Sergeant Major who locate and remove casualties to a safe place. They check or initiate first aid and transport the casualties or direct the walking wounded to the CCP. Once a casualty is brought to a CCP, litter

bearers from forward platoons immediately return to their platoon. Litter bearers are non-medical personal who, in addition to combat related first aid, may have TCCC training.

0354. The RSM should assign four litter bearers to the UMS when there are a high number of casualties.

0355. **Role 1 Medical Support to brigade units**. The following paragraphs describe the medical support for the various components of the Bde Gp. Elements of these units may be grouped as task-tailored BGs or Combat Teams, e.g., an infantry battalion may have an armour squadron attached. In these circumstances, the medical platoon would be task-tailored to include the medical element that normally supports the squadron. The CO of the Fd Amb will group and re-group medical elements as deemed necessary for the operation.

0356. A doctrinal Bde Gp has approximately 6500 personnel. [83]Smaller elements of the Bde Gp (e.g., Military Police Platoon) will not normally have assigned medical elements. Rather they receive HS through the nearest MTF.

a. **HQ and Signals Squadron**. The HQ and Signals Squadron has three troops to support the main, rear, and alternate HQs. The attached medical section consists of one medic Sergeant, one ambulance with two medics per troop, plus one medic for the Commander's Tactical CP. Medical elements in support of each troop will coordinate effort with the nearest UMS.

b. **Infantry Units**. There are three infantry battalions per Bde Gp. Infantry units may be mechanized or light. They may form the core element of a task-tailored BG. One or more infantry companies may be detached to an armoured regiment to form a BG.

c. In order to maintain their fighting effectiveness casualties must be rapidly cleared from the battlespace. This necessitates a highly flexible evacuation system and competent sorting at the UMS. In mounted operations there are normally two armoured ambulances, each with two medics, per sub-unit, plus two armoured ambulances at the UMS.

d. **Armoured Regiments**. An armoured regiment may form the core of a BG. An armoured squadron may be detached to an infantry battalion. The medical element attached to an armoured regiment is similar to the infantry battalion. There are two armoured ambulances in each squadron plus two armoured ambulances at the UMS.

e. **Brigade Reconnaissance Squadron**. The reconnaissance squadron is often employed at the troop level, with detachments geographically dispersed. It is not practical to allocate a Combat Medical Team to each troop. There are two armoured ambulances allocated to the Reconnaissance Squadron.

f. **Artillery Units**. Artillery units are usually deployed with considerable distances between batteries. Batteries may be in another unit's AO. Casualties are evacuated from the battery location directly to the nearest MTF, which may not be that of the parent unit. There is one armoured ambulance assigned to each battery, plus two armoured ambulances at the UMS.

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[83] Canadian Army Command and Staff College *Staff Officer's Handbook*

g. **Combat Engineer Regiment**. Engineer elements often move in and out of other units' AOs. Evacuation of patients will often be to the nearest MTF rather than back to the Engineer Regiment UMS. One armoured ambulance is allocated to each squadron as well as two armoured ambulances at the UMS. An Advanced Dive Medicine qualified physician should either be with the medical platoon or available through the BMS.

h. **Electronic Warfare Squadron**. Elements of the electronic warfare squadron may be dispersed in other units' AOs. Evacuation is to the nearest MTF. It has one armoured ambulance. It does not have a UMS.

i. **Tactical Aviation Squadron**. The tactical aviation squadron is not organic to a CMBG, but may be attached. The medical platoon assigned to a Tactical Aviation Squadron includes a Flight Surgeon for aircrew medical examinations and investigations, and the medical aspects of flight safety. It will include one or more Combat Medical Teams who are able to deploy forward to a Forward Arming and Refueling Point (FARP). It has two light ambulances at the UMS. The medical platoon includes three two-person medic Fwd AE teams.[84] On some operations the Fwd AE capability may be augmented from Div resources to include advanced pre-hospital emergency care with a physician and critical care nurse.

j. **Service Battalion (Svc Bn)**. The Bde Gp Svc Bn is based in the BSA; however, it operates throughout the Bde Gp AO delivering commodities or recovering equipment, and may have a Forward Logistics Group outside the BSA. Logistics convoys and recovery teams in a non-contiguous battlespace require the support of one or more Combat Medical Teams, particularly in operational environments with non-contiguous areas of operation or dispersed forces. Four armoured ambulances are assigned to the Svc Bn. One of these armoured ambulances will support the Svc Bn's Quick Reaction Force, when formed.

0357. **Independent sub-unit**. Some independent sub-unit sized elements of the Bde Gp may have only one or two medics and/or ambulances (e.g., Reconnaissance Squadron). For clinical professional-technical reasons these medics must be responsible to a physician from one of the first line medical platoons.

0358. **Division Troops attached to the Bde Gp or within the Bde Gp area of operations**. The Div may allocate force elements to support a Bde Gp, (e.g., an Anti-Armour Company or Ground Based Air Defence). Div troops may be dispersed throughout the Bde Gp battlespace.

0359. When attached to a Bde Gp some Div troops will come with the medical element that it would normally have allocated from the Div Med Bn, (e.g., the Anti-Armour Company has one armoured ambulance attached). Div troops without attached medical elements receive medical support on an area basis the same a Bde Gp elements that do not have dedicated medical elements.

0360. **Combat supply**. First line medical platoons receive their combat supplies through the supported unit's daily replenishment system. The medical platoon warrant officer (WO) coordinates any non-routine requests with the supported unit's supply platoon.

[84] These medics have the Forward Aeromedical Evacuation Specialist qualification.

0361. **Medical supply**. The medical platoon carries three days of medical supply as its basic load.[85] The platoon WO manages all medical supply within the medical platoon and the supported unit. This includes supplies for the UMS, Combat Medical Teams, ambulances, and a DCR Team when one is attached.

0362. Combat Medical Teams at the sub-unit level identify requirements, including the replenishment of individual[86] or vehicle first aid kits and TCCC items, and send the demand to the medical platoon WO. The WO consolidates the demands and sends it to the Bde Pharmacy.

0363. Medical replenishment may be transported to the unit by ambulances moving forward from the BMS, or it may be moved on the daily replenishment convoys conducted by the Bde Gp Svc Bn to the supported unit. The latter requires coordination between the Bde Pharmacy and the Svc Bn.

0364. Medical replenishment of sub-units will be by ambulances moving forward from the UMS or through routine replenishment conducted by the supported sub-unit quartermaster sergeants.

0365. Occasionally a dental team maybe deploy to a unit location (usually during quiet periods or when in rear areas). In these circumstances any dental replenishment is requested through the medical platoon WO in the same manner as any medical supply.

0366. **Biohazardous waste**. Biohazardous waste must be clearly marked as such and is back loaded in the same manner as any other garbage through the supported unit's transport platoon.

0367. **Repair and recovery**. Repair and recovery is coordinated through the supported unit's maintenance platoon.

0368. **Medical equipment maintenance**. The medical platoon WO ensures that operator checks are conducted on all medical equipment within the UMS and ambulances as per equipment operator's manuals which identify the required frequency of checks. Also, prior to each mission equipment function checks are conducted.

0369. When equipment is non-serviceable, the repair and replacement of medical equipment is requested through the Bde Pharmacy via the IS Med Coy HQ. Items will be transported either through the ambulance shuttle system or through the supported unit's daily replenishment system, whichever is applicable.

0370. **Medical property exchange**. The medical platoon WO manages property exchange in the evacuation chain within the unit boundaries. See paragraph 0585 for information on medical property exchange.

Close Support Medical Company (CS Med Coy)

0371. **General**. CS Med Coy provides formation level Role 1 medical support to the Bde Gp. It consists of second line medical platoons (one of which is capable of forming a casualty decontamination centre (CDC)), a BMS enhancement section, and DCR Teams.

0372. Elements of CS Med Coy may be located throughout the battlespace, e.g., in the BSA, staging facilities along the lines of evacuation, a medical section in support of the Bde Gp PW

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[85] The quantity of supplies a unit or formation is designed to hold and move without external assistance for its own use (DTB, record 229). Note: In Army doctrine, this is usually combat supplies for three days.

[86] In accordance with AMedP-8.7 *First Aid Dressings, First Aid Kits and Emergency Medical Care Kits* and ABCANZ Standard 2121 *Pre-Hospital Combat Casualty Care Standards for ABCANZ Soldiers* every soldier should have an individual first aid kit issued.

cage, or a CDC as part of a Bde Gp decontamination centre. If the Bde Gp Svc Bn establishes a Forward Support Area or Forward Logistics Group medical elements from one of the platoons may be attached.[87]

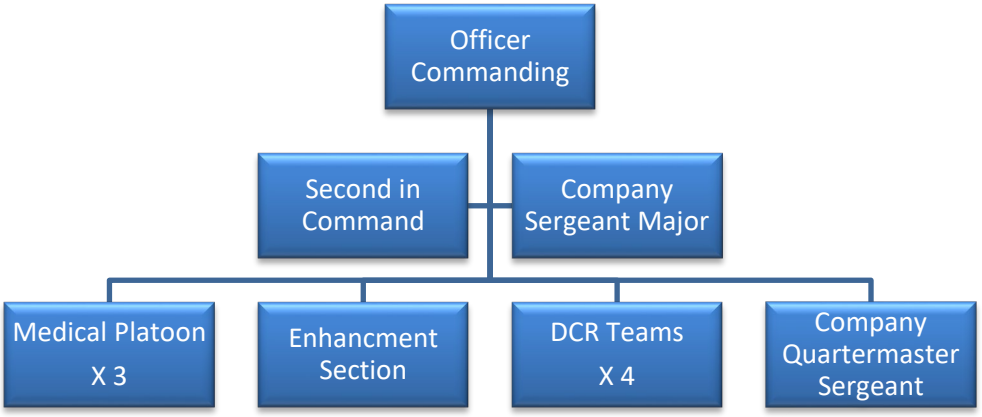

Figure 3.6 Close Support Medical Company Organization

0373. **Tasks**. The CS Med Coy is responsible for the following:

a. establishing the BMS and providing area coverage to elements in the BSA;

b. when required, establishing staging facilities along MEDEVAC routes between UMSs and the BMS in collaboration with Evac Coy elements [*see* Chapter 6 MEDEVAC];

c. providing logistical and administrative support to a surgical capability when attached;

d. providing initial mental health treatment;

e. providing medical coverage for the Bde Gp prisoner of war/detainee holding facility;

f. when required, establishing an isolation holding facility for infectious patients;

g. preparing patient movement request (PMR)[88], for tactical evacuations;

h. reinforcing first line medical platoons for specific tasks, e.g., opposed obstacle crossings, at a FARP, etc;

i. providing replacement personnel and equipment to first line medical platoons; and

j. providing a patient decontamination platoon either independently or to the Svc Bn when a CBRN decontamination capability is required.

0374. **Company headquarters**. The OC is a physician (this physician is not double-hatted as the Bde Surg). The Company HQ has no CP and it usually collocates with the Fd Amb HQ. The company 2IC is responsible for the administration of the company, maintaining situational awareness of unit operations, and patient tracking.

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[87] See B-GL-345-002/FP-001 *Service Battalion in Operations* for more information.
[88] PMRs are used to initiate tactical or strategic evacuation. Bulk PMRs are used when there is a large volume of patients.

Second Line (Formation) Medical Platoons

0375. **General**. Second line medical platoons provide the formation-level Role 1 capability. There are three identically configured platoons. Each medical platoon is composed of a small command element and two medical sections. Each medical section can be further sub-divided to provide two medical detachments. When a physician, or PA, and a senior medical technician are attached to a detachment, it can augment or replace a UMS. The third platoon is additionally trained and equipped for patient decontamination [*see* paragraph 0385].

0376. **Composition**. All of the non-commissioned member positions are medics.

Position	Rank	Remarks
Platoon Commander	Captain	Health Care Administration Officer (HCA)
Physician	Captain	General Duty Medical Officer
Physician Assistant	Lieutenant	
Platoon WO	WO	
Platoon HQ drivers	1 x Corporal 1 x Private	Signaller Storeman
Medical Section (per section)	1 x Sergeant 2 x Master Corporal 2 x Corporal 9 x Private	There are two identical medical sections Each section can sub-divide into two medical detachments

0377. **Brigade medical station (BMS)**. The BMS provides Role 1 clinical capabilities above what is found in a UMS. It provides medical care to units in the BSA which do not have their own UMS. It includes a limited holding capability for patients convalescing from illness or awaiting further evacuation. It prepares patients for further evacuation. The BMS is capable of holding 10 non-critical, non-surgical patients.

0378. One platoon establishes a BMS which is normally located in the BSA. In mobile operations, the second platoon is used to leapfrog forward or rearward to establish a BMS at a new site in order to keep evacuation distances as short as possible.

0379. **BMS enhancement section**. With a view to decreasing the number of patients that have to be evacuated rearward, a small element of clinical capabilities that previously were in Role 2s or higher are now pushed further forward in the battlespace. This section will be attached to whichever platoon forms the BMS. The sub-sections are:

a. **Mental health team**. One Mental Health Nurse and one Social Worker provide initial mental health services for Bde Gp personnel. Based at the BMS they could be moved forward for a short duration on an as required basis;

b. **Physiotherapy**. One physiotherapist and one medic provide initial physiotherapy services for Bde Gp personnel. Based at the BMS, they could be moved forward for short durations on an as required basis;

c. **Diagnostics**. Two Medical Laboratory Technologists and two Medical Radiation Technologists provide an initial diagnostic capability. This section uses equipment more mobile than what is found in a Role 2 MTF; and

d. **Nursing/holding**. In static operations, or when evacuation is delayed, there is a requirement to hold patients within the BMS. Two General Duty Nursing Officers lead this capability.

0380. **Senior Nursing Officer (SNO)**. One of the General Duty Nursing Officers within the Enhancement Section will be designated the SNO. In addition to being overall responsible for holding care in the BMS the SNO is responsible for providing professional-technical supervision of care and administration for all occupations delivering nursing care within the Fd Amb, advising on infection control, promoting ethical standards of care, and advocating for patient well-being. The SNO provides clinical nursing input to the chain of command for operational planning and resource management, and has direct liaison with Bde Surg to advise on patient care and staffing concerns within the Fd Amb.

0381. **Staging facilities**. The tactical situation or the distances between the UMSs and the BMS may make for extended evacuation timelines. During lengthy MEDEVACs patients may be temporarily admitted to a staging facility where care is provided until evacuation can be resumed. Medical detachments or sections from the second medical platoon can be deployed independently to operate staging facilities along the evacuation route, or the whole platoon can be employed. A staging facility may be augmented with a physician or a DCR Team. A staging facility may be co-located with an Ambulance Exchange Point [*see* paragraph 0577].

0382. **Minimum care isolation holding capability**. In instances of communicable disease outbreak, a holding capability may be required to isolate infected patients from the healthy population. This could be in situations from gastro-intestinal type illnesses, such as Norwalk Virus, or pandemic situations such as SARS, MERS or COVID-19. The purpose of this facility is to alleviate stress on Role 2 and 3 MTFs by routing minimum care patients to this facility. It may be set up independently or in proximity to a BMS, Role 2 or 3 MTF. It may be required in any type of operation from support of civilian authorities on domestic operations to warfighting.

0383. The capacity of an isolation holding capability may vary depending on the expected number of patients. This capability will normally be force generated from elements of a second line medical platoon. It will require nursing augmentation. See paragraphs 0464-0466 for additional information.

0384. If a soldier is advised to self-isolate this is done in unit lines not medical lines.

0385. **Patient decontamination platoon**. The patient decontamination platoon includes personnel with special CBRN training in casualty decontamination and CBRN medicine. Its composition is similar to the other medical platoons in the company but it has the increased scale of issue for a CDC.

0386. When required for casualty decontamination operations (either hasty or planned, in conjunction with a Svc Bn or alone) they will be augmented by personnel from the BMS Enhancement Section and some non-clinical general duty personnel from elsewhere in the Fd Amb or Bde. See AJMedP-7 *Allied Joint Medical Doctrine for Support to Chemical, Biological, Radiological, and Nuclear (CBRN) Defensive Operations* for more information on the operation of the patient decontamination platoon.

0387. When not required for a CDC, the patient decontamination platoon is used as a regular medical platoon.

0388. **Damage control resuscitation (DCR) team**. There are four DCR Teams of four personnel with specialized skill sets and equipment, most notably blood products. They provide non-surgical

advanced trauma care. Depending on the casualty estimate, and time and space, these teams can be positioned forward in the battlespace in order to ensure that the time from traumatic injury to advanced medical care is minimized. Placing a DCR Team forward provides an opportunity to extend the evacuation timelines.[89]

0389. Individuals from the teams may be required to assist with the evacuation of critical care patients. On long evacuation routes DCR Teams may augment staging facilities.

0390. When DCR is required forward, the DCR Team is attached to a UMS for specified periods of time. It has no holding capacity and is highly dependent on a robust MEDEVAC system with an en route critical care capability. When not required forward, the DCR Teams work in the BMS.

0391. The DCR Team has integral vehicles and shelters, but may be moved by aircraft (i.e., airborne operations). It requires combat supplies (food, water, rations, etc) and security from the unit to which it is attached.

Example of use of a DCR Team: When conducting the medical estimate in support of a Bde Gp river crossing operation, the CO of the Fd Amb determines that there will likely be a high number of casualties at the forward left BG and that there may be long evacuation routes, with no possibility of using Fwd AE. With a view to achieving the objectives of the treatment timelines the CO decides to push one DCR Team to the BG UMS and another to a staging facility along the evacuation route.

0392. **Company Quartermaster Sergeant (CQMS)**. Under the supervision of the Company Sergeant Major (CSM), the CQMS manages combat and medical supplies for the company. The CQMS delivers medical supplies when conducting replenishment of combat supplies. The CQMS coordinates with each Platoon WO for the time and location of replenishment for each platoon. Each Platoon WO ensures the replenishment of any forward detachments (e.g., staging facility).

0393. Sub-elements such as a staging facility may be co-located with some Evac Coy assets. To avoid duplication of effort CQMSs and Platoon WOs from each company must coordinate deliveries when elements are co-located.

0394. If a CS Med Coy element is attached to another Bde Gp unit (e.g., a medical section attached to the military police platoon in support of a Bde PW cage, the medical platoon attached to the Svc Bn's CBRN decontamination facility) it should receive combat supplies from that unit. The attached for daily administration relationship must be clearly identified in orders. Medical supplies remain a Fd Amb responsibility.

0395. **Human remains**. The CQMS retrieves and holds human remains of company personnel or patients who die while in the care of the company until they can be transferred to Svc Coy or the Svc Bn [*see* paragraph 0228].

0396. **Biohazardous waste**. Biohazardous must be clearly marked as such and is back loaded in the same manner as any other salvage through the Svc Coy.

0397. **Medical equipment maintenance**. The Platoon WO ensures that operator preventive maintenance checks are conducted on all medical equipment within the platoon. The Platoon WO manages requests for repair and replacement of medical equipment through the Bde Pharmacy.

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[89] The Standing Committee on Operational Medicine Review is developing the DCR Team concept of employment, personnel, equipment, supplies, and vehicle requirements. Once refined, this doctrine will be updated.

Items will be transported either through the ambulance shuttle system or through the daily replenishment system.

Brigade Pharmacy

0398. The **Brigade pharmacy** is a direct report to the CO. It includes two Pharmacy Officers, including the Bde Pharmacy Officer, personnel trained in medical and dental supply procedures, the blood stores for the Bde, a UAS detachment for blood/small medical supply delivery, and three Biomedical Electronics Technologists. The Bde Pharmacy holds the unit basic load of medical stores not otherwise on distribution to sub-units, and the medical supply maintenance load[90] for the supported formation. The Bde Pharmacy tasks include:

a. providing clinical pharmacy services to the BMS and dental platoon;

b. when static / semi-static, operating the Bde dispensing pharmacy;

c. management of Class VIII items and the Class VIII distribution accounts;

d. management and replenishment of blood and blood products;

e. providing medical supply support to a Role 2B and/or FST when these are attached to the Bde;

f. providing medical replenishment to all Bde elements, to include individual and vehicle first aid kits, and TCCC supplies;

g. advising the CO and Bde Surg on priorities for the procurement, distribution and repair of medical equipment and supplies. This include participation in HS planning processes with the command team;

h. conducting repair and preventive maintenance of medical and dental equipment;

i. providing medical supply sterilization services;

j. holding one day of medical supply as the maintenance load for the Bde to include supplies for a FST or Role 2B if attached (see Chapter 6 for information on days of medical supply);

k. coordinating second and third line repair and replacement of medical and dental equipment;

l. advising Bde Logistics staff and the Svc Bn regarding the special handling requirements of medical supplies and equipment; and

m. managing the blood and medical supply delivery drones.[91]

0399. For medium and high intensity operations the pharmacy will have a portable oxygen generation system capability. For low intensity operations oxygen supply may be arranged through a supporting Role 2 or 3 MTF, an FMED, other nation or contracted solution.

03100. If a surgical capability is part of a task-tailored HSU the Bde Pharmacy may require augmentation.

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[90] One day of medical supply.
[91] This capability to be developed.

Evacuation Company (Evac Coy)

03101. **General**. The Evac Coy provides ground MEDEVAC between the UMSs and the BMS. It consists of two armoured and two light ambulance platoons. Evacuation rearward of the BMS is the responsibility of the next higher formation's medical elements. First line ambulances that belong to units are **not** part of Evac Coy.

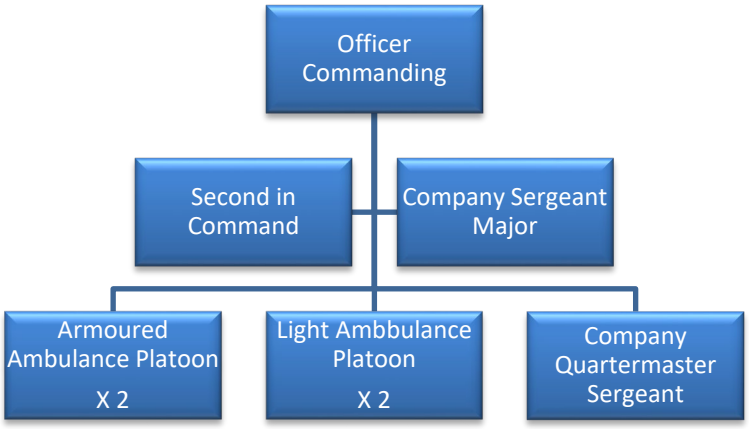

Figure 3.7 Evacuation Company Organization

03102. **Tasks**. The Evac Coy is responsible for:

a. surface evacuation (road and off-road) of patients from UMSs to the BMS or Role 2 MTF;

b. C2 of all evacuation resources organic and assigned to the Fd Amb;

c. liaison with supported units;

d. operation of the unit alternate CP. This includes acting as step-up CP during moves of the Fd Amb HQ;

e. emergency short-term replacement of ambulance assets in first line units;

f. transportation of medical replenishment for forward elements;

g. medical property exchange;

h. light rescue of casualties from vehicles;

i. operational level decontamination tasks;

j. responding to MASCAL events;

k. incorporating/organising/commanding additional non-medical assets to provide MEDEVAC support to MASCAL events; and

l. replenishment of medical and combat supplies of coy sub-elements [*see* paragraphs 03142-03145].

03103. **Company headquarters**. The OC is an HCA. The Evac Coy HQ consists of a command section and a CP. Since Evac Coy acts as the unit alternate HQ it is equipped with the same communication capability as the Fd Amb HQ.

03104. **Evacuation platoons**. Each platoon HQ can provide personnel, vehicles and communications for two Ambulance Control Points. Each platoon includes a storeman for combat

supplies, medical supply and property exchange items. See chapter 5 for details on ground evacuation. The platoon WO manages the replenishment of dispersed platoon elements.

03105. **Ambulances**. In accordance with NATO standardization ambulances should be able to carry four non-urgent litter patients, one critical patient, or six seated patients. Ambulances require the same mobility, night-vision, protection, CID, and communications as the element they support.

03106. **Armoured ambulance platoons.** There are two platoons, each with two sections of four armoured ambulances (crewed by three medics including the driver).

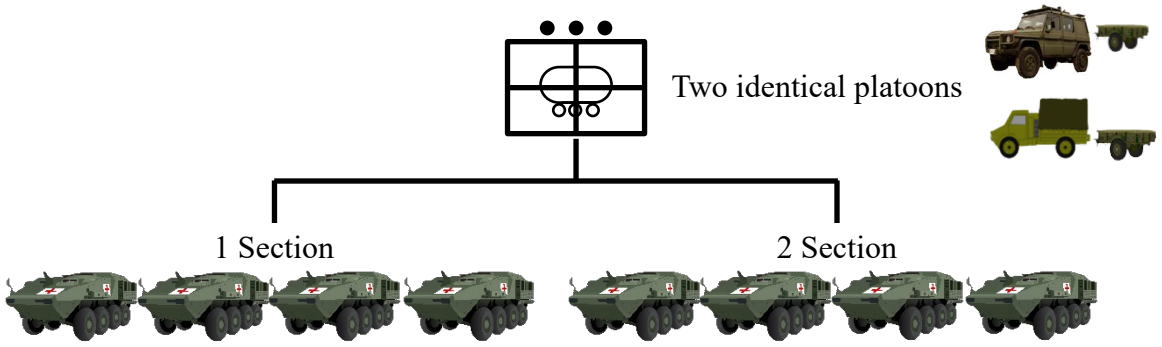

Figure 3.8 Armoured Ambulance Platoon

03107. **Light ambulance platoons.** There are two platoons, each with two sections of four light ambulances (crewed by two medics). Depending on the terrain, threat, force protection, concept of operations, etc, the Light Ambulance Platoons may not be suitable everywhere in a Bde Gp AO. These platoons may have to be replaced by additional Armoured Platoons from Div or higher.

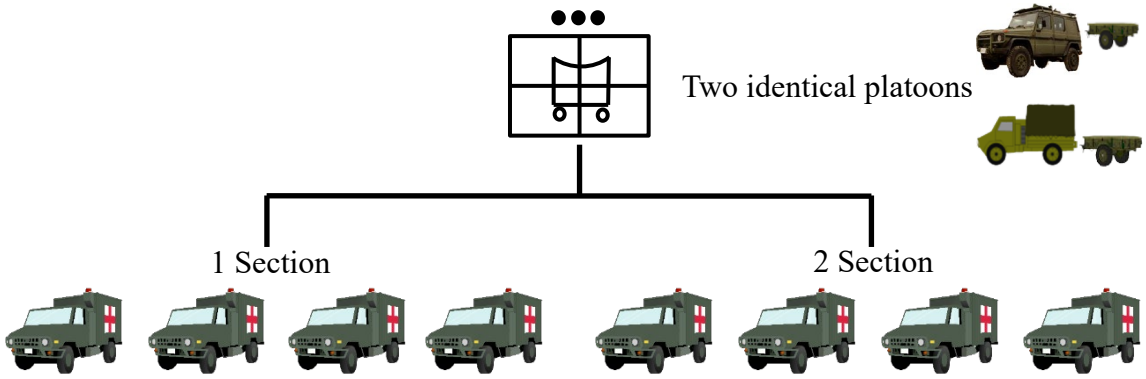

Figure 3.9 Light Ambulance Platoon

03108. **Sustainment of Evac Coy**. The sustainment of medical and combat supplies for elements of Evac Coy is a challenge. Elements may be dispersed throughout the Bde AO between the rear of the forward units, along the chain of evacuation, and within the BSA. Sub-elements of CS Med Coy such as a staging facility may be co-located with some Evac Coy assets. To avoid duplication of effort Evac Coy and CS Med Coy coordinate the delivery of medical and combat supplies when elements are co-located.

03109. **Company Quartermaster Sergeant**. The CQMS manages combat supplies for the company. The CQMS also manages the medical supplies and equipment, and the medical property exchange items for the ambulance platoons. It includes one medic designated the Rescue Storeman [see below].

03110. Due to the number of ambulances, the wide dispersion of Evac Coy elements throughout the breadth and depth of the Bde AO and the frequent movement of ambulances, the CQMS section includes two jerry-can petroleum, oils, and lubricants (POL) cargo vehicles.

03111. The CQMS coordinates with each ambulance platoon for the time and location of the delivery or pick up of supplies. When tactically feasible, the CQMS may arrange for hot meals or fresh supplements from the Fd Amb food services section as part of the daily replenishment.

03112. **Human remains**. The CQMS retrieves and holds human remains of company personnel or patients who die while in the care of the company until they can be transferred to Svc Coy or the Svc Bn.

03113. **Rescue stores**. Accidents, natural events, or the effects of enemy munitions on vehicles and structures can result in non-standard situations where personnel are injured and medical care is impeded by the inability to access the casualty. The rescue stores vehicle is under command of the CSM and is manned by a medic storeman. It contains basic stores to assist in light extrication operations and light complex rescue options. It carries additional medical supplies for MASCAL operations and stores for establishing an HLS.

03114. Rescue Stores is equipped only for light extrication operations and problems. Medium or heavy extrication (especially in armoured vehicles or structure collapse) operations will require additional support from mobile recovery teams and/or combat engineers. Rescue Stores are not designed to become committed to trench collapse rescue, hazardous material incidents, confined space rescue, swift water rescue, ice rescue, urban search and rescue, or high angle rescue situations. These events require specialist support outside of the capabilities of the Fd Amb.

03115. Rescue Stores carries equipment to execute operational decontamination[92] operations whilst waiting for the establishment of a CDC by CS Med Coy. This includes detectors (radiological and chemical), austere and simple decontamination stores and decontaminate. The procedures and level of effort depends on the degree of contamination and the agent/contaminant(s) faced. For more information see B-GJ-005-311/FP-020 *Canadian Forces Chemical, Biological, Radiological and Nuclear Defence Tactics, Techniques and Procedures*.

Dental Platoon

03116. **General**. The role of the dental platoon is to provide Role 1 dental care to the Bde Gp. Treatment of maxillofacial wounds is undertaken in Role 2 or 3 MTFs. The dental platoon commander is the brigade dental advisor and has direct access to the commander on dental matters. The platoon is commanded by a Dental Officer Major and consists of four three-person dental teams in mobile dental vehicles.

03117. The scope and volume of dental support increases as one moves rearward within the battlespace. Personnel engaged in combat require only those aspects of dental support that are essential for the treatment of debilitating dental emergencies and battlefield wounds. Less serious emergencies are not permitted to interfere with the operational mission. The bulk of dental care is provided when personnel are not actively engaged in combat and when the threat of combat is low.

03118. **Tasks**. The tasks of the dental platoon are to:

a. maintain oral health and prevent dental disease;

[92] Decontamination restricted to specific parts of operationally essential assets and/or working areas, carried out in order to sustain operations (DTB, record 4979).

b. provide emergency and routine dental treatment within the capabilities of the dental platoon and arrange the evacuation of those patients who require care beyond the scope of platoon resources;

c. manage dental equipment and supplies;

d. provide advice on dental matters; and

e. provide assistance in forensic odontology.

03119. **Employment**. The dental platoon is normally employed in the BSA. Dental teams may be dispersed within the BSA in order to increase accessibility. If the operational situation permits, dental teams may deploy forward to co-locate with a UMS for short durations.

03120. **Dental supply**. The dental platoon carries three days of dental supply as its basic load. The platoon WO manages all dental supply matters within the platoon. The WO consolidates demands from the dental teams and sends it to the Bde Pharmacy.

03121. If a dental team is temporarily deployed to co-locate with a UMS in a forward unit, the team submits dental replenishment requests through the medical platoon WO who sends a consolidated request to the Bde Pharmacy as part of the daily or emergency replenishment process.

03122. **Combat supplies**. If a dental team deploys to a forward unit it should receive combat supplies from that unit. The attached for daily administration relationship must be clearly identified in orders.

03123. **Dental equipment maintenance**. The dental platoon WO ensures that operator checks are conducted on all dental equipment as per equipment operator's manuals which identify the required frequency of checks. When equipment is non-serviceable, the repair and replacement of dental equipment is requested through the Bde Pharmacy.

Service Company (Svc Coy)

03124. **General**. The Svc Coy provides first line support for all Fd Amb elements, less those elements detached to other units since they normally have an "attached for daily maintenance" administrative relationship with the supported unit.

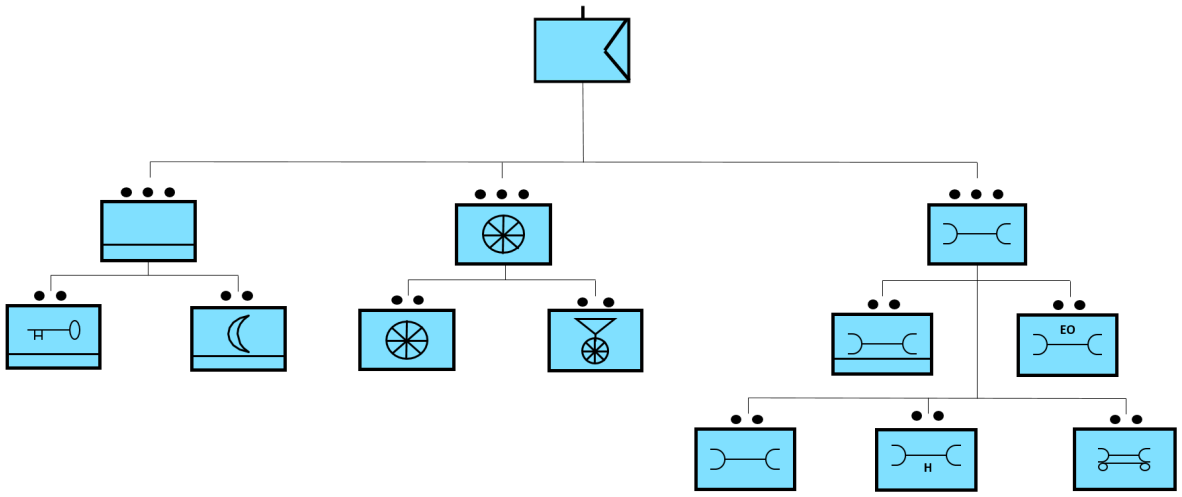

Figure 3.10 Service Company

03125. **Tasks**. The Svc Coy is responsible for:

a. the provision of transport, maintenance, recovery, supply (less Class VIII), and food services to all sub-units;

b. the coordination of all logistic aspects with the Svc Bn and Bde Gp HQ G4 staff;

c. the development of Fd Amb movement orders, in conjunction with the HQ Operations cell;

d. logistics and maintenance reports and returns;

e. participating in Svc Bn Logistics Operations conferences; and

f. providing personnel for general duty and clinical tasks during a MASCAL situation.

03126. When the Fd Amb forms the basis of a HSU which includes Role 2 elements the Svc Coy will require augmentation due to the specialized equipment, water and power requirements of those elements.

03127. **Company headquarters**. The Svc Coy HQ is commanded by an HCA major with a captain HCA as the Coy 2IC. The CSM is a Material Management Technician Master WO who also provides advice on material management and supply issues to the Quartermaster, Regimental Quartermaster Sergeant, OC Svcs Coy and CO as required. The HQ:

a. runs a control office (C/S 8) and monitors the Bde Administration net (C/S 15-8, pronounced fifteen-eight) on a 24/7 basis;

b. advises the CO on all CSS matters;

c. prepares the unit combat service support plan;

d. maintains technical liaison with the Svc Bn and Bde Gp G4; and

e. coordinates the replenishment and maintenance programs for the unit.

03128. When not otherwise engaged in platoon level functions, the maintenance officer, quartermaster, and transport officer work out of C/S 8.

03129. **Minimize offloading**. To increase mobility and survivability commodities should remain on vehicles as much as possible. Offloading will only occur if ordered by the CO.

03130. In lower intensity missions such as peace support operations, the Fd Amb may not have its own first line support. Rather, this may be a provided by a Svc Bn or Joint Task Force Support Component.

03131. **Maintenance Platoon**. The maintenance platoon provides first line repair and recovery of the unit's land technical equipment. The operational readiness of the unit's equipment is achieved through the design and application of a strong maintenance plan that establishes an effective preventive maintenance program as well as timely corrective maintenance.

03132. The platoon consists of a HQ with tool crib and spare parts supply, an ancillary repair section with electro-optical, weapons, and material mobile repair teams (MRT), a light maintenance section with four MRTs, a heavy section with one heavy and one armoured MRT, and a recovery section with one armoured mobile recovery vehicle (MRV) and two wreckers. The platoon is commanded by a Royal Canadian Electrical Mechanical Engineer captain, the unit Maintenance Officer;

03133. The platoon tasks include:

a. providing maintenance advice to the CO;

b. providing technical advice and direction on maintenance matters affecting the reliability and availability of equipment;

c. preventive and corrective maintenance, including periodic equipment inspections;

d. recovering vehicles up to and including armoured ambulances;

e. recovering vehicles to the formation equipment collection point;

f. providing first line vehicle, weapon, materiel, electro-optic, tire, and battery maintenance;

g. holding first line spare parts, special tooling, and tire assemblies; and

h. detaching mobile repair teams to sub-units when necessary, e.g., MRVs and MRT may be detached to Evac Coy.

03134. **Field Workshop**. In periods where the Fd Amb may be static for periods of time the establishment of a unit-level field workshop may be authorized. Power generation, a maintenance shelter, a welding trailer and where tactically permissible a lighting tower are provided for this purpose.

03135. **Repair and recovery**. MRT and recovery teams will operate in pairs wherever the requirement dictates working on the principle that vehicles, particularly ambulances, will be repaired in situ whenever possible.

03136. Due to the depth and breadth of the Evac Coy AO and the armoured ambulances, there is an armoured MRV for use in forward areas. Recovery from the forward areas will be to a handover location in a safe area where a vehicle casualty is handed over to the wrecker for return to the maintenance platoon field workshop or second line.

03137. **Logistics Platoon**. The logistics platoon is commanded by a Royal Canadian Logistics Service captain, the unit Quartermaster. It has two sections – supply (the Regimental Quartermaster) and food services. The platoon's tasks include:

a. holding one day of supply (DOS) of ammunition and hard rations for the entire Fd Amb;

b. holding 15 DOS of general and technical stores;

c. holding maintenance load of blankets (120);

d. providing fresh and/or combat rations as directed;

e. providing limited local purchasing capabilities if required;

f. holding human remains while awaiting movement from the Fd Amb to the Svc Bn;

g. managing personal and clinical laundry for the unit (laundry is conducted by the Svc Bn);

h. coordinating the delivery to the Svc Bn of any weapons, ammunition, equipment and personal effects taken from patients;

i. disposal of personal effects of missing or dead personnel; and

j. managing the defensive stores for Svc Coy which are carried by transport platoon.

03138. The food services section is commanded by a cook WO who is appointed the kitchen officer. It includes the personnel, vehicles, trailers and equipment to provide fresh rations for up to 400 Fd Amb personnel (IS Med Coy personnel are fed by their supported unit when detached). Sub-units do not have their own kitchen trailers. There may be a requirement to feed up to 30 non-critical, non-surgical patients (no special feeding requirements) periodically held in the BMS.

03139. **Haybox operations**. Depending on the tactical situation, the goal is to provide a minimum of one hot meal per day for forward elements. Hot meals for forward elements are arranged through the Evac and CS Med Coy CQMSs.

03140. **Transport Platoon**. The transport platoon is commanded by a HCA captain with a Mobile Systems Equipment Operator as the platoon WO. The platoon's tasks include:

a. providing a pool of vehicles for cargo movement tasks;

b. carrying one DOS of POL and water for the unit;

c. executing the unit daily replenishment to include Class VIII stores;

d. coordinating unit level road moves and signing routes as required;

e. retrieving human remains from Fd Amb sub-units and moving them to the Supply Platoon for holding or transfer to Svc Bn during the replenishment cycle;

f. managing waste to include biomedical waste and back loading to the Svc Bn;

g. holding defensive stores on behalf of supply platoon; and

h. picking up mail and delivering it to the unit orderly room for sorting. Then, once sorted, delivering it to forward elements during daily replenishment.

Sustainment of the Field Ambulance

03141. **Unit-level sustainment of non-HS equipment and supplies**. B-GL-300-004/FP-001 *Sustainment of Land Operations* describes how unit-level sustainment is conducted for the Fd Amb. It includes information on logistics estimates and sustainment planning factors. Svc Coy coordinates with the Svc Bn for all unit-level sustainment. For more detail on the sustainment of HS equipment and supplies see Chapter 6 below.

03142. **Sub-unit sustainment**. The sustainment of sub-units is a combination of push replenishment[93] and pull replenishment.[94] While some commodities have very consistent usage (e.g., rations), the uncertainties of operations create conditions that make it difficult to predict the requirement for other commodities (e.g., ammunition).

03143. Replenishment can be achieved through a number of methods including delivery points, commodity points, direct delivery or direct pick-up by the unit or sub-unit.[95] The sustainment cycle can be applied to forward or rearward (e.g., equipment backloading[96] and salvage) flow of materiel. Options for conducting the replenishment of sub-units are:

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[93] The automatic issue of materiel based on established administrative or operational procedures (DTB, record 19630).
[94] The issue of materiel based on requests from units and formations. Note: The requests may be routine or emergency requests (DTB, record 695241).
[95] See B-GL-300-004/FP-001 *Sustainment of Land Operations*.
[96] The rearward evacuation of equipment casualties within a logistic system (DTB, record 15678).

a. transport platoon delivers commodities to where the sub-unit CQMS is located;

b. the CQMS goes to the Svc Coy location to pick up commodities;

c. transport platoon and the CQMS meet at a third location. When possible this will be a combined location with Evac Coy and any CS Med Coy elements that are forward;

d. vehicles of opportunity move supplies forward. This might be empty ambulances leaving the BMS or the CO or OC's rovers visiting forward elements; and

e. piggyback on other units conducting their own replenishment if co-located with Fd Amb forward elements.

03144. Svcs Coy coordinates with sub-units for the location and timings for deliveries.

03145. The sustainment of medical supplies to forward elements (to include an FST if attached) will often be combined with the sustainment of other supplies, particularly during periods when there is minimal ambulance shuttle activity. Svcs Coy and the Bde Pharmacy must coordinate the delivery of medical supplies in time with routine sustainment activities. The Bde Pharmacy must advise transport personnel of any special handling requirements (e.g., temperature control, dangerous goods, blood, narcotics, etc).

03146. **Basic Load**. The basic load held by the unit represents the amount required to give the unit a limited degree of self-sufficiency to operate for a specific period of time without replenishment. The quantity of each commodity held will vary depending on the nature of the mission, the environment, etc.

03147. The basic load should be sufficient to cater to temporary disruptions to normal replenishment. Three DOS combat supplies and 15 DOS of general and technical stores are the initial planning figures as this is normally the maximum a unit can carry without unduly affecting mobility. The basic load is normally dictated by the Bde Gp taking into account distances to be travelled, consumption rates, and the intensity of combat anticipated.

03148. Normal holdings of combat supplies is - one DOS on soldier or vehicle, one at sub-unit, and one at Svc Coy.

Coordination at the Brigade Level

03149. **General**. Elements of the Fd Amb usually deploy within an area that is controlled by other units. For example, the Svc Bn controls the BSA. Fd Amb elements in the BSA will be under tactical control to the Svc Bn for defence, rear area security, and movement.

03150. The evacuation of casualties from the forward units requires the movement of vehicles and the deployment of medical resources (e.g., ambulance control point, staging facilities, etc) in forward areas of the Bde Gp AO. These activities must be coordinated with the battlespace owner(s). [97] See Chapter 5 for evacuation planning considerations.

03151. **Allocation of real estate and routes**. The allocation of real estate and routes is an operational prerogative and is done in accordance with the commander's priorities. Medical units and formations must be prepared to compete with a variety of conflicting operational needs. With

[97] The battlespace owner is the unit or formation responsible for the prioritization, coordination, and de-confliction of activity across all dimensions within an assigned area of operations.

a view to achieving the 10-1-2(+2) treatment timelines, HS commanders and staff must ensure that operational planners consider medical real estate and routes requirements before plans are issued.

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Chapter 4
Role 2 and 3 – Deployed Surgical Capability

Section I - General

0401. Patients requiring clinical treatment above what is available in a Role 1 MTF are evacuated to a Role 2 or 3 MTF. These facilities have enhanced diagnostics, surgical capabilities, and clinical specialties. Generally, both the capability and capacity of MTFs increases the further to the rear in the battlespace, and their mobility decreases [*see* Section II for definitions of Role 2 and 3].

0402. As a general rule, as treatment capabilities and capacities are increased, it is at the price of increased requirements for complex equipment, personnel and supplies, which in turn requires increased geographical footprint, lift, power generation, and other support requirements.

0403. The two essential types of surgery conducted in the battlespace are:

a. **damage control surgery (DCS)** which is defined as, "a surgical intervention where the completeness of the immediate surgical repair is sacrificed to achieve haemorrhage and contamination control, in order to avoid a deterioration of the patient's condition. Notes: 1. The deterioration of a patient's condition is the result of the initial trauma combined with possible physiological consequences of surgery. 2. Depending on the specific and individual requirement the aim is to be able to provide damage control surgery within 1 hour but no later than 2 hours of wounding."[98]

b. **primary surgery**[99] should follow DCS as soon as the patient can be appropriately stabilized for MEDEVAC and as the operational situation permits. Some techniques and procedures of specialized surgery might be necessary to save life, limb or function, or to stabilize the patient's condition within a limited timeline. Primary surgery is conducted at Role 2E or Role 3 MTFs. It may include specialised surgery such as neurosurgery.

0404. Role 2 and 3 MTFs will normally form part of an agile, integrated and echeloned hospital system, which may involve a blend of Canadian, multinational, host-nation and contracted capabilities, all embedded in an end-to-end medical system. As part of medical regulating within this layered multinational medical system, Canadian MTFs can be expected to receive patients from other nations.

0405. Definitive surgery for CAF members and allied forces is normally conducted out of theatre in a Role 4 facility. Local nationals, PWs/detainees who will not be evacuated out of theatre may require definitive surgery which would normally be limited to a Role 2E or Role 3 setting.

Allocation

0406. NATO planning prescribes one Role 2B or one Role 2E MTF per brigade-sized formation. The Canadian minimum requirement for warfighting operations is a Role 2B. If a Role 2E is not allocated to a brigade it should be close enough in proximity within the division AO in order to meet the desired treatment timelines. Determining factors are:

a. time and space for evacuation (planning timelines);

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[98] NATO*Term* 6321.
[99] Some NATO documents use intra-theatre surgery rather than primary surgery.

b. casualty estimate;

c. proximity to allied or host nation MTFs;

d. evacuation assets;

e. weather and terrain;

f. enemy threat and reach of indirect fire systems; and

g. mobile or static operations.

Modular Approach

0407. Canada has adopted NATO's modular approach for Role 2 and Role 3 MTFs.[100] Enhancing modules and complimentary contributions may be added to any MTF based on the medical estimate in order to make a task-tailored MTF [*see* Table 4.1]. AMedP-1.7 *Capability Matrix* provides a broad description of the core capability for each module.[101] A Role 2 or 3 MTF could be augmented by a CSU [*see* chapter 5] and/or FMED [*see* Chapter 6].

Core Modules	Enhancing Modules	Complimentary Contributions
-Patient Care and Holding -Post-operation Holding -Emergency Area -Initial Surgery Response -Basic Laboratory and Imaging -Command and Control -Medical Supply	-Diagnostic Imagery -Computed Tomography -Dental -Sterilization -Intermediate Care Ward -Mental Health -Physiotherapy -Primary Care -Intensive Care Unit -Pharmacy -Laboratory -Internal Medicine -Hospital Management	-Additional Clinical Specialists -Specialist Surgery -Oxygen Production -Preventive Medicine -Hyperbaric Medicine -Transient / Response Ambulances -Telemedicine -Magnetic Resonance Imaging -Blood Bank -Animal Care (not a CAF capability) -Mortuary Affairs (a logistics function) -CBRN (patient decontamination & treatment)

Table 4.1 - Role 2 and 3 Modules

Task Tailoring

0408. MTFs will be task-tailored for specific operations. The doctrinal configuration of an FST, Role 2 and 3 MTFs may be altered by adding or deleting capabilities or capacities based on the medical estimate, (e.g., number of surgical suites, or holding capacity, etc). Mission-specific clinical capabilities may be added to an MTF depending on the operation, (e.g., pediatric capabilities during humanitarian aid and disaster relief operations, tropical medicine, etc).

0409. An MTF may be a sub-unit of a task-tailored HSU or HS Group encompassing all Canadian HS elements in a theatre. This would impact C2, medical supply and CSS elements. If more than one Canadian Role 2 and/or 3 MTF is on the same operation they should be grouped under one CO with an appropriately staffed Fd Hosp HQ, likely within a HS Group.

Mobility

0410. Role 2 and 3 MTFs do not have the same tactical agility as the force they support.

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[100] AMedP-9.1 *Modular Approach for Multinational Medical Treatment Facilities (MTF).*
[101] NATO is currently working on more refined definitions.

Generally, increasing capability and capacity decreases mobility.

0411. The mobility of Role 2 and 3 facilities depends significantly on the operational scenario. If the MTF is to be located in a static location (e.g., on a main operating base) it will only have to be moved for the initial entry into theatre. This would usually be achieved by Joint enablers for logistics, equipment and engineer support.

0412. A Role 2B MTF that is assigned to a Bde Gp should have the integral lift capacity to be able to move at the same rate as the BSA. Generally, a Role 2E or 3 MTF does not have enough integral lift to allow it to relocate in one move. The supporting formation will have to assist.

Shelters

0413. MTFs may be established in tentage, sea-container based shelters, purpose-built facilities or buildings of opportunity (e.g., an unused warehouse). An FST and a Role 2B (High Mobility) may be truck mounted in order to remain mobile (these capabilities are to be developed).

HS Related Communications and Information Management

0414. Role 2 and 3 MTFs should have the capacity to use electronic health records and telemedicine, up to and including teleradiology. This requires large amounts of bandwidth but it reduces the requirement for additional personnel and equipment in theatre. See AMedP-5.3 *Development and Implementation of Telemedicine Systems* for more information.

1 Canadian Field Hospital (1 Cdn Fd Hosp)

0415. 1 Cdn Fd Hosp is the sole unit in the CAF to provide a deployable surgical capability. For land based operations it can provide task-tailored FST, Role 2B and Role 2E MTFs. It can also provide the leadership and some elements of a multinational Role 3 MTF.

0416. 1 Cdn Fd Hosp can provide a Mobile Surgical and Resuscitation Team (MSRT) for Canadian Special Operations Forces Command missions. Patients treated by the MSRT may be evacuated to a Canadian Role 2 or 3 MTF. The MSRT will not be discussed further in this publication.

0417. Whereas a Role 2E or 3 may be deployed independently to support a particular mission, FSTs and Role 2Bs, which only conduct DCS, must always be part of an echeloned hospital system in order to meet the 10-1-2 (+2) treatment timelines. Every FST and Role 2B must be supported by a Role 2E or Role 3 within a two-hour MEDEVAC timeframe.

0418. Canada may be the lead nation or a contributing nation to a multinational Role 2 or 3 MTF. For planning considerations for multinational MTFs see CFHSP-1 *Health Service Planning*.

Section II - Role 2 and 3 Medical Treatment Facilities

Composition of Doctrinal Role 2 and 3 MTFs

0419. MTFs are designated using a numeric code used to describe the size of any given facility. (e.g., 2-1-4-12, 4-2-8-50). These numbers represent the quantity of resuscitation bays, operating rooms, critical care beds, and intermediate care beds. It does not indicate what other capabilities are in the facility. Regardless of size, an MTF will include HQ, pharmacy/medical supply, ambulance, and CSS components [*see* Figure 4.1]. The doctrinal composition of MTFs is based

on:[102]

a. each surgical team has the capacity of operating on four critically wounded patients and four Category B/C[103] patients per day and up to a total of 12 critically wounded in 24 hours during surge periods;[104]

b. an average of 75% capacity;

c. FSTs and Role 2Bs conduct damage control surgery and have minimal holding;

d. Role 2Es and 3 conduct primary surgery (including specialized surgery) and have an internal medicine capability;

e. in Role 2B and Role 2E MTFs critical care ward beds are used for post anesthesia care post operatively; and

f. nursing care bed ratio based on 12 hour shifts:

(1) critical care. One critical care nurse per bed plus one medic per five beds; and

(2) intermediate care. One general duty nurse plus two medics per ten beds.

0420. On NATO missions, Canada must declare to NATO if any Role 2 or 3 MTF is different in capability or capacity than what is in the NATO Capability Statements.

0421. The terms “Basic” and “Enhanced” relate to clinical capabilities and capacity and do not refer to the level of mobility of the respective MTF. Note that the simple addition of one or more enhancing modules does not mean that a Role 2B becomes a Role 2E. Rather, the primary determinant is the clinical capacity (2-1-4-12 versus 4-2-8-50) of the respective MTFs.

0422. **Risk Acceptance**. If all critical care ward beds are full, the facility should not normally conduct surgery unless the risk and mitigation strategies are discussed amongst the OC/CO, senior medical officer, and senior nursing officer, taking into account clinical capacity, confirmed evacuations, and the tactical situation. The inability to accept additional surgical cases, and a forecast of when it can resume, must be communicated to higher HQ immediately.

0423. **Command and control**. The composition of the C2 for a Role 2 or Role 3 MTF will vary based on the size of the MTF, whether it is an independent MTF or is part of a task-tailored HSU, operational tempo, and its mobility requirements. If the MTF is a sub-unit of a tasked-tailored HSU, command will be exercised by an OC. If the MTF is independent, command will be exercised by a CO. Some, or all, of the elements found in a Fd Amb HQ may be required to varying degrees (see Chapter 3).

0424. **Senior Medical Officer (SMO)**. Reporting directly to the OC/CO this position is the advisor and authority on all clinical matters. The SMO is a Medical Specialist officer. Responsibilities include:

a. providing clinical input regarding medical rules of eligibility decisions;

b. providing clinical input for MTF operational planning, including MASCAL plans;

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[102] Doctrinal organizations are based on NATO Capability Statements.
[103] The NATO Capability Statements use “Category” rather than “Priority”. Categories B and C equate to Priorities 2 and 3. See Table 5.1 for more information.
[104] NATO’s general planning guidance for high intensity operations.

c. advising on medical/surgical capability and capacity based on patient loads;

d. selection for next patient(s) to be discharged into the evacuation system;

e. directing patient flow management within the MTF during a MASCAL situation;

f. assisting with medical ethical decision making;

g. leading daily clinical rounds when conducted;

h. coordinating complex clinical care when the requirement for care crosses clinical disciplines;

i. ensuring the standard of clinical care is maintained and investigating variances from the standard;

j. acting as the detainee medical officer when detainees are on strength with the MTF;

k. ensuring the clinical aspects of the MTF are collectively trained and prepared;

l. organizing and overseeing the MTF continuing medical education program;

m. providing the professional-technical link from the physicians and surgeons to the Task Force Surgeon / HSU SMO / Division Surgeon; and

n. conducting clinical liaison with other MTFs and other SMOs and medical advisors within the battlespace (e.g., Bde Surg, Div Surg, Div Public Health Officer, TF Surg, other nation's SMOs, host nation medical staff).

0425. **Senior Nursing Officer (SNO)**. A SNO is appointed for each Role 2 and 3 MTF. The SNO reports directly to the OC/CO and works in collaboration with the SMO, CSM, Pharmacy Officer, Physiotherapist, and the senior nursing officers in each section. The SNO has direct access to the SMO for all clinical matters. Responsibilities include:

a. providing professional-technical supervision of nursing care delivery within the MTF to include identifying issues regarding nursing practice, and developing and supervising remediation plans regarding nursing practice issues;

b. providing clinical nursing input for MTF operational planning and medical plans, including MASCAL plans;

c. advising on nursing capability and capacity based on patient loads;

d. providing nursing advice on the next patient(s) to be discharged into the evacuation system;

e. assist with directing patient flow management within the MTF during a MASCAL situation;

f. attending daily clinical rounds when conducted;

g. assisting with coordinating complex clinical care when the requirement for care crosses clinical disciplines;

h. ensuring the nursing aspects of the MTF are collectively trained and prepared;

i. organizing and overseeing the MTF continuing nursing education program;

j. providing professional-technical supervision of nursing administrative processes, including medical documentation for technical accuracy and standards;

k. developing and maintaining standard operating procedures on clinical nursing care;

l. advising on work/rest cycles and ensuring appropriate staffing of inpatient care areas;

m. promoting ethical standards in nursing care;

n. advocating patient well-being throughout the continuum of care;

o. advising on infection prevention and control;

p. implementing patient safety programs;

q. ensuring the continuity of care throughout the medical evacuation process;

r. supervising privacy and security of patient health information;

s. leading continuous performance improvement and facilitating clinical data collection; and

t. collaborating to determine requirements for medical resources and medical property exchange (see paragraphs 0585-0586).

0426. **Laboratory capabilities**. Laboratory testing capabilities differ between a Role 2B, Role 2E and Role 3. The minimum requirements for each are detailed in AMedP-8.5 *Minimum Test Requirements for Laboratory Units of In-Theatre Military Medical Treatment Facilities*.

Role 2

0427. Role 2 is defined as, "Medical support that provides a capability for the reception and triage of casualties, as well as the structure to perform treatment of wounded, injured and diseased at a higher technical level than Role 1, including resuscitation and surgery."[105] It is capable of stabilizing the patient for further transport and treatment. The three types of Role 2 MTFs are described in paragraphs 0430 to 0448 below.

0428. Role 2 MTFs will routinely include emergency intake, DCS, basic diagnostics, a post-operative capability, medical supply, C2, and a limited holding facility for the short term holding of casualties until they can be returned to duty or evacuated.

0429. The deployment of Role 2 MTFs is mission-dependent, especially when:

a. there are large numbers of personnel, a risk of high numbers of casualties, or the type of casualties are foreseen to be necessitating such a capability;

b. geographic, topographic, climatic or operational factors may limit MEDEVAC to higher levels of the continuum of care to comply with treatment timelines, especially when lines of communication are extended, or host nation medical support is inadequate; and

c. the size and/or distribution of the force do not warrant the deployment of a full hospital response capability (Role 3 MTF).

Forward Surgical Team (FST)[106]

0430. FSTs are highly mobile and deployable into remote, austere, or unsecure tactical environments enabling forward projected DCS to preserve life, limb, and function. An FST is a

[105] NATO*Term* 26134.
[106] NATO uses the term Role 2 Forward.

sixteen person team with limited post-operative capacity. It has one resuscitation bay, one operating room, and one post-operation bed. It does not include a primary care capability or ambulances.

0431. An FST is a sub-component of a Role 2B, Role 2E, or Role 3. Since it is designed to be deployed away from the main facility, FST personnel and equipment are in addition to the regular TO&E of the parent MTF. When not deployed forward the FST may set up in location with the parent MTF in order to provide greater capacity, but must always be able to be torn down and moved without disrupting the main facility.

0432. The FST includes the personnel, medical equipment and supplies, generator and tentage in order to conduct the clinical function but has no integral CSS. To the extent possible it uses disposable surgical equipment. When forward of the parent MTF, an FST is attached to another medical element (medical section, medical platoon, UMS or BMS) for a defined period of time. It is dependent on the supported unit for all real-life support (rations, water, fuel) and communications beyond first-line holdings.

0433. Due to their limited clinical and HS logistics capacity FSTs rely on immediate MEDEVAC (MEDEVAC teams must be enhanced in order to provide post-operative care) and replenishment following treatment. The FST administration officer coordinates for medical supply replenishment from the parent MTF or an FMED, as applicable. Planning guidance is that an FST can perform ten surgeries before requiring resupply. An FST should never be more than two hours evacuation time from a Role 2E or 3 MTF.

0434. It has integral vehicles, but is capable of being transported by fixed wing or rotary wing aircraft, (e.g., on an air mobile operation), or by watercraft in littoral[107] operations.

0435. **Proposed allocation**. FSTs are allocated on an as required basis determined in the medical estimate. One could be allocated for any independent BG. Time and space are key determinants for the placement of an FST with a view to being able to provide DCS within the clinical timelines detailed in Chapter 2. An FST is usually co-located with a UMS.

0436. A modified FST can be placed on the Royal Canadian Navy's interim auxiliary oiler replenishment ship or the new Joint Support Ship to provide over-the-shore support to Canadian Army operations such as initial entry into a theatre or peace support operations.

Example of use of a FST: A battalion-sized forward operating base conducting counter insurgency operations far distant from the main operating base is expected to receive a large number of casualties. In order to meet the treatment timelines, an FST is placed at the forward operating base. In this case the FST may be placed there permanently.

Role 2 Basic (Role 2B)

0437. A Role 2B MTF is capable of providing general and emergency medical and surgery care including DCS for emergency surgical cases to achieve life, limb and function saving medical treatment. A Role 2B has a minimum of one surgical team. For mid or high intensity operations it has a minimum of two surgical teams. A Role 2B may be a parent unit to an FST which may be deployed forward.

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[107] In military operations, a coastal region consisting of the coastal sea areas and that portion of the land that is susceptible to influence or support from the sea (DTB 33690).

0438. A doctrinal Role 2B functions as surgical company and has a 2-1-4-12 configuration (two resuscitation bays, one operating room, four critical care beds, and 12 intermediate care beds) and includes essential laboratory and imaging functions (commonly limited to plain X-ray, FAST ultrasound), the capability of providing medium to high dependency care for four to six hours, a short-term holding capacity for patients until they can be returned to duty or evacuated, C2, communications and medical supply to include blood management. It routinely has a two-person mental health team. A Role 2B has the integral resources to be able to move in one lift.

0439. In peace support operations where the MTF is not expected to move a Role 2B will usually have additional holding capability. Small modules, such as dental, or physiotherapy may be added.

0440. **Allocation**. Role 2B MTFs are allocated minimum one per Bde Gp or as the casualty estimate dictates.[108] Time and space are key determinants for placement of Role 2B MTFs with a view to being able to provide DCS within the treatment timelines. A Role 2B MTF allocated to a brigade is usually located with or near the BMS.

0441. **Evacuation**. Due to its limited clinical and holding capabilities Role 2B MTFs are highly dependent on a robust evacuation system, including en route critical care, to move patients to a Role 2E or Role 3 within two hours following stabilisation of the patient.

Role 2 Basic High Mobility (Role 2B (HM))

0442. To maintain the treatment timelines during mobile operations there is a requirement for a highly mobile Role 2B MTF that can keep pace with the manoeuvre elements. Due to set-up and tear-down times, the time for surgery and recovery, and the time it takes to clear the facility of patients it may be necessary to have two Role 2B (HM) MTFs in order to allow one to leap-frog, thereby always having one MTF open.

0443. To remain mobile the Role 2B (HM) modules should remain truck mounted. It must have a robust integral transport and CSS capability. This capability is to be developed.

Role 2 Enhanced (Role 2E)

0444. A Role 2E MTF provides all the capabilities of the Role 2B, but has additional capabilities and capacity, including primary surgery, and the ability to stabilize and prepare casualties for strategic AE. It is capable of providing medical and surgical care including advanced trauma care, DCS and primary surgery, and appropriate medical intensive care and post-operative care. A Role 2E has a minimum of two surgical teams. For mid or high intensity operations it has a minimum of four surgical teams. A Role 2E may be a parent unit to an FST which may be deployed forward.

0445. A doctrinal Role 2E has a 4-2-8-50 configuration (four resuscitation bays, two operating rooms, eight critical care beds, and 50 intermediate care beds). It will typically include advanced diagnostics (e.g., Computed Tomography Scan), blood bank, oxygen production, sterilization, dental, mental health, physiotherapy, and primary care modules. Other modules may be added based on the medical estimate [*see* Table 4.1].

0446. A Role 2E is capable of operating an emergency area to separately receive and isolate infectious patients while maintaining protection of staff and non-infectious patients.

0447. If located at an airport of embarkation a Role 2E MTF may include an additional capacity to act as an aeromedical staging facility for strategic AE.

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[108] For warfighting all Role 2Bs should be the high mobility variant.

0448. **Allocation**. NATO planning prescribes one Role 2E MTF per brigade-sized formation if there is not a Role 2B.[109] Based on time and space and the PAR, a Role 2E may be allocated to a division in addition to a Role 3.

Role 3

0449. Role 3 is defined as, "Medical support that provides the structure for deployed hospitalisation with the elements required to support it, including a mission-tailored variety of clinical specialties and support functions."[110] Clinical capabilities and holding capacity of Role 3 MTFs must be sufficient to allow diagnosis, treatment and holding of those patients who, upon receiving adequate treatment, would be able to return to duty in accordance with the theatre patient return policy.

0450. A doctrinal Role 3 has an 8-4-16-150 configuration (eight resuscitation bays, four operating rooms, sixteen critical care beds, and 150 intermediate care beds). A Role 3 MTF must provide all the capabilities of the Role 2E MTF plus be able to conduct specialized surgery, specialized care, and additional services such as, but not limited to, neurosurgery and internal medicine, as dictated by mission and theatre requirements. It includes a minimum of four surgical teams plus one oral-maxillofacial/plastics surgical team. A Role 3 may be a parent unit to an FST which may be deployed forward. A Role 3 MTF should be capable of providing advanced medical treatment of CBRN casualties. If located at an airport of embarkation a Role 3 MTF may include an additional capacity to act as an aeromedical staging facility for strategic AE.

0451. **Allocation**. One Role 3 MTF is allocated per division. Canada may be the lead nation or a contributing nation to a multinational Role 3.

MSRT	FST	Role 2 Basic	Role 2 Enhanced	Role 3
Stabilization Extraction Zero holding capacity	1 Trauma bays 1 Operating room 1 Post operation bed	2 Trauma bays 1 Operating room 4 Critical care beds 12 Intermediate care beds Core Modules+	4 Trauma bays 2 Operating rooms 8 Critical care beds 50 Intermediate care beds	8 Trauma bays 4 Operating rooms 16 Critical care beds 150 Intermediate care beds Requires partner nation support
6 personnel	16 personnel	112 personnel (including CSS personnel)	@175 personnel (excluding CSS personnel)	>400 personnel
-Capacity of four extremities and four cavity procedures -Dependent on others for logistics support	-Reliant on immediate MEDEVAC and replenishment after treatment -Dependent on others for logistics support	-To be highly mobile requires integral service support elements -Reliant on robust MEDEVAC	-Stabilization for strategic AE -Some long-term holding (>24 hours)	-All capabilities of Role 2E -Specialized surgery -Specialist care

Table 4.2 Comparative Surgical Medical Treatment Facilities

[109] NATO planning guidelines.
[110] NATO*Term* 27544.

0452. **Generic organization of a Role 2 or 3 MTF**. Figure 4.1 shows the usual components in any Role 2 or 3 MTF. The capability and capacity of each component may vary based on the medical estimate. Modules [*see* Table 4.1] may be added or deleted as required. The MTFs may be part of a task-tailored HSU.

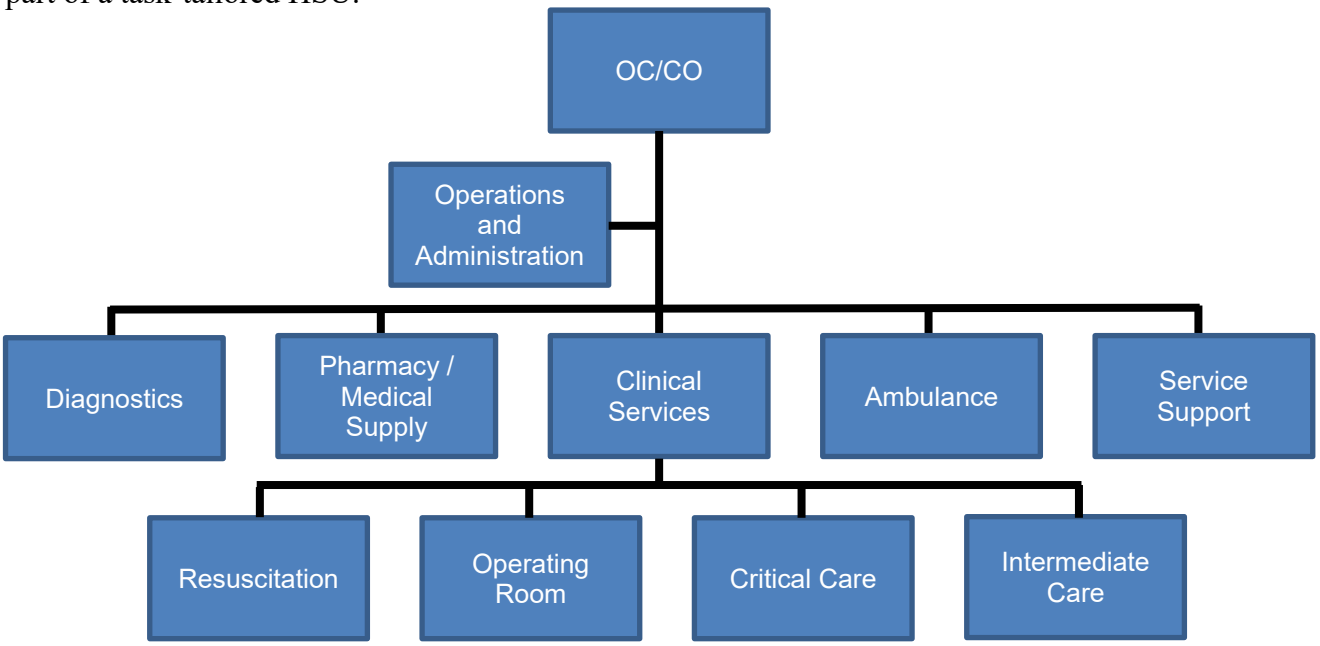

Figure 4.1 Generic Organization of Role 2 and 3 MTFs

Headquarters

0453. The MTF HQ provides C2, operations and planning, and the personnel administration functions. Its tasks include:

a. monitoring the battle for inbound patients;

b. advising the Commander and staff on the MTF's capabilities, limitations, employment, and support requirements;

c. managing the defence and security of the MTF;

d. coordinating MEDEVAC out of the facility;

e. internal patient tracking;

f. collation of reports and returns for higher formation HQs;

g. maintaining bed status;

h. maintaining logistical supply and vehicle statuses;

i. coordinate with Special Operations Forces medical elements requiring surgical support, within the bounds of operational security;

j. coordinate with other non-CAF HS elements – host nation, coalition, military and civilian;

k. with augmentation, command a task-tailored HSU; and

l. on NATO or coalition missions it must be able to integrate coalition information systems to include the Medical Communication and Information System.

0454. Depending on the size of the unit and the patient throughput, a chaplain may be assigned to the unit full time.

Pharmacy/Medical Supply Section

0455. Each Role 2 and 3 MTF has a pharmacy/medical supply section designed to support only the MTF.[111] If it is tasked to support other HS elements it will require augmentation. Tasks include:

a. provision of clinical and dispensary services;

b. management of medical supplies (Class VIII);

c. management of blood and blood products;

d. producing or arranging for medical oxygen;

e. clinical equipment repair or replacement;

f. coordinating with the G4 for the transport of HS supplies to include special handling and LOAC requirements; and

g. coordinating with national, multinational, or commercial suppliers.

0456. Role 2 and 3 MTFs should deploy to theatre with a minimum of 10 days of medical supply.[112] Until a reliable sustainment system is in place the 10 days of medical supply may be inadequate. Initial holdings may have to be substantially higher. See Chapter 6 for information on calculating one day of medical supply.

0457. **Replenishment of medical supplies for forward elements**. Surgical capabilities such as an FST may be attached to forward combat elements. The FST sends demands to the supporting medical element (a Role 2B, 2E or 3, or FMED). The supporting medical element coordinates with the Fd Amb or formation-level (Bde Gp or Div) G4 or Svc Bn for the delivery of medical supplies as part of routine replenishment cycle or emergency replenishment. Delivery may be ground convoy, helicopter, or air drop. Any special handling requirements (e.g., temperature control, dangerous goods, blood, narcotics, etc) must be identified.

Ambulance Section

0458. Role 2 and 3 MTFs will typically only have ambulances to transport patients to and from a nearby HLS, airhead, railhead, or sea port. FSTs do not have integral ambulances. Unless augmented by an evacuation element, Role 2 and 3 MTFs are **not** responsible for evacuation from or to other MTFs. Ground and air evacuation is coordinated through the supporting formation's PECC. See Chapter 5 Medical Evacuation.

Services Section/Platoon

0459. Due to its unique equipment, water and power requirements Role 2 and 3 MTFs require integral CSS elements familiar with the equipment and processes. For static operations the minimum requirement is for a surge capacity for the initial deployment and set-up. Once in location it will be dependent on Joint enablers for logistic, equipment and engineer support.

0460. For mobile operations integral CSS is required [*see* paragraph 0467 below]. Second and

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[111] See Chapter 6 on HS Logistics.
[112] NATO Capability Statement.

third line CSS arrangements must be detailed in the operation order.

Section III - Generic Considerations

Chemical, Biological, Radiological, Nuclear (CBRN)

0461. To be able to operate in a CBRN environment Role 2 and 3 MTFs should be capable of providing an appropriate level of CBRN Defence in accordance with ATP-3.8.1 *CBRN Defence on Operations* Chapter 9.[113] This includes CBRN collective protection for critical elements of the MTF such as surgery. See CFJP 3-8.1 *Chemical, Biological, Radiological, and Nuclear Defence Operations* for additional information.

0462. If an MTF is required to have the capability to decontaminate and/or treat CBRN patients it will require augmentation; these are specialized tasks requiring special training and equipment. Planning considerations are found in AJMedP-7 *Allied Joint Medical Doctrine for Support to Chemical, Biological, Radiological, and Nuclear (CBRN) Defensive Operations*.

0463. Usually patients will have gone through a CDC before being moved to a Role 2 or 3 MTF.

Isolation Capability[114]

0464. Military operations may occur in locations where infectious diseases are endemic. Additionally, an epidemic or pandemic may occur in any location. In order to prepare for such contingencies, "Role 2 and Role 3 MTFs should have an isolation capability in order to receive and isolate infectious patients while maintaining protection of staff."[115] Planning must note that infectious patients may require treatment up to, and including, surgery for injuries not related to the infectious disease. This may impact all departments within the MTF.

0465. Each MTF shall:

a. appoint an Infection Control Officer as a secondary duty for a Nursing Officer in each FST and Role 2B.[116] Role 2E and Role 3 MTFs will have one position dedicated to this role as a primary duty;

b. maintain and rehearse plans and procedures for the management of infectious patients in all departments;

c. hold sufficient medical materiel, personal protective equipment, cleaning supplies, etc, to manage expected and surge caseloads; and

d. have plans to physically alter MTF infrastructure through the use of internal barriers, over-pressure systems, etc. This could include establishing shelters physically separate from the main facility depending on the pathogen/disease and the expected number of patients.

0466. The type of isolation areas within an MTF depends on the index of suspicion for a contagious disease, level of isolation required, type of personal protective equipment to be used, and clinical interventions required. See AMedP-7.1 *Medical Management of CBRN Casualties* Article 6.7.2 for information on isolation areas.

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[113] NATO Capability Statement.
[114] Isolation, "Separation of ill or contaminated persons or affected baggage, containers, conveyances, goods or postal parcels from others in such a manner as to prevent the spread of infection or contamination." (NATO*Term* 25754).
[115] NATO Capability Statement.
[116] See CFHS Advisory 4070-02 *Infection Prevention and Control in the Deployed Healthcare Environment*.

Planning Factors

0467. When siting Role 2 and 3 MTFs there are a number of sometimes contradictory considerations. Planners must balance the pros and cons of each. Many of these factors are also applicable to Role 1 MTFs:

a. **Clinical treatment timelines**. As part of a layered end-to-end medical system within the battlespace, MTFs should be situated to ensure that the treatment timelines are met;

b. **Terrain management**. Role 2 and 3 MTFs deploy in territory controlled by a brigade or division. Terrain and evacuation route allocation is controlled by those formations and must be linked to the overall end-to-end medical plan [*see* Chapter 7 for MTF siting considerations for specific operations];

c. **Alternate sites**. Alternate sites that satisfy as many of the prerequisites as possible should be pre-selected for use should the facility be forced to re-locate;

d. **Accessibility**. MTFs should be accessible under varying weather conditions, by different means of transportation for patients and to supply and service vehicles. Ideally, facilities are located close to the main and alternate MEDEVAC routes, and where MEDEVAC routes converge. However, siting facilities immediately adjacent to roads that are likely targets is seldom, if ever, justified. Thus, access routes are essential between the facility and MEDEVAC routes;

e. **Landing area**. MTFs should be sited within a short distance of existing or planned airfields and HLSs. The minimum requirement is for an area suitable for accepting helicopters within litter carrying distance of the MTF. Consideration should be given to locating within a reasonable distance of an airport for strategic AE;

f. **Vulnerability**. If possible, MTFs should be located away from obvious targets such as airfields, munitions and supply installations, HQs, railroads, main crossroads, bridges, civilian gas stations or chemical factories. Areas that favour the persistence of chemical agents, such as low or heavily wooded places, should be avoided;

g. **Buildings and underground parking lots**. There are several advantages to occupying an existing building, where possible. Better protection is provided against the elements and, to a degree, against enemy action with conventional weapons as well as chemical and biological agents. Set up and tear down time is saved, and, if still operational, existing electrical and plumbing utilities may be used. The use of a school is governed by the CDS Directive *Implementation of the Safe Schools Declaration*;

h. **Food services**. Patient food services includes post-operative and convalescent diets, 24-hour meal availability and surge capacity. Religious and cultural dietary considerations should be taken into account. A clinician authorizes the special dietary requirements for patients;

i. **Laundry**. Health elements require laundry support including medical and dental garments, theatre linen, bed linen and patient clothing;

j. **Showers and latrines**. Ambulatory and non-ambulatory patients require showers and latrine. Prevention of cross infection and contamination must be considered;

k. **HS logistics**. Depending on the accessibility to a reliable Class VIII supply and the frequency of replenishment, Role 2 and 3 MTFs may require additional space for

medical supply. This may include co-locating an FMED Detachment;

l. **Water**. In order to meet laundry, showers, facility cleaning, and sterilization requirements Role 2 and 3 MTFs have significantly greater water demands than other units of similar size. This also creates a high volume of waste water;

m. **Morgue**. Role 2 and 3 MTFs have a minimal morgue capacity for temporary holding of the remains of patients who die in the facility. It is a logistics (Mortuary Affairs) function to remove the remains of the deceased;

n. **Transport**. When first deploying to theatre Role 2 and 3 MTFs have large transportation and container handling requirements. This must be coordinated with Operations staff for priority of movement and Logistics staff for resources;

o. **Electricity**. Role 2 and 3 MTF have a large electrical demand to include medical grade surge protection for some of the advanced medical equipment (e.g., computed tomography scan). The MTFs have the capacity to generate their own power; however, if they are attached to a grid on a supporting base, they must retain the capacity for independent back-up power for key elements of the facility. Differences between various nations' power must be taken into account (e.g., 110 volts versus 220 volts);

p. **Biomedical waste**. Role 2 and 3 MTFs may generate a large volume of biomedical waste requiring disposal to strict standards. A medical grade incinerator may be required or arrangements made for disposal through the Svc Bn, host nation, or allies;

q. **Site preparation**. Role 2 and 3 MTFs require a large flat surface for the facility and HLS, and smooth routes for ambulances. Generally there is a requirement for engineering support to prepare sites, particularly for Role 2Es and 3s where container systems are used for infrastructure;

r. **Health hazards**. MTFs should not be sited near obvious health hazards such as garbage dumps, incinerators, and swamps;

s. **Labour support**. The use of host nation general labour for cleaning, interpreters, etc are arranged through the G4/J4 Contracting cell;

t. **Space**. Sufficient space must be available to establish the MTF keeping in mind the likelihood of expansion. Depending on the size and type of facility, space may be needed for storage, equipment, vehicle parking, maintenance, laundry and bath, receiving and shipping, kitchen, and collection and disposal of waste. Sufficient space for a HLS is needed in proximity to the patient reception area;

u. **Prisoners of war and detainees**. MTFs may be required to segregate PWs and detainees from the general patient population. Escorts will be required from the capturing force;

v. **Protection**. In operations involving an armed conflict, the Geneva Conventions may provide some protection to MTF facilities and the sick and injured. MTFs may gain protection by co-locating at or near sites of likely immunity such as a civilian health care, religious or educational activity. Protection may also be achieved by siting a facility within a defensive perimeter; however, it should be located where it can be isolated from potential enemy maritime, ground or air action. A less desirable but more likely solution is to locate the facility within "protective distance" of a combatant element;

w. **Time to relocate**. Role 2 and 3 MTFs can take a long time to cease receiving patients, finish surgery, stabilize patients for evacuation, clear the facility of all patients, tear down, pack up, move and then set up. During this period of interruption of services the use of out-of-sector hospitals on a temporary basis may be necessary. It requires close coordination with the PECC for medical regulating (patient flow management) for diversion of patients to other MTFs. Rapid clearing of the facility of patients may require additional MEDEVAC resources; and

x. **Time in location**. If the MTF is to be in location for a short time, it is important to select a site that requires very little preparation in order to make it workable. Conversely, if the stay is expected to be a lengthy one, the site and layout should be selected with a view for improvements.

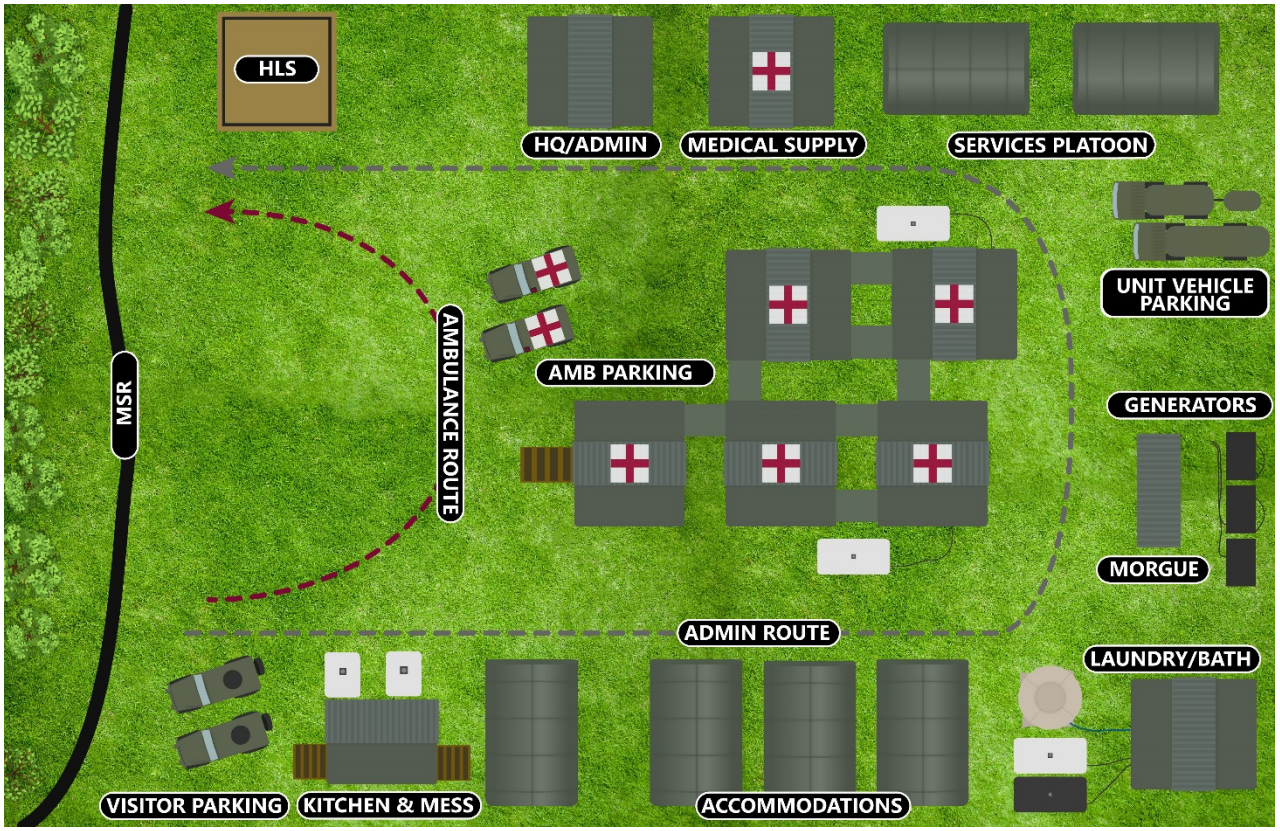

Figure 4-2 Layout of a Role 2 or 3 Medical Treatment Facility

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Chapter 5
Medical Evacuation
Section I – General

0501. Elements engaged in combat require rapid clearing of casualties in order to preserve combat power. An effective medical evacuation system enhances morale by providing the confidence to soldiers to know that should they became a casualty they will have a good chance of survival. This necessitates a highly flexible and robust evacuation system. Evacuation of patients is one of the most important and, in combat, one of the most difficult tasks with which HS is confronted.

0502. **Medical evacuation (MEDEVAC)** is, "The medically supervised process of moving any person who is wounded, injured or ill to and/or between medical treatment facilities as an integral part of the treatment continuum."[117] Its objective is to get the right patient onto the right platform with the right medical assets to the right medical treatment facility within the recommended 10-1-2(+2) treatment timelines [*see* paragraph 0208].

0503. MEDEVAC is usually performed on dedicated and properly marked platforms, fitted for the task, with medical professionals who provide the timely, efficient movement and en route care of the wounded, injured or ill casualty from the point of POI and/or other locations to a MTF. Appropriate en route care greatly enhances the casualty's potential for recovery and may reduce long-term disability by maintaining the patient's medical condition in a more stable manner.

0504. **Casualty evacuation (CASEVAC)** is, "The **non**-medically supervised process of moving a person who is wounded, injured or ill."[118] Casualties transported by CASEVAC may not receive proper en route care or be transported to the appropriate MTF to address the casualty's medical condition.

0505. Movement of casualties by CASEVAC should only to be considered when MEDEVAC assets are not available within a medically reasonable period of time or the tactical situation demands such a course of action (i.e., it would be more dangerous for casualties to remain in situ).

0506. The use of CASEVAC may be unavoidable and may be a deliberate part of the MEDEVAC plan. For example, it may be necessary to use CASEVAC for rearward passage of lines, transport of casualties out of isolated positions, or air mobile operations when there are no dedicated AE assets. Also, CASEVAC may be a deliberate part of a MASCAL plan.

0507. **Administrative movement of casualties**. In order to avoid the unnecessary movement of ambulances for non-urgent cases, casualties with minor injuries/illness, or for follow-up appointments may be evacuated using vehicles of opportunity, e.g., during the daily replenishment cycle.

0508. This chapter discusses MEDEVAC from the POI to the division medical elements, focusing on MEDEVAC within the brigade area. See Chapter 3 for information on the Fd Amb's Evac Coy composition and tasks.

0509. This chapter does not discuss MEDEVAC in a CBRN environment. See AJMedP-7 *Allied Joint Medical Doctrine for Support to Chemical, Biological, Radiological, and Nuclear (CBRN)*

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[117] NATO*Term* 22089.
[118] NATO*Term* 20920.

Defensive Operations Chapter 6, and AMedP-7.1 *Medical Management of CBRN Casualties* for more information.

Context

0510. **Increased clinical capability forward in the battlespace**. With a view to decreasing mortality and morbidity, and based on successes of recent operations, and rapidly changing clinical technology and procedures, there is an emphasis of placing ever increasing clinical capabilities further forward in the battlespace than ever before (e.g., DCR Teams, FST, far forward blood). Associated with this is the requirement for enhanced MEDEVAC clinical capabilities. MEDEVAC teams should be equipped and trained to provide advanced pre-hospital emergency care. Teams will require augmentation up to critical care capability to provide en route care from DCR Teams or FSTs to Role 2 MTFs. This concept is under development.

0511. **Future evacuation capabilities**. Remotely piloted or autonomous evacuation vehicles, both air and ground, are being developed by allied nations. There will be a requirement to develop TTP if these come into service in the CAF, or if CAF elements are working with allies who use these systems.

0512. **Continuum of care**. Deployed health care is composed of multiple interdependent elements and providers. It provides a continuum of care from POI to increasingly more capable levels of care and aims to return as many patients to duty as early as feasible. The continuum of care means uninterrupted, progressive, and appropriate medical attention throughout the chain of medical treatment and evacuation. An important element of this is that medical records detailing treatment already given move with the patient throughout the chain.

0513. **Interdependence of evacuation and treatment**. The functions of evacuation and treatment are dependent on each other, and must always be considered jointly in the planning and execution of medical support. The distribution, size, capacities and capabilities of in-theatre MTFs will be based on the availability and type of evacuation assets used, evacuation distances and the operational environment. Limits on the number or type of evacuation assets will have a direct impact on the length of time MTFs have to hold patients before evacuation is available.

0514. **Command responsibilities**. An effective MEDEVAC system is a command responsibility. In support of the commander, the formation medical staff is responsible to coordinate such activity with the operations and movement staff in theatre.

0515. **Treatment timelines**. MEDEVAC is conducted with a view to achieving the 10-1-2(+2) treatment timelines [*see* Chapter 2].

0516. **Complexity**. MEDEVAC may involve the movement of patients between various levels of command, between air, sea, land, special operations forces, and support components, between national elements, and potentially involve contracted support.

The Medical Evacuation System

0517. Land operations require a dynamic and integrated air-land MEDEVAC system derived from a combination of ground ambulances and air assets as part of an overall end-to-end health care system. A MEDEVAC system should have the ability to evacuate patients to, or between, MTFs 24 hours a day, in all weather, from all terrain and in any operational circumstances. An efficient and effective MEDEVAC system:

a. is a command responsibility;

b. minimizes mortality by rapidly and efficiently moving the sick and injured to and between MTFs with a view to meet the 10-1-2 (+2) treatment timelines;

c. serves as a force multiplier as it clears the battlefield enabling tactical commanders to continue their mission with all available combat assets;

d. builds morale by demonstrating that care is quickly available if soldiers are wounded;

e. provides en route care up to critical care that is essential in improving the prognosis and reducing disability of the injured or ill soldiers;

f. provides medical economy of force by:

(1) preserving forward-deployed medical personnel;

(2) decreasing the requirement for MTFs forward or their frequent relocation; and

(3) decreasing the requirement for low density, high demand medical specialties (such as a neurosurgeon), medical supplies and equipment (such as computed tomography) by moving the patient to the required care over long distances;

g. ensures the continuum of care between roles of care by ensuring the in-transit care is at the same or a higher level as provided by the originating unit, (i.e., an intubated patient to be evacuated from an FST requires advanced pre-hospital care trained and equipped MEDEVAC personnel);

h. regulates the flow of patients and their disposition to the most appropriate MTF;

i. tracks patients accurately throughout evacuation;

j. is **not** used to evacuate the dead;

k. provides for the emergency movement of scarce medical resources such as critical Class VIII supplies, blood, medical personnel, and medical equipment; and

l. must be able to continue to function when communications are disrupted.

0518. Evacuation must be made against the constant forward flow of troops and supplies, with a minimum interference to these activities. The evacuation organization must identify alternative means to ensure continuation of care is maintained even if evacuation itself is restricted due to operational, environmental or technical reasons. This requires personnel trained and equipped to provide prolonged field care (see paragraph 0214).

0519. **Military working dogs**. MEDEVAC assets may be called upon to evacuate military working dogs supporting the CAF or from allied nations. When possible, the handler should accompany the animal during the evacuation to ensure MEDEVAC personnel safety. Units requesting MEDEVAC for military working dogs should include the location of veterinary treatment facilities or support units in their request.

0520. **Responsibility to provide evacuation assets**. Generally, it is the responsibility of higher HS elements to evacuate patients from lower HS elements, (e.g., a brigade is responsible to evacuate from a unit, and a division is responsible to evacuate from brigades). Within the brigade AO ground evacuation is the responsibility of the Fd Amb, and rearward of the brigade it is the responsibility of the supporting Div Med Bn. Fwd AE anywhere in the Div AO is conducted by the Div Aviation Battalion.

0521. MTFs are not normally responsible for the evacuation rearward of their facility. The medical HQ that controls the destination MTFs also controls the evacuation flow and the means of evacuation to the facilities.

0522. **Force protection**. MEDEVAC is a unique type of vehicle movement. Usually in response to a medical emergency, it can be to any location in the battlespace, on or off road, at any time, in any weather condition. In a linear contiguous battlespace, the regular ambulance shuttle is employed where one vehicle can move independently. In a non-linear or non-contiguous battlespace ambulances will not be allowed to travel independently. They require convoy protection or an escort. Since the Fd Amb does not have this combat capability force protection elements have to be provided by other elements in the Brigade.

0523. **Multinational MEDEVAC system**. In most contemporary operations the MEDEVAC system will be a multinational effort. See CFHSP-1 *Health Services Planning* for planning considerations in multinational operations.

Categories of MEDEVAC

0524. While MTFs are generally categorized in terms of roles according to their capabilities and function, MEDEVAC assets are defined by the area in which they operate along the continuum of care:

a. **Forward MEDEVAC** is, "The movement of casualties in a platform with medical personnel from point of injury and/or illness to the first medical treatment facility"[119] (this includes from a CCP). It is normally conducted by ground or helicopter assets to take the patient to the most appropriate level of care within the designated timelines, which may not be the closest MTF. Forward MEDEVAC teams should be equipped and trained to provide advanced pre-hospital emergency care. Forward MEDEVAC assets must meet similar protection levels as the forces operating in the area they support, (i.e., armoured ambulances are required to support medium or heavy forces);

b. **Tactical MEDEVAC** is, "The intra-theatre movement of patients in a platform with medical personnel between medical treatment facilities."[120] It can be conducted by ground (e.g., ambulance, bus, train), rotary or fixed wing aircraft, or watercraft. Patients will routinely have been stabilized prior to evacuation. Tactical MEDEVAC teams should be equipped and trained to provide the same or higher level of care as provided by the originating MTF which might include in-transit critical care; and

c. **Strategic MEDEVAC** is, "Inter-theatre medical evacuation."[121] It is the movement of a patient from theatre to definitive care, be that in Canada or an allied country. This task can be fulfilled by aircraft, trains, or maritime vessels using CAF resources, bilateral agreements with other nations, or civilian contractor. Strategic evacuation may be divided into two phases – first to move the patient(s) out of theatre to a safe haven, and then from the safe haven to Canada.

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[119] NATO*Term* 27526.
[120] NATO*Term* 27545.
[121] NATO*Term* 40338.

Section II - Patient Flow Management

Principles of Medical Evacuation

0525. The following principles provide key guidance for developing a MEDEVAC system. While striving to achieve them some may not be possible, and the relative importance of each may change, based on operational imperatives.

0526. **Minimize evacuation**. Under normal circumstances, patients must not be evacuated further to the rear, nor held in-situ any longer, than is clinically or tactically necessary. Every case evacuated without sufficient reason imposes an unnecessary burden on:

a. the casualty's unit, which goes short-handed until personnel are returned or replaced;

b. the personnel system which must equip, train, and transport replacements; and

c. the medical service, which must provide additional berths in evacuation vehicles, the requirement for additional beds in MTFs, and additional trained medical personnel to care for them.

0527. Counter-intuitively there will be times when it is necessary to evacuate further rearward than would normally be the case. A high casualty rate in combination with limited treatment and holding capacity can quickly lead to MTFs being overwhelmed. When forward MTFs are near or at capacity it may be necessary to bypass them to other MTFs that are not as heavily engaged. To meet the treatment timelines for the most severely wounded it may be necessary to evacuate less severely wounded patients further to the rear.

> Example: During heavy fighting in the forward BG two soldiers are injured - one more severely than the others. Both require surgery – one Priority 1, one Priority 2. There is a Role 2B within 45 minutes evacuation time, and there is a Role 2E within two hours evacuation time. Although the Role 2B could accept both casualties, the Priority 2 patient is diverted to the Role 2E.
>
> This allows the Role 2B surgical team to operate on the most urgent case, whilst retaining surgical capacity for the next urgent surgical case. Since the Priority 2 patient is already in the rear it negates the requirement for a second MEDEVAC that would be necessary if the patient had gone to the Role 2B which has minimal holding capacity.

0528. **Minimum handling**. Frequent handling increases shock, has an adverse effect on a patient's general condition, and must be reduced to the essentials. Unnecessary moving on and off vehicles must be avoided.

0529. **Staging**. During either ground or air MEDEVAC patients may be temporarily admitted to a staging facility where care is provided until evacuation can be resumed. Staging may be required due to the clinical requirements of the patients, lengthy lines of evacuation, interruptions in the lines of evacuation, lack of MEDEVAC assets (tactical or strategic), or a change between evacuation assets (e.g., at a rail head or airport of embarkation).

0530. Within the brigade area the Fd Amb CS Med Coy establishes staging facilities along the evacuation routes. Within the division area and beyond, CSUs may be employed [*see* Section IV].

0531. A Role 2E or Role 3 MTF located at an airfield may include a staging capability. This would require augmentation of its regular compliment of personnel and equipment. This capability prepares patients for tactical or strategic AE.

0532. **Maximum speed**. The speed of patient evacuation and care is a fundamental element to saving life, limb and functions. To minimize morbidity and mortality the patient must reach appropriate levels of care as quickly as possible. Speed is achieved by the selection of a rapid mode of transport, movement by the shortest tactically appropriate route and the minimizing of delays during evacuation. The underlying principle is to transport every patient to the most appropriate MTF as quickly as possible based primarily on clinical imperatives, but tempered by the operating environment (security, routes, and evacuation assets) noting that the most appropriate facility may not necessarily be the closest. See Chapter 1 for the clinical treatment timelines.

0533. **En route care** "is the care required to maintain the phased treatment initiated prior to evacuation and the sustainment of the patient's medical condition during evacuation."[122] It places the appropriate clinical expert with the patient at the start of the evacuation process so that lifesaving interventions can commence prior to the patient arriving at the destination MTF. While it has been proven in recent operational experiences to save lives, en route care is intensive in resources, and requires dedicated assets and personnel to conduct, and is dependent on the tactical situation.[123]

0534. The goals for en route care are the continuation of care during evacuation without clinically compromising a patient's condition, to ensure the evacuation system can move critically ill or injured patients by the appropriate mode of transportation, and to preserve forward-deployed medical personnel. This requires up to critical care trained and state-of-the-art equipped medical personnel. See Table 5-2 for levels of dependency when determining en route care requirements.

0535. **Prolonged care**. At any stage of the chain of evacuation, from POI to strategic evacuation, evacuation may be interrupted for varying periods due to enemy action, weather, blockage of roads, or lack of evacuation assets. Medical personnel must be trained and equipped to provide prolonged care. In forward areas this is known as prolonged field care [*see* paragraph 0214].

0536. **Patient return policy**.[124] The patient return policy indicates the maximum number of days that a patient will be allowed to remain within the formation's medical system for treatment, recovery and return to duty. There will normally be a Bde, Div and Theatre patient return policy. See CFJP 4-10 *Health Services* for planning guidelines for the patient return policy.

0537. **Prisoners of war and detainees**. Patients who are PW or detainees are evacuated in the same manner as friendly forces; however, they should be segregated from other patients whenever possible, and must be guarded. Providing escorts for the transport of these prisoner or detainees is not the responsibility of MEDEVAC unit or the MTF. Escorts must come from the capturing force.

Patients with Infectious Disease

0538. Casualties with highly communicable infectious diseases may require extraordinary measures and specialized infection-control equipment to ensure patient and medical crew welfare and protection. Proper preparation, mitigation and remediation are required for handling these infectious patients, who may also have injuries unrelated to the infection, throughout the chain of evacuation.

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[122] From US Army Publication 4-02.2 *Medical Evacuation* (terminology proposal sent to Joint Terminology Panel, 7 June 2021)
[123] ABCANZ Standard 2143(R) *En Route Care*.
[124] Formerly holding or evacuation policy.

0539. Every patient known to have, or suspected of having, infectious disease must be handled in accordance with standard infectious disease precautions (body waste cleanup, containment and disposal; hand-washing; barriers and protective clothing). The proper use of infection prevention and control measures protects the patient and health care provider/support staff alike. CFHS Advisory 4070-02 *Infection Prevention and Control in the Deployed Healthcare Environment* provides guidance on the handling of patients with or suspected of having an infectious disease. It also provides guidance on cleaning and disinfection of ambulances.

0540. As pathogens may be transmitted by bodily fluids spilled during transportation, ambulances must be thoroughly cleaned and disinfected, and there must be a robust biohazardous waste plan. The extra cleaning requirements may take MEDEVAC assets out of circulation for a period of time.

0541. To allow special precautions to be readied throughout the chain of evacuation all MEDEVAC assets, staging facilities, and receiving MTFs should be informed of any patients with, or suspected of having, an infectious disease.

Humanitarian and Disaster Relief Operations

0542. During Humanitarian and Disaster Relief Operations the affected nation's medical infrastructure, including their ambulance service may be incapacitated or overwhelmed. On these operations CAF HS should expect to collaborate with non-governmental organizations and international organizations for the provision of MEDEVAC services to the affected population.

Health Records

0543. The purpose of a health record is to document patient encounters, health assessments, potential exposures to toxic industrial materials or CBRN warfare agents and concussive incidents, treatments received, and medications provided. As part of the continuum of care it is important for the further treatment of a patient that the clinical record follows the patient along the chain of evacuation to include between nations. Any treatment provided in-transit must be recorded. The minimum information requirements are standardized in AMedP-8.2, *Basic Military Medical Report*. Starting at the POI initial documentation should be in accordance with AMedP-8.1 *Documentation Relative to Initial Medical Treatment and Evacuation.*

0544. If possible, some medical information can be sent digitally to the receiving MTF. This allows the MTF to know what they will receive. If not possible, hard copy must travel with the patient.

Chain of Evacuation

0545. Evacuation begins at the POI and continues only as far rearward as the patient's medical condition warrants. The chain of evacuation is depicted in Figure 5-1 followed by a detailed description. The flow of casualties should follow the continuum of care. However, this is a medical organizational pattern and not a linear pathway that has to be followed in a sequence.

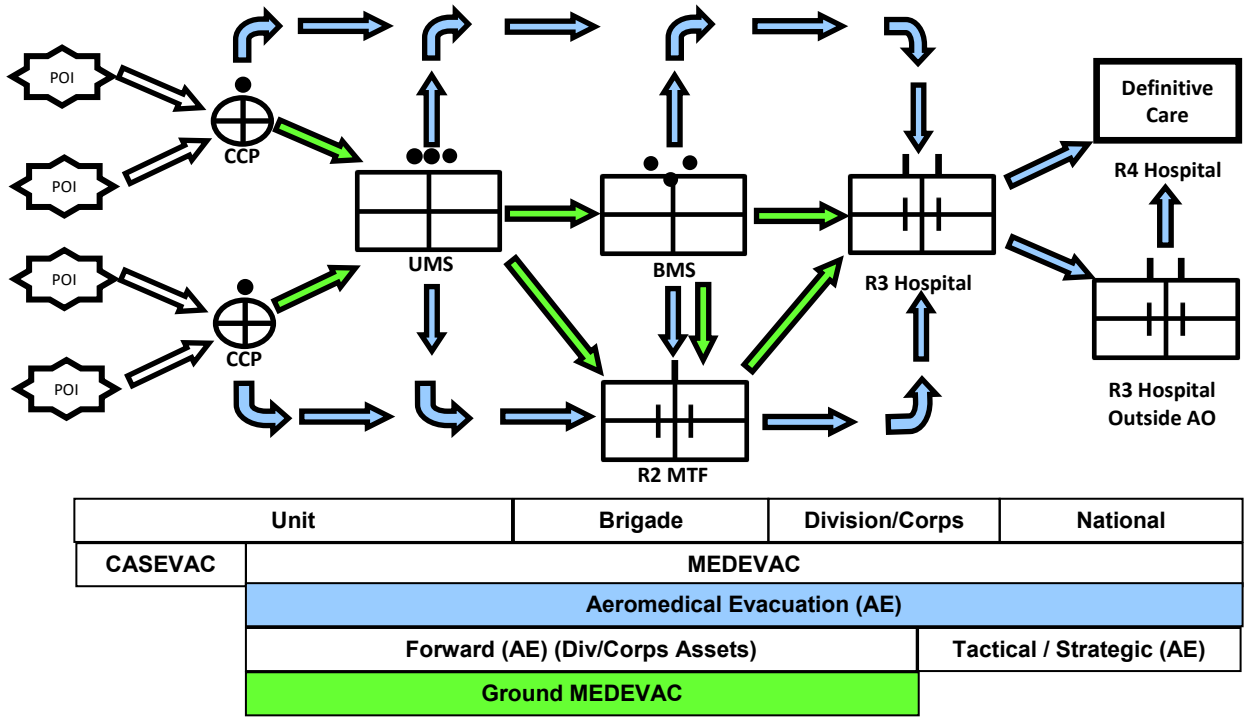

Figure 5.1 Chain of Evacuation

0546. At the POI casualties receive combat first aid, TCCC and/or tactical medical care by a medic. Litter bearers from the unit locate and remove casualties to a safe place. They check or initiate first aid and transport the casualties or direct the walking wounded to the CCP (see paragraph 0348-0352 for more information on the CCP)

0547. A CCP is usually established in a defensible and sheltered area (e.g., low ground, inside a building) and is controlled by the platoon WO or sub-unit Sgt Major or other designated individual. It is staffed with one or more medics. Casualties are moved to a CCP by any means available. Movement can be:

a. under their own power if they are capable of walking unaided;

b. guided by members of their section;

c. carried or aided by litter bearers; or

d. transported in a sub-unit vehicle (CASEVAC) or sub-unit ambulance (MEDEVAC).

0548. At the CCP the sub-unit medics triage casualties and initiate medical care within their scope of practice. If the patient requires further evacuation, the medic provides clinical input for the preparation of the MEDEVAC Request (9-Liner) [125] for Fwd AE or if ground assets are required from higher resources.[126] See Figure 3.5 for information on the medic's duties at a CCP.

0549. For ground evacuation from the CCP to the UMS some options are:

a. the patient may walk if capable;

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[125] ATP-97 *NATO Land Urgent Voice Messages (LUVM) Pocket Book*.

[126] The preparation and sending of the 9-Liner is done by the affected force element, with any clinical input coming from the medic.

b. the patient may be carried by litter when vehicle transport is not available (e.g., air mobile, jungle, mountain operations);

c. the sub-unit ambulance if not still required on site. This should be the norm for any sub-unit that has two ambulances. The sub-unit's ambulance may take the patient back to the UMS, or, depending on time and space, it may transfer the patient to a UMS ambulance at an ambulance exchange point (AXP) mid-way between the CCP and UMS;

d. a unit ambulance sent from the UMS;

e. CASEVAC in a vehicle of opportunity; or

f. when a CCP is established outside any unit's AO (e.g., a sustainment convoy, without integral ambulances, has casualties along a main supply route), ambulances from the Fd Amb's Evac Coy transport the patient directly to the BMS.

0550. If evacuation is delayed, the medic must provide prolonged field care.

0551. At the UMS, the patient is again triaged and emergency medical treatment necessary to preserve life, limb, or function and relieve pain is provided. The patient is stabilized for further evacuation if required. Patients with minor illness or injury are returned to duty as soon as possible.

0552. **Evacuation from the UMS**. The Fd Amb Evac Coy is responsible for the ground evacuation of patients from the UMS to the BMS or a Role 2 MTF if one is within the Bde Gp AO. Evac Coy armoured ambulances are used from the UMS rearward until it is safe to transfer patients to light ambulances at an AXP. If available, Fwd AE may be used for urgent cases.[127] If Fwd AE is required a MEDEVAC Request (9-Liner) is sent. For ground evacuation in a linear battlespace a 9-Liner is not normally required since the ambulance shuttle should be operating. Rather, a simple message is sent stating the number and type of patients that are en route rearward.

0553. **Evacuation beyond Brigade**. Ambulances from the Div Med Bn conduct ground evacuation from the BMS or Role 2B (or 2E) in the brigade AO to the Role 2E or 3 MTF in the DSA. Helicopter or fixed-wing AE may be used. Air or ground evacuation rearward of the brigade is coordinated through the Div PECC.

0554. **Evacuation beyond Division**. The Corps or Theatre level PECC cooridinates any evacuation outside the Divison area.

0555. **Evacuation out of the AO**. It is a national responsibility to provide or arrange strategic evacuation for patients requiring evacuation out of theatre or back to Canada.

0556. **Bypassing MTFs**. To improve the probability of optimal patient outcome it may be appropriate to bypass MTFs within the chain of evacuation. For example, if the patient's condition warrants it, and it is tactically feasible, the patient could be evacuated directly from a POI to a Role 2 or 3 MTF. This is most often achievable with the use of Fwd AE. The system is flexible and any number of variations are possible providing that the principles of evacuation are not violated.

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[127] Although, by definition an AE conducted from a UMS to another MTF could be considered "tactical AE", in practice it is called "forward AE" when it is conducted by helicopters in the forward battlespace. This is common usage in NATO and Five–eyes patient evacuation.

Selection of Evacuation Assets

0557. Within an AO, casualties may be evacuated by individual carriers, litter bearer teams, ground vehicles, trains, aircraft, watercraft, robotic or autonomous systems, or any combination of these means. Patients should be moved by the safest, most comfortable, and most efficient method of transportation available.

0558. The specific mode of evacuation is determined by availability, the operational situation, distance the patient(s) is to be evacuated, weather conditions, terrain, road network, railway network, accessibility of MTFs, and the condition of the patient. When both air and ground ambulances are available, the determination of which casualties are evacuated by each means is based upon the clinical condition of each patient, with primary consideration being given to the means which contributes most to the patient's well-being.

0559. Patients are prioritized so that, if aircraft space is limited, more urgent patients are evacuated before those whose conditions are less serious. See Table 5-1 - *Treatment and Evacuation Priorities*.

0560. The tactical situation often dictates the need for a combination of, air and land evacuation. Sectors which have a high ground-to-air or air-to-air threat may rely on ground evacuation assets to move the majority of patients. In other sectors where the ground threat is high and comprised of small arms, IED, and bombs, MEDEVAC may be more efficiently and effectively executed by helicopters. Air movement in forward areas may prejudice security and, therefore, be restricted to the rear echelons of combat units. Land evacuation is then used as a link between the POI and the forward limit of air activity.

0561. **Ground assets.** Ambulances may be armoured or non-armoured, wheeled or tracked. Ground ambulances requirements are: [128]

a. **capacity**. Most ambulances are designed to carry four litter patients. Ambulances with lower capacity may be required for specific types of forces, (e.g., light infantry). In rear areas high capacity ambulances such as busses configured for litter patients may be required to move large volumes of patients;

b. **capability**. Due to increased clinical capabilities further forward in the battlespace than was previously the case, all ambulances within the brigade AO are equipped to provide extended resuscitative care, including the ability to carry blood. In some circumstances, the regular staffing of medics may be augmented by critical care personnel in order to evacuate ventilated post-DCR or DCS patients;

c. **mobility**. Ambulances require the same mobility as the force they support in order to keep pace, (e.g., tracked ambulances to support armour operations, over-snow vehicles, or all-terrain vehicles to support light forces);

d. **night-vision**. Ambulances require the same night-vision capability as the force they support in order to move in no-light / low-light conditions safely;

e. **protection**. Ambulances require armour and CBRN protection, and CID comparable to the force they support;

[128] See AMedP-1.14 *Medical Design Requirements for Military Motor Ambulances* for more information.

f. **communications**. Ambulances require the same communications capability as the force they are supporting in order to allow:

(1) appropriate assets to be directed to incidents and subsequently directed to the most suitable MTF;

(2) reduced response times by increasing flexibility;

(3) precise tasking and re-tasking of assets, thus reducing the numbers of MEDEVAC assets required;

(4) tactical direction from the supported unit;

(5) a means to advise command on medical matters (i.e., casualty updates, etc);

(6) direct communication at the scene of an incident; and

(7) direct communications between in-transit medical staff and receiving clinicians. This allows clinical advice to be given and permits the receiving facility to prepare appropriate staff and equipment.

0562. Depending on the terrain, threat, force protection requirements, concept of operations, etc, light ambulances may not be suitable anywhere in the AO. These ambulances may have to be replaced by armoured ambulances.

0563. **Air assets (rotary and fixed wing)**. Air evacuation assets with their flexibility and ability to cover larger distances in short time are generally the preferred means of evacuation. AE helps to reduce the time between injury/onset of illness and the start of surgery. They are limited by capacity, availability, operational priorities, enemy activity, and weather conditions. The limited capacity in some helicopters may be further reduced by extreme heat and extreme altitude. There is always a requirement for sufficient backup by surface MEDEVAC assets.

0564. Aircraft are vulnerable to enemy activity and will only fly as far forward as tactically possible. In some operations this could be to the POI. In others it may be rear of the BMS.

0565. The launch of aircraft is an Operations and Air responsibility with input from the PECC. AE assets may be assigned or dedicated, on priority call or opportune lift. In the forward area helicopters may be quickly diverted from other tasks. If there are no medical personnel onboard this results in CASEVAC rather than MEDEVAC; however, in the interest of time, this may be a better solution than waiting for a MEDEVAC capability.

0566. A CAF Task Force may include a dedicated Fwd AE capability scalable from a single medic up to a four member critical care team comprised of physicians (emergency or medical specialist), Critical Care Nursing Officers and Medics trained in pre-hospital care, DCR, and in-flight patient care. Fwd AE is normally a division controlled asset.

0567. **Non-HS assets**. If there is an overwhelming number of casualties for MEDEVAC assets, other vehicles returning to the rear may be converted to a CASEVAC role. This is a commander's decision. In order to conserve forward medical assets during these circumstances, non-urgent casualties, or those not requiring medical supervision, should be evacuated using non-medical assets when possible.

0568. Plans for the use of non-medical vehicles to perform CASEVAC should be included in each unit's standard operating procedures and rehearsed in training. Whenever possible non-medical vehicles or aircraft transporting casualties should be augmented with a TCCC provider or medic. The type of en route monitoring and medical care or first aid provided is limited by the

skill level of the attendant, medical equipment available, number of casualties being transported and the accessibility of the casualties on the platform.

0569. **Non-traditional modes of evacuation.** Military operations may take place in any terrain, including some with no roads, (e.g., jungle, mountains, etc). In such operations it may be important to plan for, and practice, non-traditional methods of evacuation. There is no limit to the variety of means that can be used routinely, or in emergencies, for the transportation of patients. These can range from pack animals or cable-car in mountain warfare to a log raft in jungle operations.

Section III - Ambulance Shuttle

0570. The ambulance shuttle system is an effective and flexible method of employing ambulances in a contiguous linear battlespace. Its purpose is to echelon ambulances in depth along evacuation routes and to prevent congestion of ambulances at any one place. It consists of one or more ambulance loading points, relay points, exchange points, and when necessary, ambulance control posts.

0571. The ambulance shuttle is usually internal to a brigade sized formation. A separate ambulance shuttle is established by the next higher formation (division) for evacuation rearward of the forward brigades. Within the brigade AO the ambulance shuttle is controlled by the Fd Amb Evac Coy.

0572. Higher level medical units relieve forward units/facilities of their patients, and should ensure that the evacuation assets are located at the forward end of the shuttle ready for immediate use, e.g., division relieves brigades, and brigades relieve units.

0573. In non-linear or non-contiguous battlespace force protection is a major consideration and ambulances may have to be escorted by combat arms elements or be attached to an established convoy with its integral protection.

0574. **Concept of employment**. Unless restricted by the tactical situation, ambulances are to automatically move forward on authorized evacuation routes between points [*see* below] without direction from their HQ. The ambulances remain hidden and await for a returning ambulance to pass. When they see it drive by, they move forward to the next point in the ambulance shuttle.

0575. **Ambulance Loading Point (ALP)** is, "A point where at least one ambulance is stationed ready to evacuate patients."[129] ALPs may be located throughout the chain of evacuation e.g., at a CCP, an HLS, a staging facility, or at any MTF. Evac Coy ambulance(s) will usually be pre-positioned at UMSs.

0576. **Ambulance Relay Point (ARP)** is, "A point in the ambulance shuttle system where ambulances wait ready to go forward."[130] This may be to go forward to another ARP or to an ALP to replace an ambulance that has moved. The first ARP should be near enough to the ALP to permit a loaded ambulance to be quickly replaced. ARPs may be combined with staging facilities or located at other suitable points between the UMS and the BMS. As a control measure, relay points are generally numbered from forward to rear.

0577. **Ambulance Exchange Point (AXP)** is, "A location where a patient is transferred from one ambulance to another en route to a medical treatment facility. This may be an established point in

[129] DTB, record 7760.
[130] DTB, record 7761.

an ambulance shuttle system or it may be designated independently."[131] An AXP is also used where patients are transferred from one type of ambulance to another, (e.g., tracked to wheeled, armoured to light, ground to air). The exchange is required to minimize the rearward movement of tracked or wheeled armoured ambulances.

0578. The use of AXPs allows ambulances to return to their supported sub-unit faster. This facilitates evacuation as the returning crews are familiar with the road network and the tactical situation. AXPs are placed as far forward as tactically possible. This may be:

a. at a UMS;

b. forward of the UMS when both tracked and wheeled vehicles are being used or when the distance to the UMS is extended;

c. rearward of the UMS in a secure area where it is safe to transfer patients from armoured ambulances to light ambulances. The AXPs will often be co-located with a staging facility; or

d. where the tactical situation is such that MEDEVAC helicopters cannot fly as far forward as the UMS, an AXP co-located with an HLS could be established some distance to the rear for transferring patients from ground to air.

0579. The location of AXPs should be frequently changed to preclude attracting enemy fires or giving away other friendly positions.

0580. **Ambulance Control Post (ACP)** is, "A post where ambulance movement within the ambulance shuttle system is controlled."[132] This is placed at a road junction or intersection where the main evacuation route divides into two or more routes going forward. The ACP serves to direct replacement ambulances to the forward areas along the correct route, and thus maintain the proper number of ambulances in each leg of the shuttle. The Ambulance Platoon HQ is often used to carry out the ACP function. This consist of a soldier stationed at a crossroad or road junction where ambulances may take one of two or more directions to reach an ALP. The soldier, knowing from which location each loaded ambulance has come, directs empty ambulances returning from the rear. Generally, ACPs are used in forward areas, in black-out conditions, enhanced emissions control states and during active enemy electronic warfare or cyber-attack.

0581. **Basic Relay Point (BRP)**. The BRP is located furthest to the rear where the bulk of any uncommitted ambulances are stationed. It is normally collocated with the Evac Coy HQ or with the Ambulance Platoon HQ when it is desirable to disperse evacuation assets for survivability.

0582. Figure 5-2 depicts the layout of an ambulance shuttle system.

[131] NATO*Term* 27580.
[132] DTB, record 39.

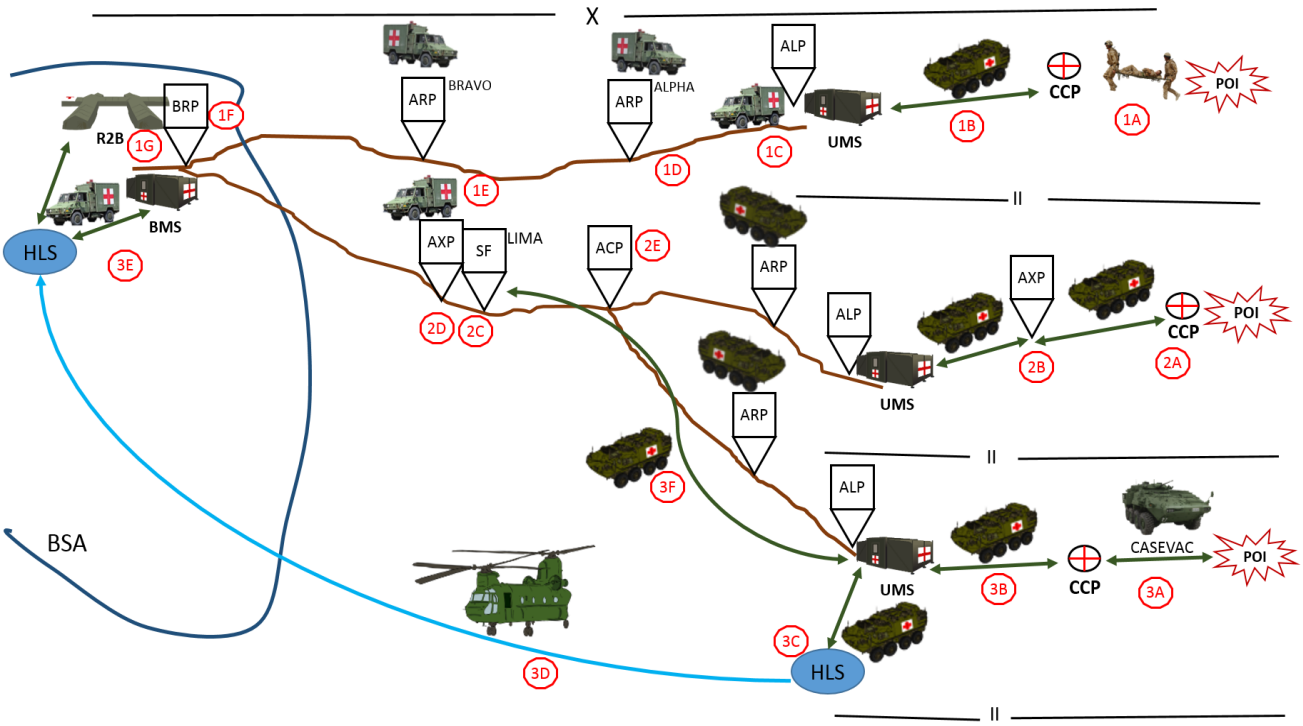

Figure 5-2: Ambulance Shuttle System (see text box below for description)

Scenario 1. The casualty is carried by litter bearers to the CCP (1A). The litter bearers immediately return to the platoon. Following triage and initial treatment the patient is moved by a company ambulance to the UMS or by an ambulance from the UMS (1B). After treatment, the patient is loaded (at the ALP co-located with the UMS) on a light ambulance from Evac Coy (1C). As the loaded ambulance passes ARP Alpha, an empty ambulance moves forward to the ALP (1D). When the loaded ambulance passes ARP Bravo an empty ambulance moves forward to the ARP Alpha (1E). As the loaded ambulance passes the BRP one ambulance moves forward to ARP Bravo (1F). Once the loaded ambulance offloads at the BMS or R2B (as applicable), it replenishes combat and medical supplies and moves to the BRP where it re-enters the ambulance shuttle (1G).

Scenario 2. A company ambulance picks up the patient at the CCP (2A) and moves back to an AXP (2B) where the patient is transferred to an ambulance coming from the UMS. The company ambulance returns to the company. At the UMS the patient is loaded on an armoured ambulance from Evac Coy because light ambulances are not allowed forward of the staging facility. Due to the length of the evacuation between the UMS and BMS a staging facility (2C) is established along the evacuation route. After unloading at the staging facility the returning ambulance passes an ACP staffed by an armoured ambulance platoon HQ (2E) which directs it down the appropriate route to the next ARP. Co-located with the staging facility is an AXP where the patient is transferred to a light ambulance for evacuation rearward.

Scenario 3. The casualty is carried to the CCP by a platoon vehicle, the vehicle immediately returns to the platoon (3A). The patient is moved by a company ambulance to the UMS or by an ambulance from the UMS (3B). After treatment, the patient is moved by a UMS ambulance to an HLS if Fwd AE is to be used (3C). The helicopter flies (3D) to the HLS located near the BMS, where an ambulance transfers the patient to the BMS or R2B as applicable (3E). If ground evacuation is to be used, Evac Coy armoured ambulance platoon runs the ambulance shuttle from the UMS to the staging facility (3F).

Ambulance Routes

0583. The following considerations govern the selection of ambulance routes:

a. the availability of the routes (must be approved by the formation Operations staff);

b. the surface (paved, dirt), width, and grades of roads and cross-country routes;

c. the traffic density on available routes or portions thereof;

d. the relative length, compared with other possible routes;

e. the proximity of routes to terrain features or installations that may draw enemy fire, or intersections likely to be interdicted;

f. their general protection from enemy observation and fire;

g. cover or concealment of ambulances when on the move and parked;

h. refugees and displaced persons causing congestion on roads can happen suddenly; and

i. due to potential disruption at least one alternative evacuation route must be selected.

0584. Routes should optimally be physically driven / reconnoitred day and night with a focus on bridges, fords, and badly maintained roads/tracks in order to confirm route conditions, confirm actual driving times between locations, and to increase drivers' familiarity with the route.

Medical Property Exchange

0585. In order to maintain efficient, effective and timely evacuation of patients some non-expendable medical equipment, such as monitors, traction splints, backboards, straps, and oxygen cylinders might have to follow the patient throughout the evacuation. In addition, some general stores items such as stretchers and blankets are quickly depleted as patients are evacuated rearward. A robust property exchange system is required to ensure that items removed from forward MTFs and ambulances are replaced. Normally the property exchange is conducted wherever a patient is transferred between ambulances or to a MTF. This may require placing replenishment stocks at MTFs, staging facilities, and AXPs.

0586. **Multinational property exchange**. See AMedP-1.12 *Medical and Dental Supply Procedures* for specific information regarding property exchange between nations.

Medical Replenishment

0587. The ambulance shuttle plays a critical role in the replenishment of forward medical elements. Ambulances moving forward bring medical consumables and replacement personnel and equipment to forward MTFs. Alternatively, medical supplies may be added to the daily or emergency deliveries which sustain the unit. See Chapter 6 HS Logistics for more information.

Section IV – Evacuation Rearward of Brigade

0588. Within the division AO, the division is responsible for providing or arranging all evacuation rearward of the brigade. Ground evacuation assets come from the Div Med Bn. Rotary wing evacuation comes from the supporting Tactical Aviation Squadron, or a dedicated Air Ambulance unit if attached. The division PECC coordinates ground evacuation rearward of the forward brigades, and all Fwd AE anywhere in the division AO.

0589. **Casualty staging unit (CSU)** is, "A medical unit caring for in-transit patients under medical personnel supervision."[133] A doctrinal CSU is capable of holding stabilized patients and providing limited medical care to patients prior to evacuation from the AO. It has 50 intermediate care beds.[134] The CSU acts as a checkpoint within the patient tracking and medical regulation processes. CSUs are usually at Div level or higher.

0590. CSUs are located along the evacuation route, usually at railheads, airheads, seaports, or on roads with long distances between MTFs. A CSU only has ambulances to transfer patients from a railhead, seaport or airhead in its immediate vicinity. The Div PECC coordinates the evacuation from to and from a CSU. Property exchange of medical equipment is a major consideration when establishing a CSU.

0591. A CSU, or portion of it, may be attached to a Role 2 or 3 MTF as an additional holding capacity or as an isolation facility. This may be a mitigation strategy when evacuation is interrupted. With minor modification to its structure it may also be used as a rest and reconstitution facility for combat stress casualties or as an MTF for detainees who require in-patient care.

0592. **Aeromedical staging facility (ASF)** is a task-tailored CSU which holds and prepares patients at an airhead for tactical or strategic AE. It includes a C2 element, clinical resources led by a Flight Surgeon, and AE medical equipment.

0593. **Large volume of patients**. In relatively secure areas bus ambulances may be required to move large volumes of patients. In some theatres ambulance trains may be used, particularly when long distances are involved. Ambulance trains are not planned as a Canadian capability; however, a Canadian CSU may be located at a railhead.

Section V - Planning Considerations

0594. The responsibility for planning and executing an effective MEDEVAC system lies with the Commander and the HS staff, in close coordination with the Operations, Logistics, and Air Operations staff. See CFHSP-1 *Health Services Planning* for additional planning considerations and the medical estimate format.

0595. Evacuation planning is a dynamic and continuous process. The evacuation plan will change in response to unforecasted emergencies or during different phases of an operations. For example, transitioning from offensive to defensive operations or operations dominated by stability tasks will generally dictate a significant change in MEDEVAC coverage requirements.

0596. **Command and control**. Evacuation is controlled at the highest appropriate level to facilitate planning and promote efficiency and effectiveness. HS commanders, at all levels, are responsible for the control of land evacuation within their areas of influence.

0597. **Coordination**. MEDEVAC requires deploying HS resources within areas of tactical-level operations and across formation boundaries. The allocation of real estate and routes is an operational prerogative based on the commander's priorities. Coordination with the battlespace owner is essential. Arrangements must be made with the formation or unit operations cell for route and site selection, and force protection. Also, the authority to launch MEDEVAC aircraft and

[133] NATO*Term* 3264.
[134] NATO Capability Statement.

ambulances in a contested area, or force protection elements, is a Command function exercised through the formation Operations cell.

0598. **Communications**. It is possible for an entire evacuation plan to be changed several times during one 24-hour period, (e.g., disruption of routes, MTFs at capacity, changed location of MTFs, etc). A robust communications system allows for quick rerouting or prioritizing of evacuation assets and medical regulating; however, procedures must be in place for when communications are disrupted. When required the system can function without radios. Messages can be passed using the ambulance shuttle system.

0599. **Patient categorization**. Patients requiring evacuation are categorized based on their clinical condition. All patients require individual consideration of their treatment needs. While the needs for treatment and evacuation are different, they are usually considered concurrently, leading to the assignment of a priority. The priorities for treatment and evacuation are:

Priorities for Treatment and Evacuation	
Priority 1 – Immediate	The casualty's life is immediately threatened. Rapid evacuation within a maximum of **one hour**, preferably by air, and expeditious treatment are necessary to save life. Approximately twenty percent of patients are normally in this category. NOTE: The 10-1-2 (+2) timeline is tied to Priority 1 patients.
Priority 2 – Early	Life or limb is in serious jeopardy though not immediately threatened. The casualty should be evacuated within **four hours**. Approximately twenty percent of casualties are normally in this category.
Priority 3 – Routine	Neither life nor limb is in serious jeopardy, though a limb or organ may have sustained crippling injury. The status of the casualty is, for the moment, relatively stable and evacuation may take place as transport becomes available, ideally within **24 hours**. Approximately forty percent of casualties are normally in this category.
Priority 4 – Deferred **NOTE.** Priority 4 is not used in a MEDEVAC Request (9-Liner)	There are two groups: (1) Group 1 - neither life nor limb will be jeopardized by delaying treatment or evacuation, until the higher priorities have been dealt with. (2) Group 2 - injuries are so massive that the probability of survival is beyond reasonable hope. This is applicable if the concentration of resources on such a casualty would prejudice the treatment of casualties with a better prognosis. Approximately twenty percent of casualties are normally in this category.
Warning There are differences between some NATO, US Army, and Canadian publications. Some use "category" rather than "priority". Prior to any exercise or operation it is imperative that air and ground forces, HS, and HQ staff confirm what will be used in theatre. The current MEDEVAC Request (9-Liner) uses "priority", see ATP-97 *NATO Land Urgent Voice Messages (LUVM) Pocket Book*) March 2020.	

Table 5-1: Patient Categorization

05100. **Dependency levels**.[135] The assessment of dependency recognizes the need to move patients who have received initial resuscitative treatment or equivalent but whose condition remains critical, possibly requiring intensive support during evacuation. Table 5-2 defines the degree of dependency (generally used for tactical and strategic evacuation).

Dependency	Description
Level 1: High Dependency	Patients who require intensive support during transit. For example, patients requiring cardiac and central venous pressure monitoring, and / or ventilator management. Patient may be unconscious or sedated.
Level 2: Medium Dependency	Patients who, although not requiring intensive support, require regular, frequent monitoring and whose condition may deteriorate in transit. For example, patients who require a combination of oxygen administration, one or more intravenous infusions and have multiple drains or catheters.
Level 3: Low Dependency	Patients whose condition is not expected to deteriorate in transit but require nursing care of, for example, simple oxygen therapy, an intravenous infusion or a urinary catheter.
Level 4: Minimal Dependency	Patients who do not require nursing attention in transit but might need assistance with mobility or bodily functions.

Table 5-2: Dependency Levels

05101. **Clearing of facilities**. If evacuation is not managed appropriately, MTFs cannot clear their beds to allow the admittance of new patients. Since the arrival of casualties can be unpredictable, MTF commanders and medical planners must constantly be thinking about how to clear a MTF of patients in order to be able to receive more casualties or to relocate.

05102. **Force protection**. In some circumstances, such as when the enemy does not respect the LOAC and targets medical elements, a non-contiguous battlespace, contested routes, high IED threat, or ground-to-air and air-to-air threat environment, MEDEVAC elements may require force protection for ground or air ambulance missions. Those missions that require armed escort must be thoroughly coordinated and synchronized between the medical assets and force protection assets that will accompany them. It may take a combination of both air and ground working in concert to mitigate the risk to perform the evacuation.

05103. In many circumstances force protection elements may not be readily available. Non-urgent cases may be evacuated in ambulances on routine combat logistics patrols. Otherwise, medical elements must be prepared to provide prolonged field care. In forward areas force protection can be enhanced when Evac Coy elements and CS Med Coy elements are able to co-locate.

05104. **Mental health patient**. For their own safety and that of the ambulance or AE crew, some mental health patients may require restraints and/or escorts. Escorts are provided by the parent force element.

[135] Aligned to AAMedP-1.1 *Aeromedical Evacuation*, the dependencies also apply to ground evacuation.

05105. **Generic planning factors**.[136] With a view to achieving the 10-1-2 (+2) treatment timelines, MEDEVAC planning must consider the factors in Figure 5.3 below. These factors are continuously assessed for changes that would impact the plan. For additional MEDEVAC planning factors see Chapter 7 for specific operations and Chapter 8 for unique environments.

Figure 5.3 MEDEVAC Planning Considerations

[136] See CFJP 4-10 *Health Services* Chapter 6 and AJMedP-2 *Allied Joint Doctrine for Medical Evacuation* for more information.

05106. The following paragraphs amplify the "Tactical Environment" factors in Figure 5.3:

a. The tactical commander's plan for employment of operational forces. The location of, and distances between, friendly elements is a key determinant in locating MTFs and the type and quantity of MEDEVAC assets required;

b. Enemy activity and most likely course of action, strength, disposition and tactics. The numbers and types of opposing forces and their locations impact casualty rates and likely locations of casualties. The use of IEDs may delay ground evacuation operations and limit freedom of movement for medical platforms. An anti-aircraft capability will impact the use of AE assets;

c. The adversary's compliance with the LOAC. This is considered to determine what should be the posture regarding camouflage or displaying the distinctive emblem (Red Cross) on MEDEVAC resources and what force protection is required;

d. Fire support plan. This ensures MEDEVAC assets are not dispatched onto routes affected by any fire support mission;

e. Contiguous or non-contiguous battlespace. This impacts the siting, capacity and capability of MTFs and MEDEVAC assets, and force protection requirements;

f. Weather. Hot, cold, wet, dry, dust, and wind conditions are considered for their impact on the types and quantities of medical supplies and equipment, the ability to warm or cool patients, and the ability to maintain the temperature of sensitive medical supplies and equipment. Wind and dust storms may impact flight operations. Extreme heat may impact the carrying capacity and range of some helicopters; and

g. Terrain analysis. This includes the impact of topography, urbanization, infrastructure, roads, airports, seaports on siting of MTFs and evacuation assets. Distances between locations should be converted into time to facilitate the link between treatment timelines and potential locations of units. Difficult evacuation routes may necessitate the forward placement of surgical capabilities or more hospital beds. Long evacuation timelines may require additional holding capacity at MTFs along the lines of evacuation.

The Blue-Light Matrix

05107. The blue-light matrix is part of the MedCOP and provides a dynamic overlay, which highlights the medical support coverage in the AO and determining the location of medical assets on the ground, their capabilities, capacity and readiness status. It identifies all relevant allied and host nation MTFs as well as contact information. During peace support operations where MTFs are static a simplified version of the Blue-Light Matrix showing the location and contact information of all MTFs in the AO should be provided to every convoy commander.

Section VI - Patient Evacuation Coordination

General

05108. Patient evacuation coordination should ensure the most effective use of medical treatment and evacuation resources, and that all patients receive appropriate care as fast as possible. When initiating a MEDEVAC it may not be possible to gather every piece of information in perfect fidelity, (i.e., all details of a MEDEVAC Request (9-Liner) and the Mechanism Injury Symptoms Treatment report). To meet treatment timelines decisions may have to be made with limited information. *Losing time is losing lives*.

05109. The placement and movement in the battlespace of air and ground MEDEVAC elements must be coordinated through the Operations and Air staff. Depending on the tactical situation, air or ground evacuation assets may require additional platforms to provide force protection. This is coordinated through the Operations staff.

Patient Evacuation Coordination Cell (PECC)[137]

05110. Depending on the size and complexity of the AO, a PECC might be established in order to coordinate MEDEVAC activities within or between formations and components, often using multinational resources. At a minimum each division and higher formation HQ has a PECC;[138] however, the functions of the PECC are applicable at all levels. Its purpose is to plan and coordinate the evacuation of casualties from any point along the chain of evacuation from the POI to definitive care.

05111. At division level the PECC focusses on forward and tactical evacuation. Coordinating for strategic evacuation is conducted by theatre-level PECCs.

05112. It must provide 24-hour support to current operations. If no physician is part of the MEDCC or PECC, immediate access to one is required.

05113. MEDEVAC requires deploying HS resources within areas of tactical-level operations and across formation and command boundaries. In contested environments MEDEVAC assets may require the allocation of force protection elements. The PECC requires close coordination with the battlespace owner, and formation Operations and Air staff.

05114. Within their respective formations each PECC is responsible for:

a. medical regulating (patient flow management) [*see* paragraph 05121];

b. in-transit patient tracking [*see* paragraph 05124]. This responsibility is handed over to the next higher formation PECC once the patient leaves the initial PECC's AO;

c. maintenance of the MTF database to include type (Role 1, Role 2B, etc), nationality, location, clinical capability (e.g., neurosurgery, computed tomography, dental), isolation capability, CBRN capability, capacity (bed status), medical equipment/supply status, limitations, notice to move (for mobile operations), and contact information. To the extent possible, it should include all applicable military, civilian, or non-governmental organization MTFs. This database should include the location of all veterinary services;

d. maintaining a MEDEVAC assets availability database [*see* paragraph 05120];

e. coordination with superior, subordinate, supporting, and flanking formation PECCs;

f. upon receipt of a MEDEVAC Request (9-Liner) or PMR, based on quantity and type of injuries/patients:

   (1) receive, prioritize and provide the medical analysis to determine the appropriate type and quantity of evacuation assets (ground and air) for the mission;

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[137] At theatre level the PECC is, "The medical staff element providing the theatre level medical evacuation and regulating functions for all patients, in conjunction with force components and theatre logistic and movement control agencies." (NATO*Term* 33843).

[138] The PECC is a sub-component of the MEDCC (see paragraph 0287 for details).

(2) determine the level of medical care required, e.g. up to a critical care AE team [*see* Table 5-2 for dependencies];

(3) determine appropriate destination MTF(s);

(4) ensure with the destination MTF(s) any necessary ground transportation is arranged between the HLS, airhead or railhead and the MTF;

(5) inform the destination MTF(s) of the estimated time of arrival of patients and any available clinical information on the patient(s);[139]

(6) ensure the destination MTF is aware of any patients with, or suspected of having, highly infectious disease;

(7) confirm any route restrictions with G3 staff and inform the evacuation asset;

(8) coordinate with G3 staff for force protection elements for evacuation assets;

(9) for Fwd AE coordinate with G3 and Air as the aircraft launch authorities; and

(10) track the progress of the Fwd AE flight (wheels-up/wheels-down) and inform the destination MTF if necessary.

g. coordinating evacuation during MASCAL situations to include the use of improvised CASEVAC assets; and

h. coordinating for the use of host nation, non-governmental organization, or international organizations evacuation resources for the transfer of civilians.

05115. When a PECC receives a request for MEDEVAC outside its area of responsibility, it will immediately forward this request to the next higher formation PECC, and provide further liaison and coordination as necessary.

05116. Throughout the MEDEVAC process, patient flow management, and patient tracking medical confidentiality must be respected.

05117. **Aerospace medicine**.[140] For tactical and strategic AE a flight surgeon[141] determines fitness for flight and any special patient requirements.

05118. **Patient movement software**. On most multinational missions there will be a requirement to use NATO or a lead nation's patient movement software for tactical and strategic evacuation. Training on such systems should be prior to personnel entering theatre.

05119. **PECC function within a Bde Gp**. Within the Bde Gp AO the Evac Coy conducts the PECC function for ground evacuation. The Medical Operations staff attached to the Bde Gp HQ coordinates with the Div PECC for all Fwd AE requests and ground evacuation outside the Bde Gp AO.

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[139] For forward evacuation, information may be available as part of the Mechanism, Injury, Symptoms, Treatment report that should accompany a MEDEVAC Request (9-Liner) (see ATP-97 *NATO Land Urgent Voice Messages (LUVM) Pocket Book*). For tactical evacuation, information will be provided in the PMR by the initiating MTF.
[140] The speciality of medicine concerning the determination and maintenance of health, safety, and performance of those who fly in air or space (DTB, record 34075).
[141] A physician specially trained in aviation [aerospace] medicine (NATO*Term* 4250).

05120. **Evacuation asset information database**. At the beginning of any operations, and as circumstances change, the PECC, at each level, must compile a database of all evacuation assets which may be called upon in their respective areas of responsibility. The list must include:

a. type and quantity of each;

b. location;

c. capacity of each type (how many of which category of patient);

d. capability (basic, advanced pre-hospital care, critical care);

e. range;

f. availability (day/night capability, weather limitations, release authority, notice to move, national caveats);

g. schedules (are there routine flights, train schedule?); and

h. contact information.

Medical Regulating (Patient Flow Management)

05121. Medical regulating is the process of directing, controlling and coordinating the transfer of patients from the POI through the continuum of care to match patients with a MTF that has the necessary clinical capabilities and available bed space. It identifies the patients waiting evacuation, locating available beds, and coordinating the transportation means for movement. It is conducted at all levels but is particularly important in division and higher formations where there are multiple Role 2 and 3 MTFs. Medical regulating is conducted in order to:

a. facilitate the most effective use of medical treatment and evacuation resources;

b. ensure that the patient receives appropriate care in a timely manner;

c. route patients requiring specialized treatment to the appropriate MTF;

d. ensure an even distribution of cases; and

e. ensure adequate beds are available for current and anticipated needs.

05122. The regulation of patients through the continuum of care is a dynamic process based on an evacuation plan that has to be closely linked to the medical footprint and the casualty rate. It must take into consideration many planning and operational factors, such as:

a. patient's medical condition (stabilized to withstand evacuation) and eligibility for treatment [*see* CFJP-4.10 *Health Services* for information on medical rules of eligibility];

b. availability of evacuation assets at the tactical and strategic level [*see* paragraph 05114 PECC responsibilities];

c. MTF availability, their specialist capabilities, medical equipment status and staffing levels;

d. current bed occupancy status at each MTF including any surgical backlog;

e. location of airport / seaport of embarkation, railheads;

f. location, number and clinical condition of patients;

g. current tactical situation and associated risk from movement to patients or evacuation assets;

h. restrictions on movement due to infectious diseases;

i. communication status in the regulating chain (to include radio silence procedures and cyber threat); and

j. theatre patient return policy.

05123. In situations with a high number of casualties and if the treatment timelines can be achieved, Priority 2 and 3 casualties should bypass the Bde Gp Role 2B or 2E directly to a Div Role 2 or 3 MTF in order to safeguard surgical capacity forward for Priority 1 casualties.

Patient Tracking

05124. **Patient tracking** is "the precise and continuous monitoring of the location and the intended destination of the patient within the medical treatment and evacuation chain." [142] Keeping track of all personnel is of crucial importance in terms of the individual's clinical condition, readiness implications to the unit of origin, as well as family, media, and national sensitivities to casualties. A patient tracking system must be real time, accurate and dynamic, using standardized procedures, enabling exchange of data and be available, within the rules of medical confidentiality, to HQ G1/J1 and HS staff.

05125. Patient tracking plays an important role in contact tracing should a highly communicable disease emerge after evacuation.

05126. Patient tracking in a multinational environment is a great challenge and of significant importance, involving transfer of information between and among nations. Practical issues of language differences, communication system compatibility, standardized patient identification numbering, and record-keeping practices further complicate multinational patient tracking functions.

05127. **National medical liaison officer (NMLO)**. Tracking the location and status of CAF patients is of great interest to the chain of command. When a CAF patient is admitted into a friendly force or host nation MTF (usually at Role 2E or Role 3), an NMLO tracks and provides national administrative support to the patient until they re-enter the Canadian medical system or depart theatre. The NMLO, usually a General Duty Nursing Officer, provides information on patients to the formation G1/J1 and Surgeon.

05128. The NMLO is a national command element responsibility (not conducted at the Bde Gp level). Other nations may provide NMLOs to Canadian MTFs to facilitate the support of their personnel.

05129. The NMLO function is separate from the liaison officer employed at the tactical level [*see* Chapter 7].

[142] NATO*Term* 25638.

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Chapter 6
Health Services Logistics

General

0601. HS logistics is, "The planning, procurement, storage, movement, distribution, maintenance and disposal of health-care products and medical materiel in order to provide effective medical support."[143] Note: NATO uses the term "medical logistics."

0602. The scale and scope of a HS logistics system will be mission-dependent. It must enable the contingent to be self-sufficient, from deployment through the duration of the mission, and whenever possible compliant with the principles of Good Distribution Practice.[144] It must be straightforward and reliable, capable of delivering HS supplies rapidly throughout the theatre.

0603. The HS logistics system needs to ensure the sustainability of the HS system under all operational conditions. Although HS logistics is a national responsibility there may be opportunities for economies of scale by coordinating the supply of common items in a multinational mission.

0604. This chapter focusses on general HS logistics considerations. It should be read in conjunction with CFJP-4.10 *Health Services* and A-MD-175-003/AG-001 *Medical Materiel Management,* Part 3. For specific information on HS logistics within the Bde Gp see Chapter 3 and for within Role 2 and 3 MTFs see Chapter 4. For NATO operations see AMedP-1.12 *Medical and Dental Supply Procedures*.

0605. For information on general logistics and replenishment of HS elements see CFHSP 2.1 *Health Services Tactics, Techniques, and Procedures* (under development).

Characteristics of Health Services Logistics

0606. The unique characteristics of HS materiel set it apart from other commodities resulting in a separate HS logistics system. Distinguishing characteristics of HS materiel are:

a. **Protected status**. Medical and dental supplies are protected under the terms of the LOAC. They shall be properly marked, and stored and distributed separately from combat supplies;

b. **Regulatory aspects**. The accounting, administration, and use of HS supplies, in particular controlled drugs and blood products, are governed by national and international regulations. There may be host nation restrictions on the importation of certain pharmaceuticals. The consumption and controlled disposal of HS materiel must be recorded for legal, environmental, and asset control reasons;

c. **Handling requirements**. Tight controls and specialized management are required for HS supplies due to the technical and perishable nature of the materiel, especially its often-limited shelf life and its sensitivity to storage, transport, and environmental conditions (heat, cold, dust, rough handling); and

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[143] NATO*Term* 27542.

[144] Good Distribution Practice is an internationally accepted quality warranty system for purchasing, receiving, storage and delivery of medical supplies. In Canada it is based on Health Canada *Good Manufacturing Practices* GUI-001 and *Guidelines for Temperature Control of Drug Products during Storage and Transportation* GUI-0069.

d. **Clinical importance**. There is a complex interdependence between treatment capability and the availability of HS materiel. Seemingly insignificant items can have true life-and-death importance. The HS logistics system must contain the knowledge and responsiveness to meet short notice clinical demands.

0607. **Protection of medical materiel**. On many operations, including humanitarian assistance and disaster relief operations, medical materiel, particularly pharmaceuticals, are highly sought after items by the affected population, including criminal elements. Extra precautions must be taken to safeguard against theft.

Planning Health Services Logistics

0608. The planning and execution of HS logistics is a shared HS and Logistics responsibility. HS personnel are responsible for identifying the requirement, the specification, and quantity of HS materiel and pharmaceuticals and advice on the prioritization of deliver and any special handling requirements. HS logistics personnel are responsible for coordinating the management of HS materiel and pharmaceuticals within the overall logistic plan. HS and Logistic personnel will have shared responsibility for tracking of HS materiel and pharmaceuticals from sourcing to final disposition.

0609. CAF HS logistics does not have dedicated transportation assets. Medical and dental materiel from Canada is delivered through a national-level logistics capability, using sea, land, or air transportation as appropriate via strategic lines of communication.

0610. **Aerial delivery**. On some missions, emergency replenishment of forward elements may be conducted by aerial delivery. Medical supplies will be bundled with other combat supplies and managed through the Svc Bn's movements platoon. Special handling requirements (e.g., temperature control, dangerous cargo) must be identified. For more information see Canadian Army Doctrine Note 18-1 *Airborne Operations – Aerial Delivery*.

Health Services Materiel Management

0611. **Class VIII Supply Items**. Class VIII items include equipment such as x-ray machines and surgical instruments, consumable medical items such as pharmaceuticals and dressings, blood products, and medical gases. Medical and dental materiel is obtained directly from Canada, from local sources, from allied nations, or a combination thereof.

0612. Consideration must be given to the technical expertise, production capability, and quality control of local suppliers, especially if procured in theatre. Unless approved previously for use by the CAF, foreign drugs should be used only in emergencies and locally procured items should be identified and stored separately from those manufactured, or sourced, in Canada.

0613. Replenishment of medical and dental materiel is normally accomplished by a combination of a "push" system (mainly for short dated products such as laboratory supplies and blood), where items are automatically sent forward, and a "pull" system that depends on demands being submitted. The pull system avoids the accumulation and wastage of excess supplies but requires tight inventory control management.

0614. Within a Bde Gp AO, the HS logistics system is established along the lines of MEDEVAC. MEDEVAC assets, through the ambulance shuttle system, are used for both delivery and back loading of HS materiel.

0615. In many operations a distinct HS logistics chain is not possible. The movement of HS supplies forward may be wholly dependent on the general logistics system. Using tactical logistics

convoys is often an alternate solution for small quantities of HS supplies; however, the use of non-medical elements may impact LOAC protection.

0616. **Day of medical supply**. Consumption of HS materiel and consumables is unpredictable; usage is dependent on injuries sustained and treatment provided. There is no standard one day of medical supply. A warfighting mission with high casualty rates will have different usage than a relatively benign peace support operation. The following is used to determine one day of medical supply for a peer-on-peer or near-peer warfighting mission:

a. casualty estimate provided by the Bde or Div G5;

b. each surgical team operating on four critically wounded patients and four Category B/C patients per day and up to a total of 12 critically wounded in 24 hours during periods of surge;[145]

c. an average of 75% capacity in Role 2 and 3 MTFs;[146]

d. property exchange requirements;

e. PAR (numbers, military, civilian, paediatric, PW, etc) [*see* Chapter 1];

f. types of injuries expected based on the operation and enemy weapons (peer-on-peer, counter-insurgency, humanitarian assistance, CBRN, etc); and

g. expected disease and non-battle injuries, (e.g., volume and types of injuries or illness expected based on the environment - heat, cold, dry, altitude, endemic diseases).

0617. **Holdings**. Forward stock holdings must be carefully balanced among such factors as mobility requirements, expected usage and replenishment capability. Initial holdings must be based on the medical estimate, and this must be coupled with a flexible replenishment system that caters to the projected flow of operations.

0618. For the initial deployment to a theatre a Role 2 or 3 MTF should deploy with a minimum of 10 days of medical supply.[147] Note. Until a reliable replenishment system is in place the 10 days of medical supply will likely be inadequate. Initial holdings may have to be substantially higher.

0619. Once a reliable replenishment steady state is achieved, the normal basic load holdings are three DOS. In addition:

a. the Bde Pharmacy will hold one DOS as the maintenance load for the brigade to include supplies for a FST or Role 2B if attached. This is in addition to the two DOS held in the Fd Amb at the sub-unit and sub-sub-unit level; and

b. an FMED will hold one DOS as the maintenance load for division-level MTFs plus 26 DOS for the entire force as operational stocks.[148]

0620. **Stockpiling**. To ensure adequate HS supplies and equipment are available for routine and surge operations there may be a requirement to stockpile medical supplies and equipment in theatre or in forward locations. The following items are considered when determining medical stockpile requirements:

a. periods of intensity (expected peaks of demand);

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[145] NATO general planning guidance for high intensity operations.
[146] NATO general planning guidance for high intensity operations.
[147] NATO Capability Statement.
[148] NATO Capability Statement.

b. reliability and frequency of strategic and tactical sustainment;

c. storage constraints (volume, temperature control, security);

d. impact of environment on medical supplies and equipment (heat, cold, humidity, dust);

e. dependencies, (i.e., does the MTF support any other HS elements);

f. availability of sterilization capability. If not available it increases the requirement for disposable items;

g. availability of acceptable supplies from allies, host nation or adjacent nation;

h. likely interruption of tactical and strategic lines of communication;

i. proximity to an FMED;

j. availability of Biomedical Electronics Technologists;

k. remoteness, (e.g., a forward operation base); and

l. patient return policy.

0621. For opposed theatre entry operations there may be a requirement to stockpile medical supplies at a mounting base close to the theatre such as in an adjacent nation or an operational support hub.

0622. **Biomedical waste**. A plan to address the handling and disposal of regulated medical and biological waste must be incorporated in the HS logistic support plan. It must be designed to prevent pollution, protect the environment, comply with regulatory guidance and policy, protect the deployed force, and be in compliance with Canadian and host-nation laws. See A-MD-175-003/AG-001 *Medical Materiel Management* for more information.

0623. **Disposal**. Pharmaceuticals and other medical materiel may pose serious environmental and health hazards if disposed of improperly, thus requiring controlled disposal methods. Expired drugs or materiel are not given to any external agency, even for humanitarian reasons, but rather are disposed of in accordance with A-MD-175-003/AG-001 *Medical Materiel Management*. Disposal of narcotics and other controlled drugs is to be conducted in accordance with CFHS Instruction 4200-44 *Narcotics and Controlled Drugs*.

Sterilization

0624. The Bde Pharmacy and Role 2 and 3 MTFs normally include a sterilization capability. During small scale or relatively safe missions it may be possible to use disposable instruments. This is particularly useful in short-duration MSRT, DCR Team, or FST tasks.

0625. The trade-off of using disposable equipment is that the volume of supplies required is increased. This is problematic in medium and high intensity operations with expected high casualty rates or if there is any disruption to lines of communication.

Medical Gases

0626. Medical grade oxygen is required throughout the continuum of care starting at the first ambulance back to strategic AE. Oxygen may be bottled or supplied through an oxygen generation system found in a Fd Amb Bde Pharm, R2 or R3 MTF. Otherwise, a reliable supply must be produced or obtained from Canadian, partner nation, or host nation sources.

0627. To facilitate cross-servicing of medical gas cylinders with other NATO nations Canada has adopted AMedP-1.19 *Cross Servicing of Medical Gas Cylinders.* See also A-MD-175-003/AG-

001 *Medical Materiel Management*.

Equipment Repair and Maintenance

0628. The Bde Pharmacy, Role 2B, 2E, 3 and FMED will routinely deploy with Biomedical Electronics Technologists. Equipment that cannot be repaired is returned to Canada.

0629. Environmental extremes can impact the availability of medical equipment. During transportation and when in an MTF, medical equipment must be protected from extremes of heat and cold. Dust can be particularly unforgiving on sensitive medical equipment. Regular cleaning and operator maintenance must be strictly enforced to ensure the operability of the medical equipment. There may be a requirement for additional Biomedical Electronics Technologists.

0630. On deployments with harsh conditions (dust, heat, humidity, cold), where no Biomedical Electronics Technologist is readily available, or when sustainment flights are irregular, it may be necessary to have a higher than normal number of spare parts and/or entire machines in location to allow for an exchange of equipment while awaiting repair.

Blood and Blood Products

0631. The supply of blood and blood products is a critical function within HS logistics. Resuscitation and stabilization of a patient who has lost more than two units of blood is difficult, if not impossible without blood replacement. Blood and blood products are being used further forward in the battlespace than what was previously common practice.

0632. The CFHS is responsible for the supply of blood to Canadian MTFs. This may be arranged nationally, or through a binational or multinational agreement provided that Canadian Blood Services standards are met.[149] Normally an FMED will hold blood in theatre and manage the stockpile and distribution in conjunction with the Div Surg blood program staff. If an FMED is not deployed, a Canadian Role 2 or 3 MTF may have to manage the blood management for all CAF elements in a theatre.

0633. The management of an in-theatre blood system requires specific training for medical laboratory technologists and nursing officers. The system requires a minimum capability of:

a. moving, storing, and distributing blood and blood components, and disposal of clinical items used in blood administration;

b. maintaining continuity of records from donor to recipient; and

c. collecting, processing, and testing blood on an emergency basis.

0634. For more information on the management of blood on deployed operations see Director Health Services Operations' publication *Whole Blood in an Operational Environment* available from the Blood Program Officer.

0635. For high intensity operations, the NATO Blood Panel planning guidance is two units of whole blood or equivalent (two units each of packed red blood cells, platelets, and plasma) per expected patient.[150] This is an average for all casualties throughout the battlespace (from POI to Role 3) noting that most casualties will not require transfusion but approximately 5% will require

[149] See AMedP-1.1 *Minimum Requirements for Blood, Blood Donors, and Associated Equipment* for more information.
[150] The battle casualty estimate is provided by the Bde or Div G5.

a massive transfusion i.e., greater than 10 units. For patients admitted to a Role 2 or 3 MTF the average requirement is six units.

0636. **Walking Blood Bank (WBB)**.[151] In high intensity operations the demand for blood may outstrip supply. To meet the demand there may be a requirement to initiate a WBB whereby pre-screened CAF members are called upon for emergency blood donation. The potential use of a WBB is identified during the operational planning process prior to the mission, and must be approved by the Surgeon General. Potential donors from the Task Force are volunteers who are screened by Canadian Blood Services three months prior to deployment.

0637. Prior to deployment designated medical personnel will receive Canadian Blood Services approved training for blood collection and management. A nursing officer will be designated Officer in Charge of Fresh Whole Blood.

0638. Activation of a WBB in theatre may only be initiated by the Task Force Surgeon/SMA in consultation with the Officer in Charge of Whole Blood.

Controlled Substances

0639. Some pharmaceuticals such as narcotics and Surgeon General controlled items are highly regulated with strict control and accounting mechanisms. Controlled substances may have restrictions on importation in to host countries, which need to be considered well in advance.

Airworthiness of Medical Equipment

0640. Any medical equipment that may travel with a patient in any aircraft (rotary or fixed wing) must be Royal Canadian Air Force certified as airworthy for the type of aircraft. There may be different requirements for different nations.

Implications of the Law of Armed Conflict (LOAC)

0641. Medical and dental materiel captured from opposing forces are neutral and protected property under the LOAC. They are not to be intentionally destroyed. Confiscated or captured medical and dental materiel is to be back loaded to the nearest medical equipment depot for analysis and classification.

0642. Captured supplies, if suitable, may be used by retained HS personnel[152] to treat PWs or to provide aid to the civilian population or refugees. The materiel should first be used to treat opposing forces sick and injured, and only after their needs have been met should the supplies be used to treat others. If the items are considered to be unfit for use they may be abandoned for opposing forces use following a command decision to do so. Captured medical and dental supplies are not to be destroyed.

Forward Medical Equipment Depot (FMED)

0643. When deployed, an FMED is the main source of medical equipment and supplies for CAF HS elements. Its staffing level will vary depending on the mission size and requirements. At a minimum there is one Pharmacy Officer, two medics, and a Biomedical Electronics Technologist. FMEDs, or detachments, are located along the theatre lines of communications, and at operational support hubs along the strategic lines of communications. FMED detachments may co-locate with Role 2 or Role 3 MTFs.

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[151] A WBB is the process by which whole blood is collected from a pre-screened population.
[152] Captured enemy HS personnel are “retained”, not PWs.

0644. The functions of an FMED are:

a. receipt, storage, and issue of medical and dental materiel;

b. the acquisition of pharmaceuticals and medical/dental supplies from the Central Medical Equipment Depot or if required, from alternate sources of supplies such as:

(1) UN medical or dental provisioning points;

(2) allies or host-nation forces; and

(3) local civilian sources.

b. the provision of medical replenishment (including oxygen) for routine and emergency request on a 24/7 basis;

c. the operational-level repair and maintenance of medical and dental equipment;

d. procurement of standard, aircrew, and combat spectacles;

e. the coordination of the transportation requirements to theatre with movement authorities;

f. the coordination of delivery of blood supply/products and cold chain management of temperature sensitive pharmaceuticals;

g. the holding and distribution of CBRN medical countermeasures as directed;

h. recording all medical supplies issued to units; and

i. the disposal of medical materiel as directed by the CFHS J4.

Health Services Logistics Standardization and Interoperability

0645. When part of a multinational force, a large proportion of common medical and dental materiel may be obtained through an allied medical materiel distribution system. To promote interoperability every effort should be made through standardization to reduce the number of uniquely Canadian items. The effort to standardize shall not override Heath Canada safety requirements for pharmaceuticals and medical materiel.

0646. The CFHS has adopted insignia and colour marking of containers for health-care materiel in accordance with AMedP-1.5 *Identification of Medical Materiel for Field Medical Installations*. Canada has also adopted the *Anatomical Therapeutic Chemical Classification Index* administered by the World Health Organization. While in theatre, the generic name of pharmaceuticals will be used to determine equivalence with allied nations.

0647. AMedP-1.12 *Medical and Dental Supply Procedures* provides guidance for the following key aspects of medical and dental supply:

a. property exchange or replacement of medical and dental non-expendable items (e.g. ventilators, stretchers) that are required to accompany patients during evacuation;

b. information required to be placed on medical and dental supplies and pharmaceuticals, including instructions concerning specific conditions for storage and/or transportation (humidity or temperature). The date of production, lot number and expiry should appear on all items; and

c. methods of identification.

0648. To facilitate cross-servicing of medical gas cylinders with other NATO nations Canada has

adopted AMedP-1.19 *Cross Servicing of Medical Gas Cylinders.* See also A-MD-175-003/AG-001 *Medical Materiel Management*.

0649. To ensure patient safety and facilitate the transfer of patients between different nation's MTFs and evacuation systems Canada has adopted AMedP-1.15 *Compatibility of Medical Tubing and Connectors in the Field*.

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Chapter 7
Tactical Employment of Health Services Units

Section I - General

0701. This chapter describes how HS is employed to support land operations, with a focus on mounted operations. For an understanding of the basic principles, plans, and conduct of land operations see B-GL-321-003/FP-001 *Brigade Tactics*. For information on airborne operations see B-GL-324-004/FP-001 *Airborne Operations – Parachute* and B-GL-324-002/FP-001 *Airborne Operations – Airmobile*. Medical personnel in support of these operations must be trained and equipped to operate with these elements. For information on counter-insurgency operations see B-GL-323-004/FP-003 *Counter-Insurgency (COIN) Operations*.

0702. **Types of Operations**. At the tactical level, operations conducted within a campaign or major operation are divided into four types:

a. **Offensive** operations seek out the enemy and attack them;

b. **Defensive** operations resist enemy offensive operations;

c. **Stability** operations are conducted to maintain, restore or establish a climate of order; and

d. **Enabling** operations link, support or create the conditions for other operations (offensive, defensive or stability).

0703. **Full-Spectrum Operations**. Within a campaign, the simultaneous conduct of the four types of operations—offensive, defensive, stability and enabling operations—may be necessary. This is known as full-spectrum operations. For example, a defensive operation may consist of a delay followed by a main defensive battle. Each of these will consist of some defensive and offensive operations at subordinate levels (e.g., a counter-attack), along with enabling operations (such as a guard force to a flank), while a flanking or rear security force may be conducting a minor stability operation to control population movement, as part of an overall scheme of manoeuvre. HS must be able to support all activities across the entire spectrum of conflict.

0704. **Liaison Officers (LO)**.[153] Many operations may require the arrangement for medical support to or from another nation (e.g., delay, relief in place, passage of lines, etc). This may be a Canadian element passing through another nation's lines or another nation's elements passing through Canadian lines. Whichever nation is providing the manoeuvring force should detach a HS LO to the in-place nation's medical HQ to allow for passage of information and coordination of effort (the same is true for one Canadian formation moving through another Canadian formation).

0705. LOs require situational awareness and understanding of the commander's intent prior to reporting to another HQ. See B-GL-331-002/FP-001 *Staff Duties for Land Operations* for information on the requirements and processes for establishing liaison. See also B-GL-334-001/FP-001 *Standing Operating Procedures (SOP) For Land Operations* Tactical Aide Memoire 104-Liaison Officer (LO) Duties.

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[153] An LO at the tactical level is **not** the same as the NMLO which is a function of the national command element. See paragraphs 05127-05129 for details.

An example of when a LO is used: Following a delay battle a Canadian Bde Gp is conducting a rearward passage of lines through a Dutch Bde. The Canadian Fd Amb sends an LO to the Dutch Med Bn to ensure they are aware of the medical situation within the Canadian Bde Gp, e.g., number and type of casualties, location and timings of the crossings, and what support is requested of the Dutch. The LO provides the Canadian Fd Amb information regarding what support the Dutch can provide and locations of their MTFs.

Section II - Offensive Operations

0706. The purpose of offensive operations is to defeat the enemy's aim through the use or threat of force. Specifically, offensive operations will seek to destroy, neutralize, suppress or degrade enemy capabilities. They require the enemy to be found, fixed and successfully struck, and the situation to be decisively exploited.[154]

0707. Types of offensive operation include the attack (deliberate, hasty, counter-attack, spoiling, and attack by fire), raid, exploitation, pursuit, feint, demonstration, reconnaissance in force, ambush, and breakout of an encircled force. The heaviest casualty workloads occur during disruption of enemy main defences, at terrain or tactical barriers, during the assault on final objectives, and during enemy counterattacks.

0708. **Location of medical facilities**. Generally, all MTFs are initially located as far forward as operations permit. This allows the maximum use of these facilities before lengthening evacuation lines force their displacement forward. If the medical elements of the attacking force are required to cover the initial stages of the attack, they should open, on wheels and in skeleton form, as far forward as is compatible with operational security as not to telegraph the impending offensive operation to the enemy. In order to avoid having to carry patients forward during the assault and subsequent phases of the operation, medical elements may have to split their resources and function in a leap-frogging fashion.

0709. To meet the treatment timelines it may be necessary to employ DCR Teams, FSTs, and Role 2B (HM) as far forward as possible. These elements must be supported by a robust MEDEVAC capability to include en route critical care.

0710. In order to maintain mobility it is necessary to minimize patients held at any MTF. All MTFs should be cleared of patients as quickly as possible once a patient is stabilized and able to be evacuated. This requires pre-positioning of MEDEVAC assets as far forward as possible.

0711. Surprise is an important factor in the success of an attack. Preparations must be kept as secret as possible. This requirement frequently prevents the movement or establishment of MTFs or evacuation elements until immediately before, or even after, the start of the attack. Speed of action for medical units in establishing MTFs may be an important factor in casualty survival.

0712. **Evacuation**. Additional evacuation resources must be well forward to continuously clear MTFs. Whenever possible evacuation routes should be separate from main supply routes. Surface evacuation may be hindered as the result of enemy defences, demolitions, and similar delaying tactics.

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[154] B-GL-321-003/FP-001 *Brigade Tactics*.

0713. During exploitation and pursuit phases of the operation ambulances are positioned well forward to quickly evacuate patients generated by suddenly occurring contact. Due to the distances and speed involved, evacuation routes may be exceptionally long and unsecure. Evacuation may be slow and difficult due to damaged roads and in accessibility of casualties.

0714. **Planning considerations**. When planning the medical support for an offensive operation, the following factors are considered:

a. MTFs that are established to support the attack must be large enough to handle anticipated heavy patient loads, and at the same time be prepared to move in support of the exploitation and pursuit stages;

b. plans must include support for the assembly, the move forward, the assault, the reorganization, and the exploitation and pursuit stages;

c. prior to the start of an attack MTFs must be open and ready to receive casualties;

d. forward MTFs should be cleared of patients before an attack is launched;

e. medical elements must be employed as far forward as the tactical situation allows;

f. there is a high likelihood of wounded enemy PW or other detainees. If there are large numbers expected a separate MTF may be required;

g. coordination with other CSS elements for movement, force protection, real estate;

h. on consolidation, attacking forces attempting to establish a hasty defence, conduct replenishment and remove casualties can be particularly vulnerable to counter-attacking defenders;

i. once the objective is secured, maneuver force treatment teams may move to the objective instead of evacuating patients from the objective to the treatment teams;

j. medical elements must be mobile in order to provide support to manoeuvre elements (they should remain on wheels whenever possible);

k. there may be limited or no opportunity to conduct a physical reconnaissance for siting MTFs or evacuation routes;

l. the majority of casualties in this phase of war occur during the assault. Locating, rescue, and collection of casualties is difficult;

m. vehicles and aircraft used to push combat supplies forward may be used to evacuate lower priority casualties;

n. helicopters of opportunity may be used for CASEVAC, but only as far rearward as a FARP. Additional medical elements may be required at the FARP to treat and hold patients until MEDEVAC can be arranged;

o. ground evacuation routes may be unsecured;

p. HS elements are vulnerable to enemy counter-attack and from bypassed enemy; and

q. elements should carry maximum medical supplies to ensure self-sufficiency for as long as possible.

Section III - Defensive Operations

0715. Defensive operations achieve success by defeating or deterring a threat, thereby setting the conditions for subsequent, usually offensive, tactical actions. The aim is to defeat enemy offensive operations and deny the enemy their objectives.

Types Of Defence

0716. There are two principle types of defensive operation: defence and delay. Defence can be broken down into two forms: mobile defence and area defence. In many defensive actions, a combination of mobile and area defence will be required in order to defeat the enemy.

0717. Medical support must be provided for all elements of the defensive layout, whether they be mobile or area defence. This includes the covering force.

Stages of the Defence

0718. Both the area and the mobile forms of defence consist of two stages:

a. the covering force[155] battle (a Bde Gp may be tasked as a Corps covering force); and

b. the main defensive battle, including guards or screens and counter-moves.

0719. Medical support for defensive operations is generally more difficult than for offensive operations. While total patient loads may be less, the collection and evacuation processes are complicated because initial combat movements are towards the rear, particularly when the covering force is withdrawn. Medical personnel, who are more directly exposed to enemy action than in the offensive, are permitted less time to rescue, to provide emergency treatment and to remove casualties from the immediate area of combat. Increased casualties among medical personnel and litter bearers may further reduces the medical treatment and evacuation capabilities.

0720. During a prolonged defence the sick rate is normally high and psychiatric patients may add considerably to the day-to-day medical workload.

0721. **Dispersed layout**. The depth and dispersion of mobile defences create significant time and space problems in patient evacuation, and in the provision of medical support for more isolated areas. Forward elements may be forced to withdraw and simultaneously transport their patients to the rear.

0722. In the defence the enemy has the initiative as to where and when to attack, and this may prevent accurate prediction of areas where casualty densities will be greatest. Heavy casualty rates can be expected during the initial stages of an enemy assault and during the counter-attack. The enemy attack may disrupt or delay patient evacuation.

0723. During a main defensive battle there is a risk that that the enemy will break through the friendly lines. Forward medical elements may quickly be in direct contact with enemy forces, and may have to withdraw under fire, taking patients with them.

0724. **Patient holding**. The wounded are to be held no longer than is necessary to treat, stabilize, and prepare them for further evacuation; however, enemy activities or environmental conditions

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[155] A covering force is defined as a force operating apart from the main force for the purpose of intercepting, engaging, delaying, disorganizing and deceiving the enemy before they can attack the force being covered (DTB 3956).

may interrupt patient evacuation. MTFs must be prepared to provide prolonged field care during these interuptions.

0725. **Reserve elements**. Combat elements placed into reserve play a decisive role in the defence. Medical elements in support of these forces should not be committed to other roles in the defensive plan and must remain completely mobile.

0726. **Concealment**. The element of surprise is as important in the defence as it is in other phases of war. This substantially impacts the use of radio, emission control measures, siting, concealment, and movement of medical elements.

0727. **Support to the covering force**. The covering force may withdraw through a Canadian Bde Gp within the main defensive area. The speed at which a covering force may have to manouevre may mean that casualties will receive minimal or no medical care prior to a handover with the main force. Medical support must provide for the rapid evacuation of casualties to MTFs in the rear. In most cases, they may require additional means of evacuation, particularly helicopters. A medical platoon or section from the Fd Amb CS Med Coy may be deployed ahead of the forward edge of the battle area to collect and stage patients received from the covering force prior to its withdrawal. Also, medical elements may be deployed to the rear of the forward edge of the battle area to accept patients from the covering force when it is withdrawn.

0728. **Evacuation**. Whether in mobile or area defence, the location of evacuation routes and staging facilities must account for the dispertion of forces, controlled routes, barrier plans, counter-move routes, etc. Additional ambulances should be positioned forward to await the arrival of casualties. The use of non-medical vehicles may be required to clear patients in the event a MTF must rapidly relocate.

0729. **Preventive medicine**. The problems of hygiene and sanitation are likely to be greater in a prolonged defence than in other phases of war. Preventive measures in this regard are dealt with in AJMedP-4 Standards Related Document (SRD)-4, *Field Hygiene and Sanitation*.

0730. **Planning considerations**. The distribution of forces in depth, as well as the possibility of enemy penetrations of the defensive position, require that MTFs be located, in general, further to the rear than in offensive operations. Siting of MTFs and evacuation elements is a balance of some conflicting considerations:

a. to meet treatment timelines;

b. to avoid interfering with tactical operations, (e.g., the counter-attack and blocking forces);

c. to obtain a degree of protection (defended localities, reserve positions, or administrative areas);

d. be as far forward as is practicable to ensure the rapid treatment and evacuation of casualties;

e. they should not be located near likely targets (e.g., logistics installations);

f. large MTFs should be far enough to the rear so as to avoid the need to move as a result of enemy action;

g. the depth and breadth of the main defensive area (e.g., it may require two Role 2Bs);

h. location of evacuation routes; and

i. proximity to HLS.

0731. When a divisional size formation is fighting a defensive battle, there should be two or more Role 2E and/or 3 MTFs with affiliated CSUs. Locations should be such that the flow of patients can be diverted from one MTF to another in the event of one unit being destroyed, damaged, or overwhelmed with patients.

0732. When large and less mobile MTFs (e.g., Role 2E or 3) cannot be placed far enough forward to meet treatment timelines, consideration should be given to using DCR Teams, FSTs, CSUs, and Role 2B(HM)s. The use of these requires a robust MEDEVAC capability.

The Delay

0733. A delaying operation is an operation in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage without, in principle, becoming decisively engaged.[156] The purpose of a delaying operation is to slow the enemy's advance in order to allow other actions to take place. The period of delay required will be specified in the mission given to a delaying force commander.

0734. **Location of MTFs**. MTFs must move to the rear area before they are in danger of becoming involved in the actions of withdrawing combat elements. When distances are great, or resources inadequate, splitting or leap-frogging medical sub-units may be required. This means that the next rearward location must be occupied and ready to handle patients before the forward location is closed. In order for them to retain mobility in fast moving operations staging facilities may have to work in a tailgate mode.

0735. The locations for successive positions from forward to rear areas must be carefully planned. The frequency of redeployment is determined by the rate of movement, the terrain, and security. As combat elements thin out in forward areas, the medical units redeploy a portion of their resources in the new or intermediate positions. Advance parties, and parts of the unit not immediately involved in the support of forward combat are sent back as early as possible to prepare facilities in the rear.

0736. In preparation for the operation forward MTFs must be cleared of patients. Also, there will likely be a heavy load of battlefield casualties. To avoid Role 2 and 3 MTFs in the rear being overhwelmed minor sick and injured should be re-routed to separate Role 1 MTFs, provided by CS Med Coy, not directly involved in the battle.

0737. Every effort is made to evacuate patients directly to a Role 2 or 3 MTF as far to the rear as possible, keeping in mind the patient's requirements and to meet the treatment timelines. If staging is required facilities are sited with regard to the location of planned delaying or intermediate positions on or close to the main axis of movement.

0738. **Evacuation**. In delay operations evacuation is more difficult than in other operations because:

a. surface routes available for evacuation are likely to be in continual use by combat and logistics vehicles;

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[156] DTB, record 27673.

b. evacuation involves greater distances as Role 2 and 3 MTFs are located further to the rear to avoid having to move while holding post-operative patients;

c. speed is reduced by congestion;

d. rearward movement of combat elements exposes successive MTFs in the evacuation chain, thereby precluding their continued operation;

e. communications and control is difficult and may be disrupted by the enemy; and

f. the chances of evacuation being interrupted are considerable.

0739. The evacuation plan requires:

a. coordination with and the direction of commanders at all levels;

b. maximum utilization of AE. The use of helicopters will facilitate evacuation and permit the siting of MTFs far enough to the rear so that they are not successively uncovered and are unlikely to impede combat;

c. inclusion of ambulances on the list of priorities for movement;

d. utilization of combat personnel and vehicles for collection and evacuation of the wounded in forward areas (troops moving rapidly to the rear are not usually engaged in combat and therefore should be able to assist in the removal of casualties);

e. making provisions for the transportation of slightly wounded and sick patients in combat or logistics vehicles; and

f. positioning additional ambulances from the supporting formation as far forward as possible in the battlespace.

0740. **Subsequent operations**. Operations to be undertaken at the conclusion of the immediate mission must be considered when plans are made. When the operation involves a rearward passage of lines, careful planning and liaison between the medical commanders of the formations and units involved in the process are required to ensure a coordinated effort. HS activities must look beyond the defensive action in order to be prepared to support subsequent offensive actions. Understanding the higher commander's future intentions is crucial.

Section IV - Stability Operations

0741. Stability operations are defined as a mission or task conducted by military and security forces often in conjunction with other agencies to maintain, restore and establish civil order.[157] Stability operations are carried out at all levels and in all environments, are planned continuously, and may be conducted concurrently with offensive and defensive operations. They will exist in all campaigns to varying degrees. For information on stability operations see B-GL-321-003/FP-001 *Brigade Tactics* and B-GL-322-010/FP-001 *Stability Activities and Tasks*.

0742. Some campaigns, such as a peace support or counter-insurgency campaign, will place an operational-level main effort on stability operations in order to achieve the campaign objectives.

[157] DTB, record 41442.

0743. Stability operations consist of a distinct set of activities that support the civil society, as follows:

a. **Security and Control**. These activities seek to create security for a civil populace, (e.g., framework patrols, crowd control, observation and monitoring, and vehicle checkpoints);

b. **Support to Security Sector Reform and to Disarmament, Demobilization and Reintegration**. These operations and activities include security force capacity bulding, that is, helping other military forces develop their capabilities. In many cases, these activities will be led by, or done in cooperation with, civilian agencies and non-governmental organizations. The brigade will have a supporting role in disarmament, demobilization and reintegration tasks in areas such as establishing weapon cantonment sites or securing disarmed groups. In security sector reform tasks, the brigade elements will likely help build elements of a host nation military force and other security forces;

c. **Support to Civilian Infrastructure and Governance**. These activities entails supporting civil authorities to undertake emergency reconstruction or governance-related tasks or to fill gaps that other agencies cannot fill; and

d. **Support to Other Agencies**. In any theatre of operations, there will likely be a demand for the brigade, within the limits of the tactical situation and resources, to assist other agencies, (e.g., escorting non-governmental organizations convoys).

0744. Stability operations may be minor and brief, such as the delivery of emergency humanitarian aid following a deliberate attack, or may be a major undertaking such as operations to dislocate insurgent groups from a region (which may be combined with offensive and defensive operations). Troops undertaking these tasks will require the same medical support as required in any other operation although the casualty rate will likely be much lower than those experienced in a combat operation against a peer enemy.

0745. Many stability operations and activities are focused on the security of a civil populace. There will likely be a demand, or at least an expectation by impoverished host nation populations, that the military forces will undertake medical aid to the populace. Such undertakings must be carefully considered for they will quickly outstrip the medical resources of the formation.

0746. Commanders may approve, within available resources, to permit some small assistance such as one-day clinics with host nation medical staff. Such work helps builds legitimacy for the campaign and wins public support. Care must be taken to limit the expectations of the host nation populace, and to not undermine the host nation's health care system.

0747. **Capacity Building, Training and Mentoring of Host Nation Health Services.** As part of security force capacity building, there may be a requirement for CFHS elements to help build or mentor host nation military HS capabilities. Helping a host nation develop self-sustaining, culturally appropriate education and training capabilities will allow incremental building of future capability and capacity for their health sector. Planning for this must be a deliberate part of the operational level design and intent. See B-GL-323-000/FP-001 *Security Force Capacity Building* (draft) for more information.[158]

[158] This publication is in draft but has been authorised for use in training and operations.

0748. HS elements assigned to help develop the host nation HS sector must be seperate from those who are primarily responsible to provide health care to CAF personnel. Double tasking health assets risks conflicting priorities and duties, possibly undermining the trust and relationship with the host nation and thereby putting the mission at risk of failure. Capacity building missions are long-term, requiring a high degree of commitment, funding and preparation.

0749. **Needs assessment**. To determine the host nation's requirements a comprehensive needs assesment is conducted. It is important to avoid pre-conceived notions of what is essential - what we want to provide may not be what the nation requires. Also, clinical training must be at the appropriate level for the country and what it will be able to maintain.

0750. Capacity building is often part of a multinational effort. Coalition and national efforts must be coordinated to ensure:

a. there is no gap or duplication of training;

b. national expertise is exploited;

c. standardization, to the extent possible, of protocols, equipment, and supplies;

d. long-term planning (coalition personnel rotate in and out, but locals remain); and

e. a coherent HS system (C2, clinical, medical logistsics, doctrine, etc) is developed.

0751. In campaigns that will consist predominantly of stability operations, commanders may have to include additional sustainment capabilities to their forces. For example, a theatre in which a task force will conduct a large portion of humanitarian relief tasks may operate in a highly dispersed fashion, with sub-units (or below) working on their own at long ranges in separate AOs. There may be a requirement to allocate additional medical resources at the sub-unit and sub-sub-unit levels.

0752. **Interpreters**. In these types of operations interpreters are usually required for interaction with the local population. Interpreters are normally contracted through the formation G4 staff or contract management cell.

0753. For guidance and planning considerations regarding capacity building operations see Allied Joint Publication 3.4.5 *Allied Joint Doctrine for the Military Contribution to Stabilization and Reconstruction*, B-GL-322-010/FP-001 *Stability Activities and Tasks*, and B-GL-323-000/FP-001 *Security Force Capacity Building* (draft).

Section V - Enabling Operations

0754. Enabling operations link other operations and facilitate the transition between different types of tactical activities. This section identifies the types of enabling operations and, where appropriate, some of the unique HS planning considerations.

Reconnaissance

0755. Reconnaissance uses visual observation or other detection methods to obtain information of importance to the brigade mission. The information sought could range from an enemy location or route availability, to the perceptions of a local population. Reconnaissance forces may have to fight for information. Reconnaissance elements are often low-density and widely dispersed. They are usually distant from supporting forces and use stealth to avoid detection. Detailed information may be found in B-GL-394-002/FP-001, *Ground Manoeuvre Reconnaissance*.

Security

0756. Security operations provide early and accurate warning of the adversary's dispositions and operations. They include forces such as screens and guards. Depending on their mission and structure, they may provide an element of protection for a main body force or gain time for the preparation of other deliberate operations. Security operations are normally conducted as part of a larger enabling operation or in support of another type of tactical operation, such as the defence. (e.g., a flank screen as part of a brigade defensive position).

Advance to Contact

0757. An advance to contact is conducted in preparation for a subsequent offensive action, such as an attack. The advance to contact ends when the main body is positioned for that action in accordance with the commander's plan. Planning for an advance to contact should anticipate the possibility of a meeting engagement occurring during the advance.

0758. The purpose of the advance to contact is to gain or re-establish contact with the enemy under the most favourable conditions for the main force. When a force advances it usually groups its combat elements into covering force, advance guard (divided into vanguard and main guard), flank and rear guards, and the main body.

0759. Medical resources must be distributed so that they can cover each component of the force and be immediately available to provide support. Casualties may occur in any part of the advancing column(s) due to enemy ground action, indirect fire, air attacks, demolitions, clandestine activities, vehicle accidents, etc. All medical elements must be prepared to receive patients while on the move or to open quickly on a reduced scale in order that movement may be resumed as soon as possible.

0760. In the advance to contact HS must be able to react quickly to changing circumstances and changing plans whenever they occur. The speed of advance and long lines of communication during the advance make it challenging to maintain contact with lead elements. Additional medical assets may be required.

0761. **Evacuation**. The evacuation routes are lengthy and are extended as the force advances. Surface transportation of patients is made against the forward flow of combat and logistics elements. This problem could be aggravated by the adoption of one way traffic. The rate of advance may well place a considerable burden on engineer route maintenance resources. This inevitably has an adverse effect on evacuation.

0762. Medical planners must coordinate with Operations staff to obtain movement priorities and road space for surface evacuation. The normal MEDEVAC system employing road transport may be difficult because of congestion on the main supply route and the destruction of bridges, culverts, and defiles on main routes. Helicopters, when available, should be considered as a means of evacuation from the UMS to MTFs in the rear area. The back-haul potential of supply vehicles should be utilized for less serious cases. The impetus of movement in this phase of war may result in the first stage of patient evacuation being made towards the front rather than in the direction of treatment. As soon as an opportunity presents itself, patients are placed in CCPs along the main axis to await evacuation.

0763. Evacuation, particularly from the covering force and advance guard, requires special arrangements. Evacuation resources should be attached to both these elements. Evacuation routes should not coincide with the axis of advance.

0764. When it becomes impossible to transport patients towards the rear a staging facility is left behind as the advance progresses. It provides sustaining care for patients until such time as normal evacuation can be resumed or the facility is overtaken by the BMS.

0765. **Treatment**. Extended evacuation routes delay patients' arrival at their treatment destination and increase the need for staging facilities. The policy of bypassing small pockets of resistance may result in the damage or unavailability of evacuation routes and, therefore, the need for an increased patient holding potential along the route. The time lag between place of wounding and the patients' arrival at a surgical facility may be considerable and frequent movement of MTFs and/or maximum use of AE may be required to reduce it. Treatment facilities may be burdened with the care of abandoned enemy patients and civilians whose medical service has been disrupted by the operation.

0766. Treatment facilities must be placed as far forward as possible prior to the operation and, by leap-frogging, keep within supporting distance as the force advances. Rapid clearing of patients is essential if mobility is to be maintained. Facilties may only be able to provide tailgate operations.

0767. The medical platoons from the Fd Amb CS Med Coy travel with the main body. When opposition is met and the advancing column is deployed for a hasty attack, one platoon forms a BMS, while the other remains on wheels in order to carry on with the advance once the opposition is cleared.

0768. In order to maintain the treatment timelines Role 2 MTFs may have to leapfrog. A mitigation strategy is to employ FSTs.

0769. **Protection**. Protection of medical resources is as important in the advance as it is in any other phase of war. Protection must be provided against any pockets of enemy that may have been intentionally or accidentally by-passed, and against airborne attacks or guerrilla activity.

Meeting Engagement

0770. A meeting engagement occurs where opposing forces meet unexpectedly while manoeuvring. The engagement may occur during any of the tactical actions. The meeting engagement differs from the advance to contact in that it occurs unexpectedly, whereas in the advance the commander is deliberately seeking to establish contact with the enemy.

0771. In a meeting engagement HS must be able to react quickly to changing circumstances and changing plans whenever they occur. At the level above that which is in contact, HS should concentrate on directing its efforts on those involved in combat both during and after the battle. This might include the development of hasty evacuation plans, and rapid unforecasted deployment of medical elements.

Link-up

0772. The link-up is an enabling action where forces join up in enemy-controlled territory. It is the establishment of contact between two or more friendly units or formations that may have the same or differing missions. A link-up will be conducted to:

a. join an attacking force with a force inserted in the enemy's rear area, such as an air movement or infiltration force;

b. complete the encirclement of an enemy force; and

c. relieve or assist the breakout of encircled forces.

0773. **Moving forces**. HS for moving forces is similar to that provided for forces in the advance; however, upon linkup with encircled or infiltrated forces the responsibility to evacuate patients will rest with the moving force. In the case of infiltrated forces the integral medical support provided has to be augmented to ensure patients not evacuated by air can be provided with the stabilizing care necessary while awaiting link-up with the moving force.

0774. **Encircled forces**. Contact with encircled forces should be made as early as possible to ensure proper planning for the rapid evacuation of any backlogged patients upon link-up. For encircled forces:

a. there may be a large number of casualties, whose treatment has been delayed due to their isolation from the rest of the force, resulting in increased morbidity and mortality;

b. there are limited opportunities to coordinate medical planning with the moving force;

c. the ability to deploy additional resources prior to the link-up will be limited and the maximum use of AE will be necessary to reduce morbidity and mortality;

d. casualties not able to be evacuated by air should be held in the minimum number of staging facilities to expedite their evacuation rearward upon link-up; and

e. where it is known that forces will be isolated for extended periods of time prior to link-up it may be necessary to attach DCR Teams or FSTs to the infiltrating force.

Relief of Troops

0775. The relief of troops occurs when one force takes over the actions or combat activities of another. There are three types of relief action, as follows:

a. **Relief in Place**. Relief in place is an action in which all or part of an outgoing force is replaced by an incoming force;

b. **Forward Passage of Lines**. A forward passage of lines is an action in which an advancing force attacks through a unit, the in-place force, which is in contact with the enemy; and

c. **Rearward Passage of Lines**. A rearward passage of lines is an action in which a force moving to the rear, the withdrawing force, passes through a unit, the in-place force, occupying a rearward defensive position.

0776. During any relief there is a period when congestion increases the vulnerability of the forces involved. The possibility of confusion is inherent as two parallel command systems are operating in one area at the same time. The medical problems associated with planning for relief operations are compounded by the need to plan for two simultaneous operations, each with its own specific and possibly competing requirements.

0777. During a relief action, the in-place force assists the moving force with casualty treatment and evacuation. This requires coordination prior to the operation. The moving force sends a liaison officer to the in-place force's medical command.

0778. The congestion of combat and logistic vehicle from two forces operating in the same sector restricts evacuation routes. Ground ambulances may be restricted to certain routes or timings. Maximum use of AE should be considered.

Withdrawal

0779. A withdrawal occurs when a commander seeks to disengage from the enemy, although contact may be maintained through means such as indirect fire, reconnaissance or surveillance. Withdrawal should be conducted to minimize interference by the enemy and to preserve combat power. The ability to transition rapidly to offensive or defensive actions should always be retained.

0780. The aim of the withdrawal is to extract the formation from a position, possibly in close enemy contact, and move it to a new defensive position, with minimum casualties and interference from the enemy. It is one of the most difficult operations of war as the enemy may have the initiative and air superiority.

0781. The withdrawal may be conducted deliberately, as part of a pre-arranged plan, or in a more hasty manner, as the result of a change in situation. The basic medical planning considerations remain the same as for delay operations. During the thinning out process the sick and wounded should be evacuated as early as possible.

0782. In the withdrawal the morale of the force may be low. An efficient medical service will help to overcome this situation. The medical service can expect an increase in sick rates, combat stress reaction cases, and patients with various psychiatric disorders. Evacuation of psychiatric patients should be expeditious and unobtrusive so as not to adversely affect other personnel.

0783. **Medical supplies**. Normal replenishment is unlikely during withdrawal operations. Replenishment, based on a forecast of requirements for the operation should be effected as early as possible. Supplies may have to be cached in a location to which a withdrawing MTF will relocate.

0784. **Abandoning patients**. In the withdrawal operation, more than in any other phase of war, it may not be possible to evacuate all patients. Patients that cannot be evacuated may be abandoned but minimum care must be left with them.

0785. **Denial of medical equipment and supplies**. Under the LOAC, it is not permitted for medical equipment and supplies to be destroyed to deny it to the enemy. Medical equipment and supplies must be marked as such and left in place if they cannot be evacuated.

Tactical Movement

0786. Tactical movement is conducted to move a force efficiently between locations so that it arrives in the best possible condition to execute its subsequent mission. During tactical movement, units should be prepared to come into contact with the enemy, but not expect to do so. HS elements may be located along the route at halts or harbours.

Crossing and Breaching Obstacles

0787. The purpose of an obstacle crossing is to project combat power across a natural or man-made obstacle while ensuring maintenance of momentum and retention of the initiative. Obstacles may include rivers, land-gaps, minefields or complex man-made obstacles belts of mines, wire, abatis, and anti-tank ditches. Obstacles are almost always under observation and have supporting fires allocated to defeat crossing.

0788. Breaching or crossing obstacles can be a large casualty producing event and could inlcude casualties on both sides of the obstacle.There is also risk that once force elements cross the obstacle they may get cut off as the enemy seeks to close the breach or destroy the crossing.

0789. Additional medical assets may be attached to the medical platoon supporting the unit that is conducting the crossing. This could include DCR Teams, an FST, additional ambulances, etc. The

siting of MTFs must balance the requirement to be close enough to reduce the time until a casualty is treated with being to close to the obvious target that is the obstacle crossing.

0790. The movement control plan must include medical arrangements, particularly for the evacuation of casualties. Due to the difficulties of evacuating rearward across an obstacle when most traffic is going forward the following should be considered:

a. medical elements must be prepared to provide prolonged field care;

b. as soon as it is practical an MTF with additional holding capacity should be established on the far side of the obstacle;

c. the use of boats or barges to evacuate casualties; and

d. maximum use of Fwd AE should be considered as soon as the tactical situation permits.

0791. The headquarters controlling the crossing may require additional HS personnel in order to conduct patient evacuation coordination.

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Chapter 8
Operations in Specific Environments

General

0801. Each of the four types of operations described in Chapter 7 (offense, defence, stability, enabling) may be conducted in a variety of environments such as arid, mountain, tropical, cold weather, and urban. A single AO may have a combination of two or more of these environments. The different environments and conditions pose different health threats than those found in temperate locations. Disease and non-battle injuries are higher than in similar operations conducted in temperate regions.

0802. Medical care may require environment-specific clinical skills, supplies, equipment, and training. Furthermore, in hot, cold, dry, dusty, or humid conditions, special care must be taken for the management of temperature-sensitive HS equipment, supplies, and pharmaceuticals.

0803. The effectiveness of medical units may be reduced when operating in extreme weather and terrain for a prolonged period of time. They may require additional assets than would not normally be the case for a similar sized force in a temperate area.

0804. **Clinical specialties**. Medical personnel require additional clinical training for the specific environments in order to identify and treat likely illness and injuries. This ranges from treatment of cold-weather injuries for medics up to clinical specialties such as tropical medicine, mountain medicine, etc for physicians.

0805. **Military training**. Medical personnel must have the same military training as those they support, (e.g., mountain warfare, basic winter warfare, hoist training, etc).

0806. **Preventive medicine**. In many of these environments personal hygiene is difficult to maintain due to limited potable water. Also, the potential for the spread of infectious diseases increases by confined living spaces shared by multiple individuals.

0807. **Command responsibilities**. Based on medical advice to prevent disease and non-battle injuries, commanders at all levels must:

a. enforce preventive medicine measures (e.g., sunscreen, mosquito discipline, prescribed prophylaxis medications);

b. enforce field hygiene and sanitation discipline. See AJMedP-4 SRD-4 *Field Hygiene and Sanitation*;

c. enforce hydration;

d. enforce cold weather injury prevention management program. See AJMedP-4 SRD-2 *Prevention and Management of Cold Weather Injuries*;

e. enforce work-rest cycles, particularly in hot-dry environments. See AJMedP-4 SRD-1 *Heat Stress Control and Heat Casualty Management*;

f. enforce hearing protection measures. See AJMedP-4 SRD-8 *Protection of Hearing*; and

g. ensure a period of acclimatization prior to operations.

0808. **Acclimatization**. Ideally, a period of acclimatization will be possible for troops deploying to environs with extreme conditions. This may occur in a third, neighboring nation. Where this is not possible, such as early entry forces and advance parties, activities will have to be paced whilst troops become accustomed to the climatic extremes and conditions.

0809. Time must be allocated for acclimatization, conditioning, and training. There is no shortcut for the acclimatization process and any attempt to trim or bypass the process will result in injuries. For operations at altitude see AJMedP-4 SRD-3 *Altitude Acclimatization and Illness Management*.

0810. **Prolonged field care**. Due to the difficulties in evacuating patients in these environments medical personnel must be trained and equipped to provide prolonged field care in location, or during interrupted evacuation.

0811. **Medical supplies**. In many of these environments there is a higher than normal rate of disease and non-battle injuries which, in turn leads to higher than normal consumption rates for medical supplies. Initial allocations may need to be higher than normal, and due to difficulties in routine replenishment, there may be a requirement for extraordinary stockpiling of supplies.

0812. Medical supplies and equipment require protection from environmental extremes of heat, cold, humidity, and dust. Procedures must be established and followed for special handling requirements for perishable Class VIII material, from arrival in theatre to its final destination.

0813. **Equipment repair**. Environmental extremes can impact the availability of medical equipment. During transportation and when in an MTF, medical equipment must be protected from extremes of heat and cold. Dust can be particularly unforgiving on sensitive medical equipment. In such harsh condition there is a requirement for a higher than normal number of spare parts and/or entire machines. Regular cleaning and operator maintenance must be strictly enforced. There may be a requirement for additional Biomedical Electronics Technologists.

Terrain and Weather

0814. The analysis of the type of terrain (both natural and man-made) upon which an operation is to be conducted is an essential step in planning for the operation. Terrain which is difficult to traverse, has natural barriers and impediments, and changes with weather conditions, can affect how a force is employed and the types of maneuver that can be conducted. From a medical perspective, different terrain features will influence:

a. the types and severity of wounds incurred;

b. the medical equipment and supplies required to treat ill or injured soldiers;

c. the manner in which MEDEVAC operations can be conducted; and

d. the length of time required to evacuate the wounded or injured soldiers.

0815. Additionally, terrain and weather can complicate the treatment of disease and injuries by providing conditions which foster the spread of diseases and infections and providing breeding grounds for disease carrying vectors. Table 8-1 provides medical considerations for different terrain and environmental conditions.

Medical Considerations for Terrain and Environmental Conditions

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
MOUNTAIN • Rugged • Difficult to traverse • Inaccessibility • See B-OG-302-005/FP-001 *Mountain Operations*	• Extreme cold • Altitude • Winds	• For detailed information of the physiological effects of working at altitude see AJMedP-4-3 *Altitude Acclimatization and Illness Management.* • Increased number of crush injuries, fractures, and concussive injuries from falls and rock strikes. • Potential for high altitude illnesses (rapid ascent to heights over 7,500 feet). • Potential for dehydration and/or heat exhaustion. Enforce water discipline. • Increased sunburn and snow blindness. • Frostbite and hypothermia. • Evacuation by rotary-wing ambulance may not be possible due to decreased air density, terrain, and weather. • All patients should be considered as litter patients on rugged terrain. All litters should be dressed for both warmth and padding. • Medical evacuation is labor intensive. Litter teams are required. Establish litter shuttle system to provide litter bearers with required rest. • Manual evacuation is time consuming. Plan for overnight stops on the evacuation route. Plan to erect warming stations such as at a staging facility. • Acclimatization must be achieved by gradually increased amounts of exercise, and climbing a little higher each day over a period of two to three weeks.	• Increased splinting and casting materials. • Additional litters, litter straps, hypothermia kits, and blankets. • Light-weight shelters or improvised shelters for warming stations. • Additional ropes, pitons, hammers, or other mountain climbing equipment to established high-angle and low angle evacuation systems. • Personal protective equipment (sunscreen and sunglasses). • Aeromedical evacuation of patients should be used whenever possible. • Soldiers may be operating in small groups in isolated positions; therefore, they must be trained in first aid and especially in looking after exposure casualties. This training is particularly necessary because evacuation of the casualty may be a long and difficult process.

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
JUNGLE • Thick under-growth • Swampy • Difficult to traverse • See B-OG-302-004/FP-001 *Jungle Operations* and B-OG-302-004/FP-002 *A Soldier's Guide to the Jungle*	• Hot • Humid • Disease vectors • Poisonous or toxic flora and fauna • Contaminated water	• In swampy areas, all patients should be considered litter patients. • Increased immersion injuries and other dermatological conditions (skin rashes). • Field hygiene and sanitation difficult to maintain. • Increased gastrointestinal disease. • Chemoprophylaxis for malaria. • Increased stings and bites. • Increased food, water, and vector borne diseases. • Increased disease and non-battle injury rates. • Increased combat and operational stress reactions. • With high humidity, medical facilities themselves may easily become breeding grounds for organisms. • Dispersion – the greatest problems in providing adequate medical support in jungle operations are the wide dispersal of combat units, inadequate roads, and insecure lines of communication. • Larger numbers of litter patients can be expected since even slightly wounded individuals may find it impossible to walk through dense undergrowth. • Heat and high humidity can cause deterioration of some medical materials and medicines.	• Increased requirement for litters. • A jungle penetrator may be required for evacuation by helicopters equipped with integral personnel rescue hoists. **Note**: the CAF does not have a hoist capability on its current tactical aviation assets. • Increased requirement for potable water. • Increased requirement for antiseptic material because the high heat and humidity increase the incidence of infection in wounds. • Chemoprophylaxis, as indicated. • Possible requirement to stockpile anti-venoms. • Increased requirement for the use of bed nets, insect repellent, hot weather clothing, sunscreen, and sunglasses. • Increased requirement to ensure perishable and dated medical supplies are stored properly. If medical supplies are improperly stored (such as without refrigeration) they will degrade quickly. • Medical equipment must be protected from high humidity. • Improvised evacuation resources may include pack animals, small boats, all-terrain vehicles, etc.

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
FOREST • Close terrain • Short range engagements • Vehicle movement restricted to roads or clearings • See B-GL-300-001/FP-001 *Land Operations* Chapter 8, Section 8	• Threat of fire during dry weather • Limited visibility will have psychological effect on the troops who are employed in operations in forests for extended periods of time • Canalizing terrain and limited routes • Numerous river crossing obstacles	• Difficult to move casualties, may require additional litter bearers. • Isolating effects of fallen trees and limited paths/roads may make locating and acquiring patients more difficult. • Evacuation by air ambulance may not be possible. • Limited routes make sharing difficult between evacuation and non-evacuation traffic. • Risk of close ambush in tight terrain.	• Additional litter bearers. • Small all-terrain vehicles to move supplies and for MEDEVAC. • Equipment for the safe and quick retrieval from under fallen trees. • When air ambulance evacuation is possible, the hoist may be required to remove patients from the small clearings in the forest. **Note**: the CAF does not have a hoist capability on its current tactical aviation assets. • Convoy protection. • Route coordination.
URBAN • Above, at, and below ground level • Rubble and debris • Isolating effect • See B-GL-322-007/FP-001 *Urban Operations* and B-GL-322-008/FP-001 *A Tactical Guide to Urban Operations*	• All weather conditions • Breakdown or disruption of sanitation • Confined spaces, limited accessibility for roads, casualties in buildings • Possible sub-terrain operations	• Increased number of crush injuries, eye injuries, burns, and fractures due to falling debris, spall from buildings, rubble, and fire hazards. • Concussive shock and hearing loss due to explosives. • Evacuation by air ambulance may not be possible. • Increased operational stress injuries. • Increased use of improvised litters, casualty evacuation platforms, and buildings of opportunity for Role 1 and 2 MTFs	• Axes, crowbars, and other tools may be required to break through barriers. • When air ambulance evacuation is possible, the hoist may be required to remove patients from the tops of buildings. **Note**: the CAF does not have a hoist capability on its current tactical aviation assets. • Special harnesses; portable block and tackle equipment; grappling hooks; collapsible ladders; heavy gloves; and casualty blankets for shielding. This equipment is used to lower casualties from buildings or move them from one structure to another. • Equipment for the safe and quick retrieval from craters, basements, sewers, and subways.

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
		• Isolating effects of rubble and damaged buildings may make locating and acquiring patients more difficult. • Potential for dehydration. Enforce water discipline. • Field hygiene and sanitation difficult to maintain. Increased gastrointestinal disease and exposure to endemic diseases. • Disruption of sanitation and rubbling effects may increase vector breeding grounds. • Increased risk of exposure to unintentional release of toxic industrial materials (such as, combat damage to gas stations, industrial complexes, or laboratory facilities). Toxic and noxious chemical gases may be heavier than air and settle in low-lying areas (such as basements). • More soldiers in a smaller area. May require additional medical resources further forward (time and space for evacuation to treatment). • Evacuation routes may change frequently. • Force protection required for evacuation assets. • Additional medics down to platoon level may be required. These medics should be prepared to hold patients longer than they normally would due to tenuous lines of evacuation. • Rubble in the streets, barricades, and the demolition of roads will impede ground ambulances.	Casualties may have to be extracted from under rubble and debris. • Increased requirement for all personnel to carry combat related first aid supplies. • Requirement for armoured ambulances required to safely evacuate casualties from the forward fighting positions. • Collapsible litters. • FSTs may have to be pushed forward. • Additional supplies for prolonged field care. • Requirement for personal water purification. • Additional labour to serve as litter teams. Casualties may have to be carried for considerable distances through buildings and over rubble from the fighting positions to CCPs. • Additional combat medical supplies such as field dressings must be brought forward to the fighting positions. • Medical personnel require similar urban skills training as the supported force. In particular, training must replicate the difficulties in evacuation that will be experienced in urban areas. They must be able to defend themselves and patients in sudden, short-range engagements. • An ambulance shuttle system will likely need to be established to allow personnel familiar with the area to remain and continue to recover and evacuate casualties. CCPs must be pre-designated and known by those responsible for MEDEVAC. • The CCP is placed in a covered and concealed location that has overhead cover (i.e. usually a heavy-clad building that has not collapsed). The

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
		• Threats of enemy engagement of aviation assets must be carefully considered when siting HLSs and allocating evacuation tasks to aviation assets. • Due to the terrain, use of line-of-sight radios is problematic. • UMS must plan to care for the mass casualties inherent in urban combat.	CCP should be located at a point where the ambulances can reach, yet close enough to the combat area so that casualties do not have to be carried great distances. It must be marked well enough that it is easy to find. • Requirement to deploy PMed Technicians forward.
EXTREME COLD WEATHER • See B-GL-323-003/FP-001 *Operations in Cold Weather*	• Extremely cold temperatures (below -20° Celsius) • Gale force winds • Blowing snow	• For detailed information on cold weather injuries see AJMedP-4 SRD-2 *Prevention and Management of Cold Weather Injuries*. • Exposure to extremely cold temperatures and wind make exposure unsurvivable. • Loss of depth perception in total white out conditions. • Increased disease and non-battle injuries to include cold injuries (ranging from minor to severe frostbite, especially of exposed areas of the body and feet, to hypothermia). • Snow blindness. • Dehydration and heat exhaustion. • Blood, medications, and intravenous fluids must be kept from freezing while in use. • Staging facilities and ambulance exchange points are established when evacuation times or distances are lengthy. • Augmentation of evacuation platforms and/or the use of casualty evacuation platforms may be required. • Increased requirement to ensure perishable and dated medical	• Increased use of shelters to keep patients warm. (e.g., tent, “lean to”, ambulance or other vehicle). • Increased use of blankets to dress litters and hypothermia kits to keep patients warm. • Augmentation of ambulances may be required. • Increased potable water supplies may be carried on ambulance platforms. • It is necessary to continuously protect some medical equipment (including drugs) against cold exposure, either because the cold damages the equipment or the equipment does not function properly while cold. Heated containers (panniers) may be useful in this respect. • Enclosed vehicles. • Heated vehicles. • Heated accommodation must be available at the forward base and should be available at the airhead for the storage of equipment and supplies, particularly those that must be protected from the extreme cold. • There are storage issues for some medical supplies. Certain drugs, medicines, vaccines and equipment must be kept in a warm, dry, climate-controlled location.

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
		supplies are stored properly and kept from freezing. • Cold accelerates shock, interferes with clotting, and reduces recovery possibilities of exposed patients. • Evacuation by litter is extremely difficult under conditions of cold or deep snow, and litter bearers are subject to excessive fatigue. • To maximize medical outcomes, the optimum time frame for evacuation of patients is likely compressed, particularly if heat loss cannot be adequately prevented. HS units may have to be sited closer to their supported unit, be more mobile and/or more plentiful than in temperate climates.	• All vehicles should be fitted with litter kits and heated patient compartments, in particular those vehicles with cross country mobility as they may be the only means of reaching and evacuating casualties. • Once in the evacuation chain, the patient should be provided with continuous heated shelter. Enclosed evacuation vehicles should be heated and able to maintain an inside steady temperature of 22 C, regardless of the outdoor ambient temperature. Casualty bags, preferably with a heat source, will be needed for travel or holding in unheated or insufficiently heated areas.
NORTHERN OPERATIONS • See also cold weather	• Lack of civilian medical capability or capacity • Lack of infrastructure • Lack of roads • Lack of airheads • Long distances • Long periods of extreme cold • Lack of shelter • Communications difficulties in high north	• **Must not** rely on the use of civilian medical facilities. • Long evacuation chains. • The use of helicopters for patient evacuation should be emphasized. • Different vehicles for different times of year. • Forward holding times should be kept to a minimum, but due to the uncertain flying weather at many times of the year a holding capability must exist at all medical levels. • Arctic conditions make surface evacuation of patients, without specially designed vehicles, difficult in winter and virtually impossible in summer due to the unpredictable surface condition of snow, ice and tundra. • Plan to become less reliant on communications systems (including satellite) and plan for redundant systems.	• Holding capability • Variety of vehicles may be needed for patient movement (e.g., toboggan, over-snow vehicles). • There are few large-scale medical facilities available anywhere in the remote areas around the world where extreme cold conditions are routine, and if significant casualties are expected, then large-scale medical facilities (sized to perceived need) will have to be set up prior to the operation. • Examine potential for high frequency radio medical networks. • Forward, tactical, and Strategic AE must be planned and resourced.

Type of Terrain	Environmental Considerations	Medical Considerations	Requirements
DESERT/ARID • Fast moving operations, possibly over long distances	• Extreme heat • **Diurnal Temperature Variations**. In desert areas large swings in temperature between day and night occur which have a deleterious effect on patient comfort. Thermal protection for patients during cooler evenings requires consideration and creates an additional logistic burden. • **Lack of Water**	• For detailed information on heat injuries see AJMedP-4 SRD-1 *Heat Stress Control and Heat Casualty Management.* • **Heat Stress**. Patients are likely to have their presentations complicated by incipient or established heat illness. Irrespective of presentation it should be suspected that a patient is in fluid deficit. • **Dehydration**. A hot climate promotes fluid loss from the body that alters fluid and possibly acid-base balance. The maintenance of adequate hydration takes priority preceding and during treatment. • Implementing work/rest cycles. • Patient personal protection from solar radiation, insects and other potential disease vectors. • A hot environment causes difficulties with staff, equipment, supplies, and patient comfort. Third line facilities must have cooling facilities. • Military operations of all types in hot/dry regions are affected by the presence of dust that hampers casualty handling and the maintenance of medical equipment and facilities.	• **Tentage**. Tentage should be of a light weight design with maximum ventilation outlets when air conditioning is not available. However, a heavier, tighter weave of material helps to accommodate air conditioning. Use of arctic / arid camouflage netting as a sun shade above tentage. • **Air Conditioning**. Air conditioning units should be provided for vehicles, and for at least third line tents and buildings. Air conditioning of patient areas must be regarded as mandatory for all Role 2 and 3 MTFs, and as highly desirable for Role 1 MTFs where feasible. • **Water.** Additional supplies of water are required and should be dispersed to allow for redundancy and access. • **Special Storage**. Special storage will be required for medical stores, particularly to protect from heat and dust. • **Intravenous Fluids**. Above a Wet Bulb Globe Thermometer Index of 27.5 C substantially more IV fluids is required. • **Ambulances**. Units require a larger number of ambulances and direct support of Fwd AE. • **Driving**. Drivers need to be highly competent in desert driving skills, vehicle preventive maintenance and sand recovery techniques. Additional recovery aids may need to be issued to medical vehicles (ground anchors, come-a-longs, kinetic recovery ropes). • **Climate Control**. Maximum use of natural ventilation should be made at all times where tactically possible. Temporary casualty shelters should be sited to advantage. Tent flaps should be elevated whenever possible.

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Glossary

Note: Definitions contained in this glossary are derived from a number of sources – internal and external. Where the term originates in this publication, no source is indicated. Definitions taken from external sources are indicated in parentheses at the end of each definition, utilizing the following abbreviations:

- DTB: *Defence Terminology Bank*.
- NATO*Term*: The Official NATO Terminology Database.

aeromedical evacuation (AE)

The movement of casualties under medical supervision to and between medical treatment facilities by air transportation. (DTB, record 3308) Also see Forward, Tactical and Strategic AE.

aeromedical evacuation, forward

The phase of aeromedical evacuation that provides transport with in-flight care for patients to the initial medical treatment facility in theatre or between points on the battlefield. Note: this is usually conducted by rotary wing assets in forward areas. (DTB, record 4324)

aeromedical evacuation, strategic

The phase of aeromedical evacuation that provides transport for patients from overseas areas to the home nation, another country or a temporary safe area. (DTB record 2597)

aeromedical evacuation, tactical

The phase of aeromedical evacuation that provides transport for patients between medical treatment facilities from the combat zone or area of operations to points outside that zone or area, and between points within the communications zone. (DTB, record 5486)

aeromedical staging facility (ASF)

A medical treatment facility, located on or near an aerodrome, that provides medical care and administrative support for patients in an aeromedical evacuation system. (DTB, record 3312)

battle casualty (BC)

Any casualty incurred as the direct result of hostile action, sustained in combat or relating thereto or sustained going to or returning from a combat mission. Included in this category, in relation to personnel, are Killed-in-Action (KIA), Missing-in-Action (MIA), Captured-in-Action (CIA), Wounded-in-Action (WIA), Died of Wounds (DOW), Combat Stress Reaction (CSR), Chemical, Biological, Radiological and Nuclear (CBRN) Casualties. (DTB, record 3630)

casualty

1. Any injury to or illness of an officer or non-commissioned member whether or not it is fatal, and includes the absence of a missing officer or non-commissioned member. (DTB, record 23334)

2. With regard to the personnel system, a person who is lost to an organization by reason of having been declared dead, wounded, injured, diseased, detained, captured or missing. (DTB, record 23334)

3. As regards the medical system, any person who is lost to the organization by reason of having been declared dead, wounded, injured, or diseased. (NATO*Term* 25565)

casualty collection point (CCP)

A specific location where casualties are assembled to be transported to a medical treatment facility. (NATO*Term* 27627) Note: DTB, record 279 has casualty collection post.

casualty estimate

In operations planning and health services planning, a prediction of total losses of personnel foreseen in an operation due to various causes. (DTB, record 15696)

casualty rate

1. The proportion of losses of personnel or materiel, normally expressed as a percentage, due to various causes within a specified period of time. (NATO*Term* 17701)

2. In relation to the personnel and materiel engaged, percentage knocked out of action or out of service. (DTB, record 15697)

Civil-Military Co-operation

The coordination and cooperation, in support of a mission, between the military and civil actors. Note: This includes the national population and local authorities, as well as international, national, governmental and non-governmental organizations and agencies. (DTB, record 336)

coalition

An ad hoc agreement between two or more nations for a common action. (DTB, record 21755)

concept of operations

A clear and concise statement of the line of action chosen by a commander in order to accomplish his [sic] given mission. (DTB, record 3862)

continuity of care

A medical support principle that states that relevant, constant and progressive care must be given to a patient during his entire medical treatment, whether in a medical treatment facility or in transit. (NATO*Term* 27532)

damage control resuscitation

A systematic approach to dealing with major trauma combining the catastrophic bleeding, airway, breathing and circulation paradigm with a series of clinical techniques from immediate life-saving measures up to surgical interventions in order to minimise blood loss, maximise tissue oxygenation and optimise outcome. (NATO*Term* 6477)

damage control surgery

A surgical intervention where the completeness of the immediate surgical repair is sacrificed to achieve haemorrhage and contamination control, in order to avoid a deterioration of the patient's condition. (NATO*Term* 6321)

disease and non-battle injury

An illness or injury to a CF member that occurred in a special duty area and that is not directly attributable to combat. (DTB, record 28762)

evacuation

The process of moving any person who is wounded, injured, or ill to and/or between medical treatment facilities. (NATO*Term* 27767)

force health protection (FHP)

1. The protection of Canadian Forces members, either in garrison or on deployment, from preventable illnesses and injuries.
Note: Force health protection includes the promotion of a healthy lifestyle. (DTB, record 27413)

2. All medical efforts to promote or conserve physical and mental well-being, reduce or eliminate the incidence and impact of disease, injury and death and enhance operational readiness and combat effectiveness of the forces. (NATO*Term* 26015)

health services (HS)

Medical or dental services intended directly or indirectly to contribute to the health and well-being of patients or a population.
Note: Health services are not restricted to clinical, curative or preventive services, and include food inspection and environmental protection. (DTB, record 43636)

international organization

An intergovernmental, regional or global organization governed by international law and established by a group of states, with international juridical personality given by international agreement, however characterized, creating enforceable rights and obligations for the purpose of fulfilling a given function and pursuing common aims.
Note: Exceptionally, the International Committee of the Red Cross, although a non-governmental organization formed under the Swiss Civil Code, is mandated by the international community of states and is founded on international law, specifically the Geneva Conventions, has an international legal personality or status on its own, and enjoys some immunities and privileges for the fulfilment of its humanitarian mandate. (DTB, record 30975)

lead nation

The nation that provides the essential political and military leadership to plan and execute a multinational operation.
Note: A lead nation will normally provide some significant capabilities for the execution. (DTB, record 31028) In an HS context, this could be the lead nation of a multinational medical unit.

mass casualties (MASCAL)

Any number of casualties produced in a relatively short period of time that overwhelms the available medical and logistic support capabilities. (NATO*Term* 9433)

medical confidentiality

The principle that prevents the disclosure of medical information to an individual or organization that does not have a medical need-to-know. (NATO*Term* 25634)

medical regulating (patient flow management)

The measures used for coordinating and controlling the movement of patients through the various lines of medical support. (DTB, record 33237)

Notes: a. Formerly referred to as patient regulating.
b. NATO is changing to patient flow management.

medical treatment facility (MTF)

A facility established for the purpose of furnishing medical and/or dental care. (NATO*Term* 1905)

multinational medical unit

A unit formed when two or more nations agree to provide medical support. (NATO*Term* 26130)

non-governmental organization

An organization that is not part of a national, regional or local government and includes civilian charities, advocacy organizations and humanitarian relief organizations. (DTB, record 36608)

patient

Any person who has entered the medical care system for diagnosis and/ or treatment, and who has not died nor been discharged. (DTB, record 20009)

patient flow

The movement of patients through a medical treatment and evacuation chain. (NATO*Term* 25637)

patient tracking

The precise and continuous monitoring of the location and the intended destination of the patient in the medical treatment and evacuation chain. (NATO*Term* 25638)

population at risk (PAR)

A group of individuals exposed to conditions which may cause injury or illness. (NATO*Term* 24624)

preventive medicine (PMed)

The branch of medicine that seeks to protect, promote and maintain health and well-being and to prevent disease, injury, disability and death. (NATO*Term* 26014)

primary health care

The provision of integrated, accessible health care services by clinical personnel trained for comprehensive first contact and the continuing care of individuals experiencing signs and symptoms of ill health or having health concerns.
Explanation: Primary Health Care includes health promotion, disease prevention, patient education and counselling, and the diagnosis and treatment of acute and chronic illness. (NATO*Term* 26132)

secondary health care

The provision of specialised clinical care requiring training and equipment levels beyond that which could normally be provided at the level of primary care. (NATO*Term* 26137)

senior medical authority (SMA)

Senior Medical Authority is the generic term applicable at any level of command to the individual holding professional-technical authority over the clinical aspects of medical support. This individual is also the person responsible for provision of clinical advice to the supported commander. For a Formation-based Command, the senior medical authority is the Formation Surgeon (Bde Surg, Div Surg). For a deployed Joint Task Force it is the Joint Task Force Surgeon.

technical control

The control applied largely to administrative or technical procedures and exercised by virtue of professional or technical jurisdiction. It parallels command channels but is restricted to control within certain specialized areas such as legal, medical or communications. Operational commanders may override this type of control any time its application is seen to jeopardise the mission or the military force. (B-GJ-005-300/FP-000)

theatre patient return policy - formerly theatre patient holding policy

A command decision for planning purposes that indicates the maximum number of days that a patient will be allowed to remain in the theatre of operations for treatment, recovery and return to duty. (NATO*Term* 25640)

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List of Abbreviations

1 Cdn Fd Hosp	1 Canadian Field Hospital
2IC	Second in Command
ABCANZ	American, British, Canadian, Australian, and New Zealand Armies Program (formerly ABCA)
ACP	Ambulance Control Point
AE	Aeromedical Evacuation
ALP	Ambulance Loading Point
AJMedP	Allied Joint Medical Publication
AJP	Allied Joint Publication
AMedP	Allied Medical Publication
AO	Area of Operations
ARP	Ambulance Relay Point
ASF	Aeromedical Staging Facility
ATP	Allied Technical Publication
AXP	Ambulance Exchange Point
Bde	Brigade
Bde Gp	Brigade Group
Bde Surg	Brigade Surgeon
BG	Battle Group
BMS	Brigade Medical Station
BRP	Basic Relay Point
BSA	Brigade Support Area
C2	Command and Control
C/S	Call Sign
CAF	Canadian Armed Forces
CASEVAC	Casualty Evacuation
CBRN	Chemical, Biological, Radiological and Nuclear
CCP	Casualty Collection Point
CDC	Casualty Decontamination Centre
CDS	Chief of the Defence Staff
CFHS	Canadian Forces Health Services
CFHSP	Canadian Forces Health Services Publication
CFJP	Canadian Forces Joint Publication
CID	Combat Identification
C-IED	Counter Improvised Explosive Device
CMBG	Canadian Mechanized Brigade Group
CO	Commanding Officer
CP	Command Post
CQMS	Company Quartermaster Sergeant
CS Med Coy	Close Support Medical Company
CSM	Company Sergeant Major
CSS	Combat Service Support
CSU	Casualty Staging Unit
DCO	Deputy Commanding Officer

DCR	Damage Control Resuscitation
DCS	Damage Control Surgery
Div	Division
Div HS Gp	Division Health Service Group
Div Med Bn	Division Medical Battalion
Div Surg	Division Surgeon
DMS	Division Medical Station
DNBI	Disease and Non-Battle Injury
DOS	Day of Supply
DSA	Division Support Area
DTB	Defence Terminology Bank
ECM	Electronic Counter Measures
Evac Coy	Evacuation Company
FARP	Forward Arming and Refuelling Point
Fd Amb	Field Ambulance
Fwd AE	Forward Aeromedical Evacuation
FHP	Force Health Protection
FMED	Forward Medical Equipment Depot
FST	Forward Surgical Team
GBA+	Gender Based Analysis Plus
HCA	Health Care Administration officer
HLS	Helicopter Landing Site
HQ	Headquarters
HS	Health Services
HSU	Health Services Unit
IED	Improvised Explosive Device
IS Med Coy	Integral Support Medical Company
LO	Liaison Officer
LOAC	Law of Armed Conflict
MASCAL	Mass Casualty
MEDCC	Medical Coordination Centre
MedCOP	Medical Common Operational Picture
MEDEVAC	Medical Evacuation
MRT	Mobile Repair Team
MRV	Mobile Recovery Vehicle
MSRT	Mobile Surgical Resuscitation Team
MTF	Medical Treatment Facility
NATO	North Atlantic Treaty Organisation
NMLO	National Medical Liaison Officer
NP	Nurse Practitioner
OC	Officer Commanding
PA	Physician Assistant
PAR	Population at Risk

PECC	Patient Evacuation Coordination Cell
PMed	Preventive Medicine
PMR	Patient Movement Request
POI	Point of Injury/Illness
POL	Petroleum, Oils, and Lubricants
PW	Prisoner of War
Role 2B	Role 2 Basic
Role 2B (HM)	Role 2 Basic (High Mobility)
Role 2E	Role 2 Enhanced
RSM	Regimental Sergeant Major
SMA	Senior Medical Authority
SMO	Senior Medical Officer
SNO	Senior Nursing Officer
SRD	Standards Related Document
STANAG	Standardisation Agreement (NATO)
Svc Bn	Service Battalion
Svc Coy	Service Company
TCCC	Tactical Combat Casualty Care
TF Surg	Task Force Surgeon
TO&E	Table of Organization and Equipment
TTP	Tactics, Techniques and Procedures
UAS	Uncrewed Aircraft System
UMS	Unit Medical Station
UN	United Nations
WBB	Walking Blood Bank
WO	Warrant Officer

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REFERENCES

Canadian Armed Forces

Canadian Joint doctrine is found at http://intranet.mil.ca/en/organizations/cjoc/cfwc-joint-doctrine-publication.page. Canadian Army doctrine is found on the Army Electronic Library https://acims.mil.ca/sp/CADTC_DAD_AEL/default.aspx. HS doctrine, policies and directives are found at http://cmp-cpm.mil.ca/en/health/policies-direction/index.page

A. CDS Directive for *Integrating UNSCR 1325 and Related Resolutions into CAF Planning and Operations*
B. CDS Directive for the *Implementation of the Safe Schools Declaration*
C. CFJP 3-0.1 *Law of Armed Conflict at the Operational and Tactical Levels*
D. CFJP 3-8.1 *Chemical, Biological, Radiological, and Nuclear Defence – Operations*
E. CFJP 3-6 *Electronic Warfare*
F. CFJP 3-13 *CF Joint Force Protection Doctrine*
G. CFJP 3-14 *Prisoners of War Handling, Detainees and Interrogation & Tactical Questioning*
H. CFJP 4-10 *Health Services (Interim)*
I. Joint Doctrine Note 2017-01 *Child Soldiers*
J. Joint Doctrine Note 2017-02 *Cyber Operations*
K. Joint Doctrine Note 02-2014 *Command & Control of Joint Operations*
L. *Integrating Gender Perspectives in Operations*
M. CFHSP-1 *Health Services Planning*
N. A-MD-175-003/AG-001 *Medical Materiel Management*
O. A-MD-005-000/AA-001 *Royal Canadian Dental Corps Infection Prevention Program*
P. B-GJ-005-311/FP-020 *Canadian Forces Chemical, Biological, Radiological and Nuclear Defence Tactics, Techniques and Procedures*
Q. B-GL-300-001/FP-001 *Land Operations*
R. B-GL-300-003/FP-001 *Command in Land Operations*
S. B-GL-300-004/FP-001 *Sustainment of Land Operations*
T. B-GL-321-003/FP-001 *Brigade Tactics*
U. B-GL-321-005/FP-001 *Battle Group in Operations*
V. B-GL-322-007/FP-001 *Urban Operations*
W. B-GL-322-008/FP-001 *A Tactical Guide to Urban Operations*
X. B-GL-322-010/FP-001 *Stability Activities And Tasks*
Y. B-GL-323-003/FP-001 *Operations in Cold Weather*
Z. B-GL-323-004/FP-003 *Counter-Insurgency Operations*
AA. B-GL-324-002/FP-001 *Airborne Operations – Airmobile*
AB. B-GL-324-004/FP-001 *Airborne Operations – Parachute*
AC. B-GL-331-002/FP-001 *Staff Duties and Procedures for Land Operations*
AD. B-GL-334-001/FP-001 *Standing Operating Procedures (SOP) For Land Operations*
AE. B-GL-355-001/FP-001 *Civil-Military Cooperation Tactics, Techniques and Procedures*
AF. B-GL-345-001/FP-001 *Combat Service Support (CSS) Units in Operations*
AG. B-GL-345-002/FP-001 *The Service Battalion in Operations*
AH. B-GL-340-003/FP-001 *Logistics and Combat Service Support Tactics, Techniques And Procedures*
AI. B-GL-340-004/FP-001 *Convoy Operations Tactics, Techniques and Procedures*

AJ. B-GL-346-001/FP-000 *The Chaplain's Manual*
AK. B-GL-364-001/FP-001 *Camouflage and Concealment*
AL. B-GL-312-011/FP-001 *Personnel Administration in Battle*
AM. B-GL-394-002/FP-001 *Ground Manoeuvre Reconnaissance*
AN. B-GL-365-022/FP-003 *Tactical Counter-IED Aide Memoire*
AO. B-GL-372-009/FP-001 *Counter Uncrewed Aircraft Systems Defence*
AP. B-OG-302-004/FP-001 *Jungle Operations*
AQ. B-GL-302-004/FP-002 *A Soldier's Guide to the Jungle*
AR. B-OG-302-005/FP-001 *Mountain Operations*
AS. Canadian Army Doctrine Note 18-1 *Airborne Operations – Aerial Delivery*.
AT. CFHS Instruction 4200-44 *Narcotics and Controlled Drugs*
AU. CFHS Instruction 5020-20 *Disclosure of Personal Health Information*
AV. CFHS Advisory 4070-02 *Infection Prevention and Control in the Deployed Healthcare Environment*
AW. CFHS Order 6000-25 *Patient Tracking*
AX. Director Health Services Operations Publication *Whole Blood in an Operational Environment* available from the Blood Program Officer

NATO

STANAGs are routinely reviewed and updated. The current version of most can be found on the NATO Standardization Organization (NSO) public website http://nso.nato.int/nso/ or on the NATO Standards Mobile App. Any not available on the public site can be found on the NSO protected site (requires login).

AY. IMSM-0028-2020 (INV) *Bi-SC Capability Codes and Capability Statements* 22 January 2020
AZ. AJP-4.10 *Allied Joint Medical Support Doctrine* (STANAG 2228)
BA. AAMedP-1.1 *Aeromedical Evacuation* (STANAG 3204)
BB. AJMedP-2 *Allied Joint Doctrine for Medical Evacuation* (STANAG 2546)
BC. AJMedP-4 *Allied Joint Medical Force Health Protection Doctrine* (STANAG 2561)
- AJMedP-4 SRD-1 *Heat Stress Control and Heat Casualty Management*
- AJMedP-4 SRD-2 *Prevention and Management of Cold Weather Injuries*
- AJMedP-4 SRD-3 *Altitude Acclimatization and Illness Management*
- AJMedP-4 SRD-4 *Field Hygiene and Sanitation*
- AJMedP-4 SRD-8 *Protection of Hearing*

BD. AJMedP-6 *Allied Joint Civil-Military Medical Interface Doctrine* (STANAG 2563)
BE. AJMedP-7 *Allied Joint Doctrine for Support to Chemical, Biological, Radiological and Nuclear (CBRN) Defensive Operations* (STANAG 2596)
BF. AMedP-1.1 *Minimum Requirements for Blood, Blood Donors, and Associated Equipment* (STANAG 2939)
BG. AMedP-1.5 *Identification of Medical Materiel for Field Medical Installations* (STANAG 2060)
BH. AMedP-1.7 *Capability Matrix* (STANAG 2560)
BI. AMedP-1.10 *Medical Aspects in the Management of a Major Incident/Mass Casualty Situation* (STANAG 2879)
BJ. AMedP-1.12 *Medical and Dental Supply Procedures* (STANAG 2128)
BK. AMedP-1.15 *Compatibility of Medical Tubing and Connectors in the Field* (STANAG 2178)

BL. AMedP-1.19 *Cross Servicing of Medical Gas Cylinders* (STANAG 2121)
BM. AMedP-5.3 *Development and Implementation of Telemedicine Systems* (STANAG 2517)
BN. AMedP-8.5 *Minimum Test Requirements for Laboratory Units of In Theatre Military Medical Treatment Facilities* (MTFs) (STANAG 2571)
BO. AMedP-7.1 *Medical Management of CBRN Casualties* (STANAG 2461)
BP. AMedP-8.1 *Documentation Relative to Initial Medical Treatment and Evacuation* (STANAG 2132)
BQ. AMedP-8.2 *Basic Military Medical Report* (STANAG 2348)
BR. AMedP-8.6 *Forward Mental Healthcare* (STANAG 2564)
BS. AMedP-8.7 *First Aid Dressings, First Aid Kits and Emergency Medical Care Kits* (STANAG 2126)
BT. AMedP-8.9 *Minimum Requirements for Medical Care of Women in Joint/Combined Operations* (STANAG 2179)
BU. AMedP-8.10 *A Psychological Guide for Leaders Across the Deployment Cycle* (STANAG 2565)
BV. AMedP-8.13 *The Extent of Dental and Maxillofacial Treatment at Role 1-3 Medical Treatment Facilities* (STANAG 2453)
BW. AMedP-9.1 *Modular Approach for Multinational Medical Treatment Facilities (MTF)* (STANAG 6506)
BX. ATP-79 *Orders for the Camouflage of Protective Medical Emblems on Land in Tactical Operations* (STANAG 2931)
BY. ATP-91 *Identification of Land Forces on the Battlefield and in an Area of Operation* (STANAG 2129)
BZ. ATP-97 *NATO Land Urgent Voice Messages (LUVM) Pocket Book* (STANAG 2627)
CA. ATP-3.8.1 *CBRN Defence on Operations* (STANAG 2521)

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Available on the ABCANZ website (requires login)

CB. Publication 365 *Health Support to Detainee Operations*
CC. Report 207 *Health Coordination Center – ABCANZ 2 Star Headquarters*
CD. Standard 2143(R) *En Route Care*
CE. Standard 2121 *Pre-Hospital Combat Casualty Care Standards for ABCANZ Soldiers*