HOW WILL THE U.S. ARMY'S HEALTH SERVICE SUPPORT INCREASE ITS CAPABILITY AND CAPACITY IN LARGE-SCALE COMBAT OPERATIONS TO TREAT MASS CASUALTIES IN INFANTRY BRIGADE COMBAT TEAMS?

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

HOW WILL THE U.S. ARMY'S HEALTH SERVICE SUPPORT INCREASE ITS CAPABILITY AND CAPACITY IN LARGE-SCALE COMBAT OPERATIONS TO TREAT MASS CASUALTIES IN INFANTRY BRIGADE COMBAT TEAMS?
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ACRONYMS

AMEDD	Army Medical Department
AHS	Army Health System
BCT	Brigade Combat Team
BSMC	Brigade Support Medical Company
CASEVAC	Casualty Evacuation
CSH	Combat Support Hospital
DOTMLPF-P	Doctrine, Organization, Training and Education, Military, Leadership, Personnel, Facilities and Policy
DNBI	Disease Non-Battle Injury
DOW	Died of Wounds
FLA	Field Litter Ambulance
FNP	Family Nurse Practitioner
FRST	Forward Resuscitative Surgical Team
FST	Forward Surgical Team
HSS	Health Service Support
IBCT	Infantry Brigade Combat Team
KIA	Killed in Action
LSCO	Large-Scale Combat Operations
MASCAL	Mass Casualties
MEDEVAC	Medical Evacuation
MES	Medical Evaluation Set
MNT	Mobile Nurse Team

MTOE	Military Table of Organization and Equipment
NP	Nurse Practitioner
RN	Registered Nurse
TCMC	Tactical Combat Medical Care
WIA	Wounded in Action

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CHAPTER 1

INTRODUCTION

Health Service Support in Large-Scale Combat Operations

U.S. Army Health Service Support (HSS) has been the way the U.S. Army has sustained our troops while at home and war. Medical care has evolved over time to provide support in a multitude of different environments. The purpose of this study is to evaluate the current state the U.S. Army's HSS and identify the current capability gaps in regard to large-scale combat operations (LSCO). LSCO is at the far right of the conflict continuum, it is associated with war, and conducts a wide range of military operations (see Figure 1). LSCO present the greatest challenges for Army forces and is expected to be complex and chaotic. The battlefields may be crowded and within large cities, which include noncombatants that can further complicate war. LSCO can be conducted on the offensive, defensive, and during stability operations and have a dedicated medical command to support the operation within a theater to support the deployed force.[1] One of the main purposes of this thesis is to evaluate how the U.S. Army Nurse Corps can help fill the HSS gap during combat operations within infantry brigade combat teams (IBCT).

[1] Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Printing Office, October 2017), 2-5-2-6.

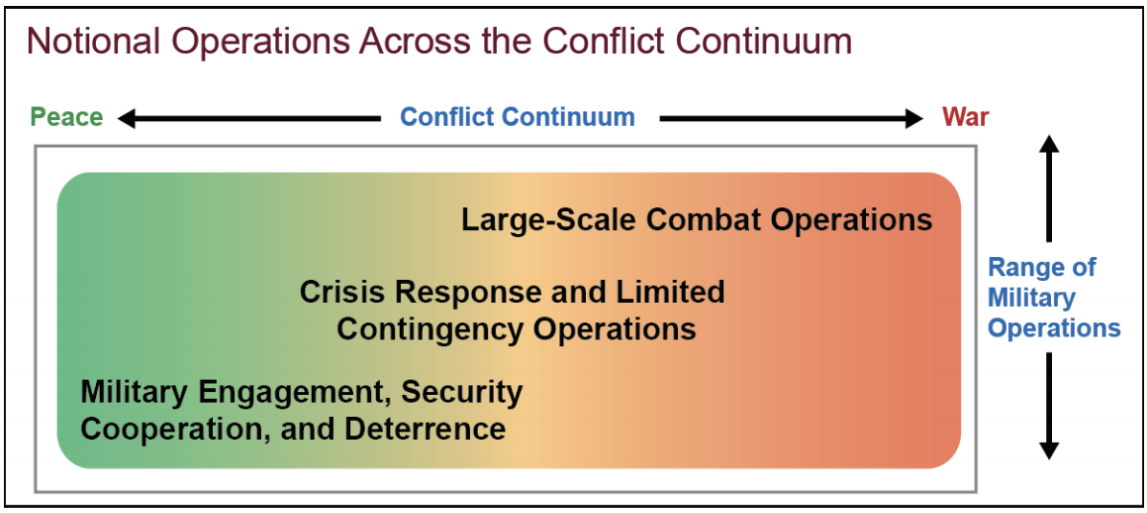

Figure 1. The Conflict Continuum and the Range of Military Operations

Source: Headquarters, Department of the Army, Field Manual 3-0, *Operations* (Washington, DC: Government Printing Office, October 2017), 1-1.

The U.S. Armed forces are moving their attention from the counter insurgency and counter terrorism fight to focusing on LSCO. New emerging doctrine supports this idea; however, not much has changed within HSS to support LSCO. There are many gaps identified within the current HSS. The Current U.S. Army HSS does not have the capability or capacity to support future LSCO. "LSCO have been more chaotic, intense, and highly destructive than those the Army has experienced in the past several decades."[2] Historically, even with well-trained experienced troops that were properly equipped, LSCO caused high casualty rates related to its inherent lethality, intensity, and brutality and casualty estimates are projected to be similar in the future. With future LSCO being based on the corps and its divisions fighting future wars, calculating casualty estimates is

[2] HQDA, FM 3-0, 1-2.

alarming. Current U.S. Army organization has a division consisting of anywhere from 10,000 to 16,000 soldiers while a single corps can include 20,000 to 45,000 personnel.[3] If past historical casualty counts are applied to current Army organizations, the Army can estimate catastrophic numbers for killed in action (KIA), died of wounds (DOW), and wounded in action (WIA). The last time the U.S. Army's HSS has witnessed catastrophic casualty counts from LSCO was in the Vietnam War, where there were more than 150,000 wounded and over 58,000 total deaths.[4] These deaths do not account for the number of soldiers that had a disease non-battle injury (DNBI) that took them out of the fight.

Understanding how HSS operated in the past, with an emphasis on U.S. Army nurses, is crucial for planning to increase the effectiveness of future HSS in LSCO. Operating in an environment that never seems to slow down will add stress and test the resilience of all parties. In addition, an analysis of historical battles reveals a larger number of casualties occur during the first battles of a conflict. For example, "During the battles of Sidi Bou Zid and Kasserine Pass in World War II, 5,000 American Soldiers were killed over the course of just ten days; during the first three days of fighting the Army lost soldiers at the rate of 1,333 per day."[5] In another LSCO account, the Yom

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[3] Rod Powers, "How the U.S. Army is Organized," *The Balance Careers*, accessed 09 December 2019. https://www.thebalancecareers.com/u-s-army-military-organization-from-squad-to-corps-4053660.

[4] Nese F. DeBruyne, *American War and Military Operations Casualties: Lists and Statistics* (Washington, DC: Congressional Research Service, 24 September 2019), accessed 6 September 2019, https://fas.org/sgp/crs/natsec/RL32492.pdf.

[5] HQDA, FM 3-0, 1-2.

Kippur War in October of 1973 occurred over a short timeframe of just three weeks. This operation led by Egypt and Syria against Israel was especially grave. Israel suffered 2,669 KIA and 7,500 WIA, Syria's KIA was 3,500 and 21,000 WIA, and Egypt had 15,000 KIA and 30,000 WIA.[6] The fact that the Yom Kippur War utilized combined arms as our armies would plan to do in our own future LSCO, one could conclude that the effects of war would be similar. The use of combined arms led to the lethality of this war.[7] In addition, with the element of surprise and lack of defined medical planning, each nation lost more men than they had planned for. The application of past LSCO casualty counts applied to future wars will assist the Army in planning for adequate HSS on a new battlefield.

With casualty estimates in mind, it is important to understand the U.S. Army's capability gaps within HSS at each echelon to include battalion, brigade, division, and corps. The focus will be on the battalion and brigade HSS for this study. The battalion aid stations do not have the requisite HSS capability or capacity to care for continued MASCAL with their current table of organization and equipment. The MASCAL means an event that overwhelms immediately available medical capabilities to include personnel, supplies, and/or equipment while affecting multiple levels of care and evacuation with little to no notice.[8] Starting in World War II, "Army medical teams

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[6] Jennifer Wilson, "Casualty Aversion, The Challenge in Medical Planning for LSCO," *Small Wars Journal*, accessed 09 December 2019, https://smallwarsjournal.com/jrnl/art/casualty-aversion-challenge-medical-planning-lsco.

[7] Ibid.

[8] Headquarters, Department of the Army (HQDA), *Emergency War Surgery* (Washington, DC: Government Printing Office, 2013), 23.

developed a reasonably fast and efficient method for sustaining the wounded close to a mobile front line and ferrying them through a chain of hospitals behind the line to a place where they receive the level of care appropriate to their individual conditions."[9] The importance of initiating the process of patient stabilization begins at the point of injury, however, in the MASCAL situation, medically trained personnel become scarce when the casualties start increasing. The medical provider to casualty ratio leads to many soldiers dying of their wounds because they cannot be treated quickly by a qualified provider to administer the level of care needed to stabilize the patient before placing them on a medical platform for evacuation to the next level of medical care.

While in combat, the current battalion-level medical personnel include one medical doctor, one physician assistant, and roughly 40 combat medics, along with their equipment and medical evaluation sets (MES), which are the supplies used to treat the injured. Some combat medics will be assisting those two providers within the aid station and others will be out on the line fighting with their fellow soldiers and providing care to the wounded when needed. This number of medical providers is too small when the IBCT battalions can range anywhere from around 500 to 800 soldiers. The fact that two medical providers with diagnosing and treating capabilities are expected to manage the care of all battle injured and DNBI soldiers in a continuous operation is unreasonable. A high operational tempo that is producing casualties and DNBI patients will overwhelm these providers and lead to increased provider fatigue situations.

[9] Dan Freedman and Jacqueline Rhoads, *Nurses in Vietnam The Forgotten Veterans* (Austin: Texas Monthly Press, Inc., 1987), 7-8.

Additionally, when a MASCAL situation occurs, more personnel are required to conduct triage operations to include medical and non-medical personnel. Triage in the military differs than in the civilian medical sector. Triage on the battlefield consist of sorting patients according to the type and seriousness of injury and likelihood of survival, and the establishment of priorities for treatment and evacuation; however, the medical resources used will assist to provide care for the greatest benefit to the largest number of injured. Medically trained personnel conduct triage and non-medical personnel assist in carrying litters, act as messengers, restock supplies, and assist in patient evacuation. It is important to have an effective triage area where casualty management and patient regulation strategies do the most good for the most casualties to maximize the fighting force as this has been identified as a medical challenge of future warfare.[10] In addition, the battalion aid stations do not have the capability or capacity to conduct patient holding operations at the Role 1 like the Role 2's 72-hour patient holding area.

After stabilization of a patient at the Role 2, medical evacuation (MEDEVAC) is expected to be anywhere from two to twenty-four hours, but the Role 1 does not have the capability to hold patients for this long. At times, the offensive or defensive operations will hinder ground or air MEDEVAC due to the threat from the operational environment. If the ground ambulance routes are inoperable due to direct or indirect fire or the threat is deemed hazardous for air evacuation to land safely, casualties will stay at the Role 1 Aid

[10] COL Michael R. Davis, "Rethinking Golden Hour Care at the IBCT," Army Futures Command, accessed 30 January 2020, accessed 30 January 2020, https://army.mil/futures.

Station absorbing one-on-one provider time and continued use of valuable resources.[11] The MEDEVAC of patients is a necessity so it can provide the healthcare providers time to move onto the next casualty. There are dedicated MEDEVAC platforms that are used for patient evacuation and these platforms provide medical care enroute for the wounded or ill person from the battlefield to a higher echelon of care. "The provision of enroute care on medically equipped vehicles or aircraft greatly enhances the patient's potential for recovery and may reduce long-term disability by maintaining the patient's medical condition in a more stable manner."[12] However, MEDEVAC platforms in LSCO may become overwhelmed and cause units to utilize their casualty evacuation (CASEVAC) plan. First, ground MEDEVAC at Role 1 will use their organic capability first to travel from the Role 1 to pick up casualties at point of injury or casualty collection points and bring them back to the Role 1 aid station to be treated. These casualties will receive enroute care if a MEDEVAC platform is used. Once all the battalion MEDEVAC platforms are all in use, the battalion will begin to utilize other vehicles they have identified to assist in moving casualties from point of injury to the Role 1. These CASEVAC platforms are nonmedical modes of transport and will not have dedicated medical personnel to perform enroute care. "Casualties transported in this manner may not receive proper enroute medical care or be transported to the appropriate military treatment facility to address the patient's medical condition. If the casualty's medical condition deteriorates during transport, or the casualty is not transported to the

[11] Headquarters, Department of the Army (HQDA), Field Manual (FM) 4-02.2, *Medical Evacuation* (Washington, DC: Government Printing Office, August 2013).

[12] Ibid., 1-7.

appropriate military treatment facility, an adverse impact on his prognosis and long-term disability or death may result."[13] LSCO will most likely utilize all the MEDEVAC modes of transportation, and CASEVAC will begin to use military vehicles for casualty transport, taking away these vehicles' abilities to be used toward the operation. Once MEDEVAC and CASEVAC have reached their limits within the battalion, casualties will begin to overburden the Role 1 medical treatment area and the minimal medical personnel who work within it. The same goes for the Role 2. The Role 2's Evacuation Platoon will use their ten field litter ambulances (FLAs) to travel to the Role 1 or the designated ambulance exchange points to pick up the casualties that have been treated at the Role 1. The Role 2 also has CASEVAC platforms, such as a seven light medium tactical vehicles (LMTV) that can transport eight litter or fourteen ambulatory patients or use the high mobility multipurpose wheeled vehicles (HMMWV), which can transport three litters in a four-man configuration HMMWV or five litters in the two-man configuration HMMWV.[14] Nonetheless, these additional vehicles may not always be available to conduct CASEVAC because they are dedicated to conducting other missions.

The IBCT battalions, not including the brigade support battalion, only have four M997 FLAs for MEDEVAC.[15] These FLAs can carry four litter patients, eight ambulatory patients, or a combination of two litter and four ambulatory patients. The

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[13] HQDA, FM 4-02.2, 1-7.

[14] Headquarters, Department of the Army (HQDA), Field Manual (FM) 4-25.13, *Casualty Evacuation* (Washington, DC: Government Printing Office, February 2013).

[15] Force Management System Website (FMS Web), accessed 08 March 2020, https://fmsweb.fms.army.mil.

brigade support medical company (BSMC) within the brigade support battalion currently has ten FLAs for MEDEVAC and can carry the same number of patients.[16] Continuous ambulance shuttle operations would be occurring between the IBCT battalions and the BSMC. It is important to remember that of the ten FLAs at the BSMC may also have to transport patients to ambulance exchange points for patients to go to the Role 3 if the Role 3 is unable to travel directly to the Role 2. With MASCAL situations, it would be easy to understand how these platforms can become quickly overburdened.

Next, the Role 2 aid station does not have the capacity to take care of the overwhelming number of casualties as seen in our previous LSCO and the number of casualties will inundate the ground and air MEDEVAC capabilities. The medical company in an IBCT only has an area for triage, four trauma beds being managed by two to three medical providers and a 72-hour patient holding area to care for up to 20 patients managed by the one brigade nurse and one senior medic. Patients awaiting MEDEVAC and patients who are going to be discharged on a return to duty status but may need care for less than 72-hours utilize the 72-hour patient holding area. The return to duty patients will be transferred back to their parent unit after a medical provider determines their short-term treatment is complete. The IBCT's capacity is even less than the Armored Brigade Combat Team (BCT) or Stryker BCT, where in the Armored BCT and Stryker BCT there are four trauma beds and a patient holding area for up to 40 patients.[17]

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[16] FMS Web.

[17] Headquarters, Department of the Army (HQDA), Field Manual (FM) 4-02.6, *The Medical Company* (Washington, DC: Government Printing Office, August 2002).

When the Role 2 is augmented with a forward surgical team (FST) or forward resuscitative surgical team (FRST), it does allow the Role 2 to be able to care for more patients. If the Role 2 is augmented with an FST it can only provide "emergency treatment to receive, triage, and prepare incoming patients for surgery, provided the required surgery, and continued postoperative care for up to 30 critically wounded/injured patients over a period of 72 hours with its organic medical equipment sets."[18] This adds up to taking ten extra patients a day in need of surgical treatment for stabilization. The FST's post-acute nursing care area can only care for up to eight patients per team awaiting MEDEVAC.[19] The soldiers who are being cared for in the post-acute nursing area will also have priority for MEDEVAC to the Role 3 causing additional back up in the Role 2's patient holding area. The FST/FRST is a critical capability that can be added to the Role 2 and allows for more patients, but since the Role 2 does not have the capability to increase in size when it is augmented with this additional treatment area, it can cause an increased total patient load for the Role 2 as a whole.

The Role 2 also faces the same problem as the Role 1 when it comes to MEDEVAC procedures. If air MEDEVAC is restricted to conduct operations because of weather or enemy threat, Blackhawks may not be able to pick up patients at the Role 1 or Role 2 and take them to the Role 3. In addition, if the ground MEDEVAC is busy conducting evacuation from the ambulance exchange points between the roles of care or

[18] Headquarters, Department of the Army (HQDA), Field Manual (FM) 4-02.25, *Employment of Forward Surgical Teams* (Washington, DC: Government Printing Office, March 2003), 2-1.

[19] Ibid.

the current evacuation routes are inoperable, then ground evacuation will not be able to conduct MEDEVAC. With the Role 2 receiving the majority of the patients from every Role 1 aid station within the brigade, the Role 2 is naive to think that it can operate with approximately the same number of advanced medical providers as the Role 1 aid station. Three total advanced medical providers, a medical doctor and two physician assistants, at the Role 2 is not a sustainable solution to manage continuous medical care. Even if MEDEVAC is being conducted and patients are moving quickly to the Role 3 from the Role 2, every patient is still being assessed and treated by the medical providers at the Role 2.

Lastly, the combat support hospitals (CSH) lack the mobility to closely follow the mobile fighting force and once established in theatre, requires detailed logistics to move and be reestablished in a new location. If the CSH deploys as an echelon above corps CSH it will operate as a 248-bed facility that does not have the option of operating as a split-base capability. If the CSH deploys as a corps CSH, then it is slightly more mobile as it can conduct split base operations as a 164-bed CSH and an 84-bed CSH; however, when the CSH is split, they will not have the full capabilities of the EAC CSH in one single location.[20] Once the Role 3 is established and is receiving and taking care of patients, it has an increased obstacle if it has to relocate because the patients have to either be evacuated out of theater or travel with the Role 3 to their new location. Also, during movement, the Role 3 will not be able to accept more patients and the patients will

[20] Headquarters, Department of the Army (HQDA), Field Manual (FM) 4-02.10, *Theater Hospitalization* (Washington, DC: Government Printing Office, January 2005).

have to stay in the support area at the Role 2 or in the close area at the Role 1, which will increase the patient load on the already overworked medical providers.

Research Question

With the past war casualty numbers of WIA and KIA, future LSCO are expected to be similar and have catastrophic losses. The thesis question focuses on the capability and capacity of the U.S. Army's HSS and how it could currently provide support in LSCO. HSS must be flexible and adapt to support future wars where the U.S. does not have standing medical facilities to support military operations. The thesis question is, How will the U.S. Army's HSS increase its capability and capacity in LSCO to treat MASCAL in IBCTs?

There are subordinate questions that have to be addressed to add substance to the primary thesis question. What were the past capability gaps of HSS in LSCO and how did the U.S. medical department and staff solve the identified shortfalls? What is the U.S. Army's current doctrinal plan for application of HSS in LSCO to include current organizational sturcture for battlefield care?

This research is significant to ensure the U.S. Army can sustain the warfighter during future LSCO. Army HSS has an obligation to each and every soldier on the battlefield to provide care as expediant as possible. Assessing for and dentifying current capability gaps will allow for recommendations to be placed to fill future shortages. With the U.S. being involved in past LSCO, Vietnam in particular, lessons learned from medical providers can assist in future recommendations that hold some validity compared to only being able to assess foreign military LSCO. Understanding the detrimental impact of inadquate HSS during LSCO is important to drive future changes.

Assumptions

Increasing the capacity of medical assets on the battlefield is paramount, but the Army must make sure it can provide increased capabilities and not just capacity. While combat medics are a quick solution for increasing capacity, they cannot serve in the same realm as an advanced health care provider who holds a master's level education or higher. Advanced health care providers possess an advanced life support skill set such as intubation and also has prescription authority within their scope of practice. The registered nurse (RN) is not considered an advanced health care provider but has earned a bachelor's degree with additional training and education medics do not receive. Combat medics do not have the same knowledge set as advanced medical providers who have earned a master's or doctoral degree and lack the experience of providing advanced trauma life-support. These skill sets include diagnosing, prescribing medications, and managing care procedures related to a diagnosis. The combat medic can increase capacity on the battlefield, but advanced care providers also need to increase in numbers to provide advanced medical care further forward.

Medical providers must sustain the warfighter to continue the fight. This leads to the assumption that the U.S. Army would be willing to place their low-density medical support personnel further forward in the close area to provide care for a greater number of soldiers. There is always risks associated with being closer to the fight. In World War II, approximately 200 nurses died in combat and 82 more were taken as prisoners of war, and in the Philippines, in 1942, 11 nurses were taken as prisoners of war all because they

were near the close fight.[21] Leaders must assume prudent risk by placing skilled medical providers in increased levels of danger to save more warfighters. More advanced providers, such as family nurse practitioners (FNPs), need to be closer to the close fight on the battlefield. The positions that need to be filled should first be on a volunteer basis as some medical personnel do not function as well under certain conditions.

Currently, IBCTs only fill the advanced medical provider positions with medical doctors and physician assistants at the Role 1 and Role 2. There is an underlying assumption that the U.S. Army Nurse Corps could provide FNPs and RNs, who possess additional advanced medical skills, to fill the capability gap and increase the capacity at the Role 1 and Role 2 on the battlefield. Putting an increased number of nurses in the close and consolidation area would be a culture shift for the U.S. Army Nurse Corps. The belief is that this change can be perceived as a positive step toward providing compassionate and proficient care always to the helpless and vulnerable warfighter, which is an integral part of the Army Nursing Team Creed.[22]

Definition of Terms

Health services support: Encompasses all support and services performed, provided, and arranged by the Army Medical Department (AMEDD) to promote, improve, conserve, or restore the mental and physical well-being of personnel in the Army. Additionally, as directed, provide support to other services, agencies, and

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[21] Freedman and Rhoads, *Nurses in Vietnam The Forgotten Veterans*, 8.

[22] LTC Leigh McGraw, "Army Nursing Team Creed," U.S. Army Nurse Corps, accessed 05 November 2019, https://armynursecorps.amedd.army.mil/docs/army_nursing_team_creed.pdf.

organizations. This includes casualty care, (encompassing a number of AMEDD functions—organic and area medical support, hospitalization, the treatment aspects of dental care and behavioral/neuropsychiatric treatment, clinical laboratory services, and treatment of chemical, biological, radiological, and nuclear patients) MEDEVAC, and medical logistics.[23] HSS elements provide HSS within maneuver units of the IBCT and the BSMC of the brigade support battalion.[24]

Mobile Nurse Team (MNT): A mobile nurse medical treatment team led by a FNP and assisted by two RNs. This team assists with initial treatment of the wounded and in sustaining the warfighter until evacuation is available supporting prolonged field care at the Role 1. MNTs support the main effort during offensive or defensive operations. Casualty estimates determine where the capacity of medical providers needs to be increased. MNTs belong to and will conduct medical operations at the Role 2 until requested to augment the Role 1.

Role 1: The first medical care a soldier receives that includes immediate lifesaving measures, disease and non-battle injury prevention, combat and operational stress preventive measures, patient location and acquisition, MEDEVAC from supported units to supporting military treatment facilities, and treatment provided by designated

[23] Headquarters, Department of the Army (HQDA), Field Manual (FM) 4-02, *Army Health System* (Washington, DC: Government Printing Office, August 2013), 1-5

[24] Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-96, *Brigade Combat Team* (Washington, DC: Government Printing Office, October 2015), 9-2.

combat medics or treatment squads. The physician, physician assistant or the health care specialist in the battalion aid station provides emergency medical treatment.[25]

Role 2: Provides advanced trauma management in continuation from the Role 1. Forward resuscitative care provides the capability to deliver emergency care and initial stabilization for life-threatening illnesses and injuries. Role 2 has a limited 72-hour holding capability. The Role 2 can provide resuscitative surgical care if it is augmented with an FST/FRST.[26]

MEDEVAC: Refers to the movement of casualties aboard dedicated, standardized MEDEVAC platforms, with medical professionals who provide the timely, efficient movement and enroute care of the wounded, injured, or ill persons from the battlefield and/or other locations to medical treatment facilities.

CASEVAC: Refers to the movement of casualties aboard nonmedical vehicles or aircraft and should only use this method to move the less severely injured soldiers or when MEDEVAC assets are overwhelmed.[27]

Support area: The support area is the portion of the commander's area of operations that is designated to facilitate the positioning, employment, and protection of

[25] Joint Chiefs of Staff (JCS), Joint Publication (JP) 4-02, *Health Service Support* (Washington, DC: Government Printing Office, July 2012), II-2.

[26] Ibid.

[27] HQDA, FM 4-02.2, 1-7.

base sustainment assets required to sustain, enable, and control operations. Where sustaining operations occur.[28]

Close area: The close area is the portion of a commander's area of operations assigned to subordinate maneuver forces that conduct operations requiring speed and mobility to rapidly concentrate overwhelming combat power at the critical time and place and to exploit success.[29]

Deep area: A deep area is the portion of the commander's area of operations that is not assigned to subordinate units. Operations in the deep area involve efforts to prevent uncommitted enemy forces from being committed.[30]

LSCOs: Military operations that occur in the form of major operations and campaigns that are on the far right of the conflict continuum, which aims at defeating an enemy's armed forces and military capabilities in support of national objectives. These operations are chaotic, intense, and highly destructive with a wide range of military operations.[31]

Suitable, feasible, and acceptable: The U.S. Army's change management model searches for solutions that are suitable, feasible, and acceptable. Suitability is the effectiveness of a solution across a range of foreseeable environments. Acceptability is

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[28] Headquarters, Department of the Army (HQDA), Army Doctrine Reference Publication (ADRP) 3-0, *Operations* (Washington, DC: Government Printing Office, November 2016), 4-6.

[29] Ibid.

[30] Ibid., 4-5.

[31] Ibid., 1-1-1-2.

the willingness of stakeholders to support the proposed solution with respect to their culture, traditions, and professional judgment. Feasibility is the economic affordability of the proposal in terms of life-cycle costs, implementation, and project management.[32]

Limitations

A few limitations occurred during this research study. First, the time allotted for researching was limited to roughly six months. With additional time, would have come more oral history interviews to gather a more concrete picture of past medical care during LSCO. Second, a past LSCO that the U.S. fought in which produced MASCAL was the Vietnam War. This a major factor in why the researcher is focusing on nurses' experience from the Vietnam War. Other wars are mentioned throughout the thesis to support different ideas and themes. Third, the researcher only focused on experiences of nurses during the examination of medical care in Vietnam. There could have been more information gathered from getting an assessment from medical doctors, physician assistants, and medics, which could have either verified the need for more nurses and or offered other solutions outside the idea of adding just nurses within the MNT. Fourth, the assessments of the National Training Center or Joint Readiness Training Center rotations do not specifically focus on medical for the after-action reviews. If medical was a specific topic discussed more in depth, this additional information could have been extremely useful for an expanded concept of HSS in LSCO for the IBCT. General

[32] LTC Joseph James Hudak, "The Origins of the 'Golden Hour' of Medical Care and its Applicability to Combat Medicine" (Master's Thesis, U.S. Army Command and General Staff College, Fort Leavenworth, KS, 2015), 7.

medical assessments were collected from the Center for Army Lessons Learned and contributed to the data collection process.

Delimitations

The researcher will not discuss treatment within the Role 3 and Role 4. Instead, only the Role 3 will be discussed briefly in how it assists in the evacuation process.

The researcher does not go in depth on the current roles of the physician assistant or medical doctor that currently practice at the Role 1 and Role 2. The roles and responsibilities of these providers would not change with the implementation of the MNT. During military operations, these medical providers would be augmented and not replaced by the FNP.

Further, I will only use the Vietnam War for comparison of nurses' experiences in LSCO since this war produced over 150,000 wounded and over 58,000 total deaths straining the medical assets that were in place.[33] In addition, the Vietnam War was conducted in an austere environment and did not have the resources the Army is currently used to falling in place on. The U.S. Army would possibly expect to conduct future wars and care for our wounded in a similar environment.

Significance of Study

With an increased number of casualties on the battlefield and not enough MEDEVAC assets to support all the wounded, more medical personnel are going to have to provide prolonged medical care. The significance of this study will help the Army's

[33] DeBruyne, *American War and Military Operations Casualties*.

HSS in finding solutions to be applied to how the forward medical support personnel are going to provide prolonged field care. There can be many answers to this problem, but finding the valid solutions that are acceptable, feasible, and suitable can be challenging. In addition, to consider how quickly the change needs to take place can affect how quick these decisions need to be made to sustain the warfighter. With the recommendations and conclusions that come from this research, key stakeholders must be willing to accept the proposed solution meaning that it is practical and rational, make the determination if it is feasible when considering life-cycle costs and implementation into the force, and overall, ensure the solution is suitable to attain our desired end state.[34] If key stakeholders needed an answer tomorrow, the time that is needed for researching has already been completed. When time is a factor in making decisions for emergent needs, it can benefit from using a recommendation that has already been studied. If the Army has time on their side to research, plan, train, and implement a solution into the force then this research recommendation can simply be one of many options that are considered.

[34] Joint Chiefs of Staff (JCS), Joint Doctrine Note (JDN) 1-18, *Strategy* (Washington, DC: Government Printing Office, April 2018), IV-2-IV-3.

CHAPTER 2

LITERATURE REVIEW

U.S. Army HSS

The purpose of this research is to explore how the U.S. Army Nurse Corps can assist in increasing the capabilities of HSS for LSCO. Since the U.S. is in what is considered an interwar period between LSCO, there is limited current literature with a focus on LSCO, especially the medical care that accompanies it. There are multiple sources utilized to assist in analyzing the current state of HSS and the how the Army Nurse Corps currently supports medical operations. The sources utilized to address the topic are current Army doctrine, historical accounts of war and medical care, and personal and professional assessments provided first and second hand. Each source used is to support current U.S. Army HSS organization and operations. An analysis took place to gather historical LSCO medical support, which provided a background of information to support ideas and themes related to medical strengths and weaknesses.

When making decisions for how to provide care on the battlefield the principles of the Army health system (AHS) should be considered since the fundamentals are the foundation of HSS. "The principles guide medical planners in developing operational plans which are effective, efficient, flexible, and executable. AHS plans are designed to support the operational commander's scheme of maneuver while still retaining a focus on the delivery of health care."[35] The AHS's foundational principles are conformity, proximity, flexibility, mobility, continuity, and control.

[35] HQDA, FM 4-02, 1-5.

Doctrinal Publications

First, an assessment of the most up-to-date doctrine was necessary to assess the current HSS capabilities and functions. The sustainment army warfighting manuals were utilized, and within sustainment, the medical field manuals were researched to describe what and how HSS is provided on the battlefield. A majority of the focus was on the forward assets of the Role 1 and Role 2 care provided by the battalion and brigade aid stations. One of the most common themes present is to provide care as soon as possible, which means medical support must be further forward as well. Army HSS has been working to achieve the golden hour directed by the previous Secretary of Defense Robert Gates, but this idea to treat trauma patients within one hour from injury is not doctrinally supported. Doctrine was used toward this research for an understanding of military concepts and ideas. Joint doctrine was also utilized as it can provide broader concepts that intertwine all military services.

While the Army is changing its focus toward LSCO with an updated version of FM 3-0 Operations, which was notably analyzed for this research, the rest of the Army's doctrine, especially AHS is working to catch up. HSS doctrine is now being updated to support the Operations field manual and its focus on conducting LSCO.

Published Literature

Second, a multitude of information from published books was collected to gather past experiences of nursing health professionals and military leaders. The nurses' experiences can feed into future recommendations for healthcare providers and medical support by using their lessons learned in Vietnam. These experiences were gathered from

Vietnam War nurses who were able to share what worked in order for them to continue medical operations and how they handled MASCAL situations.

In *Defeat Into Victory: Battling Japan in Burma and India*, Field Marshal Viscount Slim discusses the importance of the practical application of the latest medical research, treating the sick in the forward areas instead of evacuation, preventive medicine, and the importance of air evacuation.[36]

Also, in *The Operational Art: Canadian Perspectives Health Service Support* an in depth, honest analysis of HSS is provided from the Canadian Forces (CF). This book provides insight on preventive medicine, casualty care, MEDEVAC, and medical planning. The CF rely on U.S. medical support during many operations they conduct and their analysis for a needed increase in their capabilities for their future forces is similar to what the U.S. HSS will be facing in LSCO. The CF understand that care for early casualties may become a key component of the success of an operation and takes the guidance from North Atlantic Treaty Organization that,

> Medical support to NATO forces must meet standards acceptable to all participating nations. Even in crisis or conflict, the aim is to provide a standard of medical care as close as possible to prevailing peacetime national medical standards, given the difficulties of doing so in an operational setting. Advances in medical and information technologies should be exploited to keep the operational standard of care as close as possible to peacetime standards and to deliver emergency care and emergency surgery as close as possible to the point of wounding.[37]

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[36] Field Marshal Viscount William Slim, *Defeat into Victory: Battling Japan in Burma and India*, 1942-1945 (New York: Cooper Square Press, 1956), 178-180.

[37] Allan English and James C. Taylor, *The Operational Art: Canadian Perspectives* (Kingston, Ontario: Canadian Defence Academy Press, 2006), 48-49.

War Casualty Numbers

Third, by looking at war casualty numbers, this allowed for an understanding of why enough trained personnel having to approach the medical situation in LSCO is important. Using past war analysis can be useful for future planning of medical services. Training and planning medical services for war should always start with a casualty estimate and can help guide aspects of a soldier to provider ratio, preventive medicine, battlefield rotations, and methods to withstand provider fatigue.

Military Training

Fourth, an analysis of past military training cycles that consisted of medical care from the Role 1 to Role 2 provides how HSS is currently training and lessons learned from conducting notional MASCALs in a scenario-based operation. Discovering where or how HSS failed during training can assist in retraining. Applying lessons learned to future medical training will assist in future medical and combat operations.

The Center for Army Lessons Learned provides the Combat Training Center's trends and also a newsletter, which provides candid evaluations of areas to improve and also areas to sustain.

Oral History Interview

By conducting a structured interview with a former U.S. Army nurse who served in Vietnam, a historical account of first-hand experiences were obtained that can provide an assessment and analysis of HSS during Vietnam and caring for MASCAL for an extended period of time. A nurse who served in Vietnam can provide an assessment of the medical support provided in their specific area of operation. Consent was obtained for

the interview. The following questions were asked: (1) Where did you serve? (2) With which unit did you serve? (3) What was your duty position and what would you say your job description was? (4) How was your unit organized? (5) How often did you deal with MASCALs? (6) What were some of the strengths your medical support provided during Vietnam while caring for MASCAL? (7) What were some of the areas the medical support lacked while providing health service support? (8) Do you feel that there were enough providers, supplies, support personnel, or systems in place, to handle the amount of casualties produced from the war? (9) What were some ways that you or your team were able to mitigate the shortfalls you have identified in HSS? (10) Were there any problems in regard to not having the capability or capacity to support casualties? If no problems are identified, what capabilities and support did your team provide that allowed continued success of your mission? (11) Is there anything else that you would like to add? The researcher chose these specific questions to dive into the capabilities that were present or lacking, what they did to mitigate identified deficiencies, and to further assess how the capacity, or lack thereof, affected the health care that they could provide.

Summary

This study is a needed addition to the current knowledge in the HSS field because the U.S. Army currently does not have the adequate HSS to provide care for LSCO. This research will open the door for many other researchers who also have recognized this capability gap exists and will begin to put forth solutions before the U.S. Armed forces face future conflicts.

CHAPTER 3

RESEARCH METHODOLOGY

The research methodology used in this thesis is mixed methods. A review of literature, oral history interview, and a focus on nurses' MASCAL experiences in the Vietnam War was used. The use of a thorough literature review provides a solid foundation for this particular study and allows for the exposure of the documentation with a sufficient depth and breadth of the context. A literature review surveys multiple different sources such as books, journal articles, and theses related to the research question. U.S. Army doctrine, U.S. war casualty counts, and past documented war experiences have been synthesized and inferences will be made and applied to the specific research topic. This research will involve personal experiences shared through an interview and published books that provide an insight on HSS challenges during LSCO. The use of the oral history interview is important because it permits the researcher to ask specific questions to an individual. An advantage of using these forms of research is having an abundance of literature of past documented health care experiences from nurses dealing with MASCALs during LSCO. A disadvantage of using this literature review is having some outdated material. While many U.S. Army doctrinal manuals are being updated to focus on the newly updated FM 3-0 Operations, the current HSS doctrine is outdated with some in the range of 15 years without an update. While the military is currently in an interwar LSCO period, it is our responsibility to ensure the most up-to-date doctrine guides the military medical professionals.

This research is important to the disadvantage that was just mentioned. The U.S. Army is heavily focusing on LSCO and cannot predict when the next war will be. The

Army knows the importance of planning for future battles but it seems HSS is being neglected. HSS is an important aspect of sustaining the warfighter so they can conduct these operations. The U.S. Army owes it to its soldiers to increase the capability and capacity of health care in the close and support zones. The gaps of HSS must be identified in order to start making the needed changes to support the warfighter. Once the capability gaps are identified the Army can use force management methods to inflict change to increase the capabilities it provides.

The Vietnam War is being used as a benchmark for evaluating HSS to analyze past deficiencies of medical services where there have been MASCAL. This is not to discount LSCO after the Vietnam War, but the WIA and KIA numbers were the number one reason this war was chosen to be examined. An evaluation of the past will explore what happens when there are medical personnel deficiencies for MASCAL, inactive preventative medicine procedures, and provider fatigue. The structured interview was geared toward answering specific questions the researcher was unable to find in the research.

CHAPTER 4

ANALYSIS

Timing of Medical Care

"The term "Golden Hour" was coined in the early 1970s to express the idea that the first hour following injury is when definitive care is critical to trauma patient's survival."[38] The golden hour is a standard for civilian care and in September 2009 the Secretary of Defense Robert Gates requested that the U.S. Army HSS strive to reach the goal of all casualties having expedient emergency care in Afghanistan during counter insurgency operations.[39] He directed to have more air and hospital assets for U.S. casualties since many soldiers were dying from injuries received that were not necessarily life-threatening if treated rapidly. His goal was to strive for the military to provide care within the golden hour, which would have the wounded soldier in a hospital within one hour from time of injury.[40] In this golden hour, rapid assessment and resuscitation of casualties is needed to save lives. Army HSS works diligently to meet the golden hour directive, but as the military moves away from the counter insurgency and counter terrorism fight and move to LSCO, there is no possible way that two providers in the battalion aid station and three more providers in the Role 2 can realistically treat the

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[38] English and Taylor, *The Operational Art: Canadian Perspectives*, 49.

[39] Thom Shanker, "Gates Seeks to Improve Battlefield Trauma Care in Afghanistan," *The New York Times,* accessed 31 October 2019, https://www.nytimes.com/2009/01/28/washington/28military.html.

[40] Stars and Stripes, "Gates Addresses Medical Care in Afghanistan," accessed 03 October 2019, https://www.stripes.com/news/gates-addresses-medical-care-in-afghanistan-1.87606.

number of soldiers that will be WIA. Colonel Michael Davis, Director, Combat Casualty Care Research Program at the Army Futures Command has put forth the idea that the golden hour will become the golden day and an effort must be put forth to provide prolonged care in multi-domain operations. He states, "The greatest concentration of medical support requirements will be in the ground contact with the enemy."[41] Putting more advanced medical providers forward to the close area to support the main effort assists in getting more soldiers with life-threatening injuries stabilized until MEDEVAC is available; leading to the idea of prolonged field care.

Prolonged Field Care

The North Atlantic Treaty Organization defines prolonged field care as, "Field medical care, applied beyond 'doctrinal planning time-lines' by a SOCM [Special Operations Combat Medic] or higher, in order to decrease patient mortality and morbidity."[42] Prolonged management encompasses taking care of serious casualties in a field or austere setting where resources are sparse and requires advanced training and concepts that rely upon patient assessment and complex medical decision making.[43] Therefore, whether a medic, nurse, FNP, physician assistant, or medical doctor, "Advanced resuscitation techniques and the combination of emergency medicine and intensive care medicine best practices, shared in published guidelines and through the

[41] Davis, "Rethinking Golden Hour Care at the IBCT."

[42] Sean Kennan and Jamie C. Riesberg, "Prolonged Field Care: Beyond the 'Golden Hour'," *Wilderness & Environmental Medicine 28* (2017): S136, accessed 10 March 2020, https://www.wemjournal.org/article/S1080-6032(17)30063-7/pdf.

[43] Ibid.

teachings of experienced providers, must be incorporated into the traditional training of these advanced "prehospital" providers."[44] Prolonged field care and emergency medicine management encompasses Army combat medicine. "The ultimate goals of combat medicine are: the return of the greatest possible number of warfighters to combat and the preservation of life, limb, and eyesight."[45]

When the Role 2 is enhanced with a FRST the ability to resuscitate and stabilize casualties prior to movement to a higher echelon of care provides increased capability and capacity at the Role 2. Military medical planners and personnel identify the need of this forward treatment as a vital capability during operations after having multiple experiences with trauma patients during war. When forward surgical capabilities were introduced into war, located as far forward as possible without interfering with operations, the DOW rate decreased as seen in the Korean War, the Yom Kippur conflict, and the Soviet conflict in Afghanistan.[46] Far forward medical services supports combat medicine and the future need of prolonged field care.

MEDEVAC

A requirement for the application of emergency prolonged field medicine is essential, especially when MEDEVAC platforms can only transport a limited number of casualties to a level of care at any one time. As mentioned earlier, the IBCT only has four

[44] Kennan and Riesberg, "Prolonged Field Care: Beyond the 'Golden Hour'," S136.

[45] HQDA, *Emergency War Surgery*, 24.

[46] English and Taylor, *The Operational Art: Canadian Perspectives*, 51.

FLAs at the battalion Role 1 and ten FLAs at the brigade's Role 2. These dedicated ground medical transportation platforms can be consumed quickly during LSCO. It is important to also consider that MEDEVAC may be hindered during offensive or defensive operations, when the threat is considered too high for safe ground or air evacuation operations.[47] In past conflicts, such as when Viscount Slim battled the Japanese in Burma and India, he placed treatment assets in the forward areas to provide prolonged care instead of straight evacuation to India; however; it was noted that air MEDEVAC saved more lives than any other agency and airstrips were placed alongside the hospitals for quick and safe evacuation.[48] Nonetheless, when MEDEVAC by ground or air is too dangerous and nonoperational, it can affect the DOW rate for the operation. DOW is when a soldier has been injured and receives medical treatment from a medical provider but still dies from their wound. DOW is different from KIA. KIA means that a soldier was injured and died before receiving medical treatment. During LSCO, medical planners have to plan for how they will continue care for injured soldiers in the absence of MEDEVAC or CASEVAC while trying to avoid a staggering DOW rate.

Another trauma-based model to help understand casualty care is the Tri-modal Distribution of Casualty Death. "In this model, casualty deaths peak at three points: the first peak at seconds to minutes for severely injured patients, the second peak at minutes to hours for patients with significant blood loss, and the third peak at hours to days

[47] HQDA, FM 4-02.2.

[48] Slim, *Defeat into Victory*, 178-180.

usually due to sepsis (infection) and multiple organ failure."[49] By using this model, it is simple to understand that most of the KIA casualties are dying in the first minutes after injury before reaching a medical provider. However, if a combat medic is allowed to be on the battlefield and not in the aid station to assist in early intervention of these casualties, they can assist in saving soldiers in these first critical minutes post-injury. As soldiers move from the minutes to hours periods in the Tri-modal Model they are going to rely on advanced medical support by health care professionals that have the skills to provide advanced trauma life support. "Estimates indicate that nearly 20 percent of those who die during combat suffer from surgically correctable injuries and might have been saved except for delays in the application of definitive treatment."[50] Nevertheless, there must be the capability present to have the injured in the hands of a medical provider.

Some current solutions to solve how HSS is going to accomplish taking care of MASCALs in LSCO is by training more combat medics to provide prolonged care to extend life through advanced trauma treatment to include airway management, hemorrhage control, chest wound management, and conducting high quality enroute care during ground evacuation. By understanding multiple areas of HSS within the battlefield, concepts are easier to pull together and relate how one service on the battlefield can affect another. Nonetheless, as there are more trained combat medics to provide care, understanding that casualties cannot just rely on one solution to answer the shortages of HSS is paramount.

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[49] English and Taylor, *The Operational Art: Canadian Perspectives*, 49.

[50] Ibid., 50.

Preventive Medicine

Although the focus of the MNT is to provide prolonged emergency care, the MNT will also be an important player within preventive medicine for the IBCT. Force health protection must be part of the operational planning process with inclusion of medical staff, adequate consideration of preventive health issues, adequate medical representation on reconnaissance, the assurance of key medical countermeasures, and the assurance of the adequate medical personnel to take care of the projected casualty estimates.[51]

An important historical military lesson is that a majority of causalities are resulted from DNBI and can have a major impact on the outcome of conflicts.[52] Some areas for preventive medicine are to help control and treat infectious diseases, combat environmental health hazards, health promotion, combat operational stress control, and communicate with the command teams which health hazards have developed or are in the process of developing that could threaten the force.[53] For example, when Field Marshal Viscount Slim led his troops in India he was losing over twelve men per thousand a day.[54] For every man evacuated from combat wounds, 120 were evacuated sick from diseases such as malaria, dysentery, skin diseases, and mite or jungle typhus.[55] Although the U.S. military has advanced their medical preventive medicine treatment in diseases

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[51] English and Taylor, *The Operational Art: Canadian Perspectives*, 38.

[52] Ibid., 21.

[53] HQDA, FM 4-02.17.

[54] Slim, *Defeat into Victory*, 177.

[55] Ibid.

such as malaria or in sanitation, diseases will be present in future wars. There also there must be an adequate number of health professionals with the knowledge of how to treat these diseases and the ability to do it. Slim also answered the health problems of his troops by placing his healthcare assets closer to the forward lines, such as the Malaria Forward Treatment Units that drastically decreased the sickness rate of the whole fourteenth Army.[56]

Not only does the MNT have the ability to provide preventive medicine to the injured, but they have the ability to provide assistance to the doctor and physician assistant at the Role 1 giving these two medical providers a much needed break during or after MASCALs, an infectious or communicable disease outbreak, or to simply help with sick call. The body and mind functions better with rest, and all medical providers must continue to take care of themselves before they can continue to care for others. Having help during both low and high stress times will help prevent provider burnout.

Interview Results and Vietnam Nurses Experiences

An interview was conducted with LTC Steven J. O'Connor, a retired U.S. Army Nurse who served in the Vietnam War in two separate locations (see Appendix for full interview). The first location was at the 12th Evacuation Hospital located at Cu Chi, Vietnam, which was the base camp at the time for the 25th Infantry Division. During this time, LTC O'Connor encountered multiple MASCAL situations while working as a junior staff operating room nurse in which he scrubbed and circulated for operations from the beginning of January 1967 until the end of June 1967. He described four to five real

[56] Slim, *Defeat into Victory*, 180.

MASCAL situations where they had to divert to other hospitals. He recalled most MASCALs averaging around ten hours, but one MASCAL he remembers the team and him working 52 hours straight. Managing yourself consisted of catnapping on a gurney, eating some food in the break room, and continuously relieving your battle buddy so they could do the same. The medical staff was supported by the mess hall bringing finger food for sustainment. During MASCALs, he does not believe that tensions arose, but rather the team functioned in a cooperative manner to get the job done. LTC O'Connor stated that generally they had enough supplies and personnel to support operations, but when there was not enough support it was a result of the MASCAL. "You can't staff and stock for that. You just can't have enough people that lie around waiting for that to happen. There weren't enough people of course, but they just armied on."[57] The shortfalls identified during the MASCALs mentioned by LTC O'Connor were lack of enough medical personnel, lack of sleep, inadequate rest cycles, shortage of blood supply, and inadequate logistics support from Saigon because it was hours away. The other location LTC O'Connor served from June 1967 through March 1968 was at the 36th Evacuation Hospital in Vung Tau where they had very few MASCALs.

In *Nurses in Vietnam: The Forgotten Veterans*, multiple accounts from female veteran nurses who served were collected. Many of these women spoke on their experiences of war and what it was like to care for so many during the atrocities of war. Each woman had their own unique experiences with MASCALs and did not all serve in the same type of hospital setting. Many of these women were able to identify multiple

[57] Steven J. O'Connor, personal interview with author, Fort Leavenworth, KS, December 19, 2019.

issues they encountered when working with MASCALs. Jacqueline Navarra Rhoads, who served at the 18th Surgical Hospital at Quang Tri, shared an experience about provider burnout and fatigue, "during these mass-cals we'd be up for 36 hours at a stretch. Nobody wanted to quit until the last surgery case was stabilized. By that time, we were emotionally and physically numb. You couldn't see clearly, you couldn't react. Sounds were distant. We kind of policed each other."[58] When people are not policing each other up it can lead to careless mistakes and work-arounds. Jeanne Rivera, assigned in both Qui Nhon and Saigon, describes certain MASCALs as a disastrous mess that moved slowly. There would be no linen, so patients were not draped in the operating room, there was not enough supplies, and "people were working continually, continually, continually, and they were all worn out."[59] Furthermore, even though some things are accepted during wartime, she believed there had to be a lot of mistakes because of the very long hours, and the continuous pressure they were all working under.[60]

Logistically speaking, Lorraine Bodreau, assigned to the 93rd Evacuation Hospital in Long Binh remembers treating over 200 patients in a single push, working 18-20 hours straight while stacking casualties in body bags because they died enroute to their hospital or died before they got to the operating room table. She said,

> I hoped this was not an everyday thing, because I couldn't see how one could manage with something like this happening every day. I couldn't see how we could possibly manage because we were being tasked to the maximum. The

[58] Freedman and Rhoads, *Nurses in Vietnam The Forgotten Veterans*, 17.

[59] Ibid., 57.

[60] Ibid.

> number one problem was that we didn't have everything unpacked, and number two was that we were running out of supplies.[61]

Deanna McGookin spent a year in Vietnam at the 67th Evacuation Hospital in Qui Nhon. She faced logistical challenges as well, as she became used to having 50 to 60 patients coming in at once with a variety of traumatic wounds all at varying stages of injury. So many casualties coming in at once all with life-threatening wounds is difficult to manage. In the Tet of 1969, her team was getting 200-300 patients coming in a day and many of them were required to be moved to the expectant category, given medications, and made comfortable as they died.[62] A medical team cannot handle this number of patients with life-threatening injuries. This can be said for any location on the battlefield whether in the close or support areas. The most important thing medical professionals can do in situations like this is stabilize the patients until they can receive care from the next higher support area. The issue being examined in the close area, is that the Role 1 will need the medical professionals present and with the adequate medical skills to provide this support.

AHS Medical Principles

When exploring options, the importance of the foundational principles of AHS were taken into consideration when making recommendations for HSS on the battlefield. "Future combat will likely be at a greater pace with a greater degree of dispersal of

[61] Freedman and Rhoads, *Nurses in Vietnam The Forgotten Veterans*, 27.

[62] Ibid., 95.

supported units, increasing the value of highly mobile HSS treatment assets."[63] Decisions for care on the battlefield should be able to meet each foundation of conformity, proximity, flexibility, mobility, continuity, and control. Solutions should conform in the sense that medical support should be able to effectively provide AHS support to the operational commander's strategic plan. Care should be proximal to the forces to support the sick, injured, and wounded soldiers at the right time and the right place to keep morbidity and mortality to a minimum while placing assets within supporting distance of forward forces without impeding operations. Proximity to troops is essential to rapidly locate, acquire, treat, stabilize, and evacuate combat casualties.[64] A solution's flexibility must be prepared to meet changing requirements at any point in time to best support mission requirements. HSS must be mobile and have the ability to remain in a supporting distance to the maneuvering units during the mission.

With the AHS medical principles in mind, it is important to note with increasing the capability and capacity further forward with modular health assets, such as a MNT, comes an increased requirement for HSS personnel and materiel and consequently a reduction in mobility assets.[65] While ground assets may be limited during operations it is essential to be proactive and to anticipate moving casualties or soldiers with DNBI prior to the start of an operation and to continuously keep the patient flow moving. "The Army's future operational environment is likely to be complex and challenging and

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[63] English and Taylor, *The Operational Art: Canadian Perspectives*, 53.

[64] HQDA, FM 4-02, 1-6.

[65] English and Taylor, *The Operational Art: Canadian Perspectives*, 53.

widely differs from previous conflicts. Operational factors will require the provision of medical care to a wide range of combat and noncombat casualties for prolonged periods that exceed current evacuation planning factors."[66] While patient flow continues from point of injury to increased levels of care, continuity is achieved. Additionally, control ensures medical professionals' scope of practice meets professional standards. NPs currently act autonomously as an individually licensed, independent practitioner who can diagnosis and manage acute, chronic, and complex health problems.[67]

IBCT Medical Structure

"The IBCT is an expeditionary, combined arms formation optimized for dismounted operations in complex terrain—a geographical area consisting of an urban center larger than a village and/or of two or more types of restrictive terrain or environmental conditions occupying the same space."[68] There are currently thirty-one BCTs within the Army, fourteen of them being IBCTs.

Although not depicted on the IBCT task organization, each IBCT battalion has one Role 1 battalion aid station with the personnel and equipment attached to the Headquarters and Headquarters Company (see Figure 2). Total medical personnel within the battalion includes one field surgeon, one physician assistant, three healthcare

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[66] Headquarters, Department of the Army (HQDA), *Army Health System Doctrine Smart Book* (Washington, DC: Government Printing Office, April 2019), 8.

[67] American Association of Nurse Practitioners, "Scope of Practice for Nurse Practitioners," accessed 20 March 2020. https://www.aanp.org/advocacy/advocacy-resource/position-statements/scope-of-practice-for-nurse-practitioners.

[68] HQDA, FM 3-96, 1-1.

sergeants, three healthcare specialist, and eleven medics.[69] These medical personnel numbers may vary depending on the individual battalion. In addition, the Role 1 area is supported by the battalion medical officer who is responsible for knowing the locations of the Role 1s and the Role 2, their evacuation platform capacity, casualty collection point locations, and actions from point of injury to casualty collection points to the aid station while considering casualty estimates.[70]

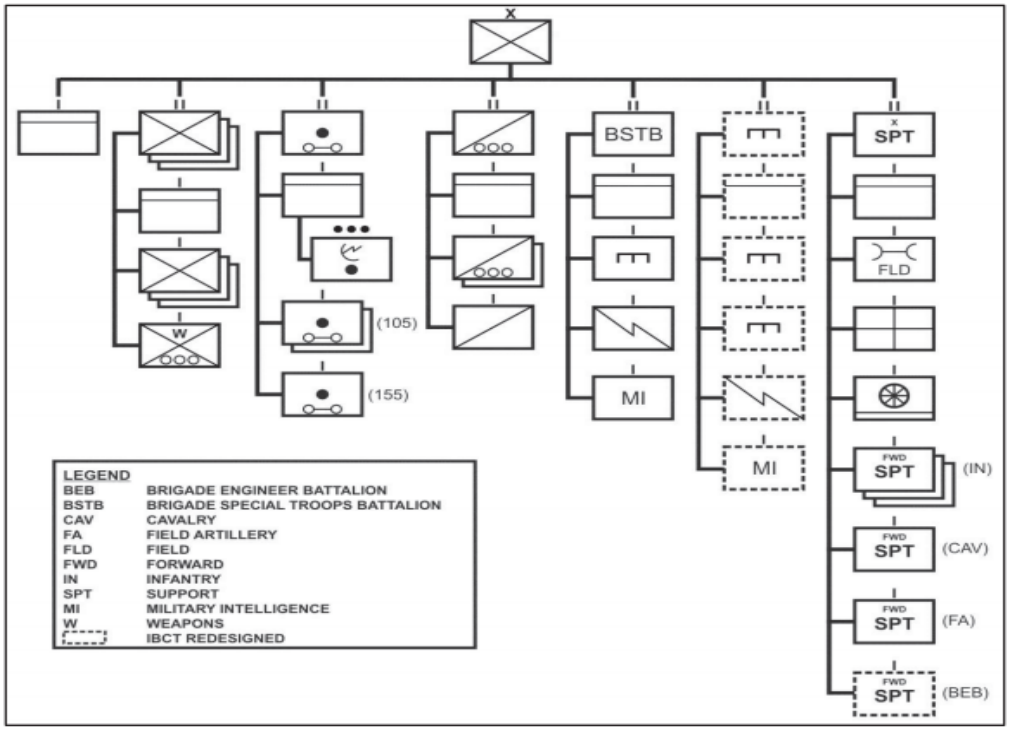

Figure 2. IBCT Task Organization

Source: Headquarters, Department of the Army, Field Manual 3-96, *BCT* (Washington, DC: Government Printing Office, October 2015), 1-3.

[69] FMSWeb.

[70] Center for Army Lessons Learned (CALL), Newsletter No. 17-19, *Ten Fundamental BCT Skills Required to Win the First Fight* (Fort Leavenworth, KS: CALL, August 2017), 79.

The BSMC differs as it supports Role 2 operations that provides support to all personnel within the brigade and also provides Role 1 medical treatment on an area support basis for units without organic Role 1 resources.[71] Role 2 operations are conducted in the support area, also known as the consolidation area. The Role 2 provides Army health services (health service support and force health protection) as well as Class VIII (medical supplies) support.[72] At this location, the patient's wounds and or medical conditions are assessed and either treated at the Role 2 or evacuated to a higher level of care. "Advanced trauma management and TC3 including beginning resuscitation is continued, and if necessary, additional emergency measures are instituted."[73] When the Role 2 is not enhanced with surgical capabilities it currently has one emergency medicine physician, two physician assistants, one medical-surgical nurse, and fifty medics.[74] These medics are split up between the treatment and evacuation platoons both led by a Medical Service Corps officer. There are also around 20-30 other medical personnel that function within the Role 2 providing ancillary services to include support such as dental, combat operational stress control, laboratory, radiology, pharmacy, and physical therapy. The Role 2 has a 20-bed patient holding area that can treat patients for up to 72-hours and return them to duty or evacuate these patients based on their medical category between two to 24-hours. The BSMC Commander is responsible for knowing the locations of the

[71] HQDA, FM 4-02, 1-9.

[72] HQDA, FM 3-96, 1-4.

[73] HQDA, FM 4-02, 1-9.

[74] FMSWeb.

ambulance exchange point locations, capabilities (MEDEVAC and CASEVAC platforms), and triggers to provide and shift support. The Evacuation Platoon Leader is charge of MEDEVAC during operations, the Treatment Platoon Leader is charge of managing the Role 2 aid station, and the BCT nurse is in charge of managing the patient holding area.[75] Each of the medical leaders within the Role 1 and Role 2 must create their plan of supporting operations by considering the casualty estimates that are briefed by the BCT S-1 (personnel) to determine support requirements, which is casualty volume and density, versus capabilities, which are the MEDEVAC and CASEVAC platforms.[76]

Another important player within the IBCT is the Brigade Surgeon, who belongs to the Brigade Headquarters and Headquarters Company. The Brigade Surgeon advises the Brigade Commander on the health and welfare of the brigade while being responsible for planning and executing the Army Health Service mission ensuring all AMEDD functions are considered and included in running estimates, operational plans, and operational orders.[77] Each of these IBCT medical personnel plays a significant role within the medical planning process and understands the medical treatment capability at each echelon of care. With the casualty estimate being an important aspect of medical planning for the brigade's medical operations, knowing how much support is needed is crucial.

[75] CALL, Newsletter No. 17-19, 79.

[76] Ibid., 78.

[77] HQDA, FM 4-02, 2-30-2-31.

Overall Analysis

With taking the timing of examining the literature related to medical care, prolonged field care, MEDEVAC, preventive medicine, past nurses' experiences with MASCALs in LSCO, AHS medical principles, and the IBCT medical structure into consideration related to future LSCO, there is a gap in providing extended medical care far forward at the Role 1. There is a need for additional advanced medical providers to support the influx of casualties created by LSCO. The U.S. Army can utilize the Joint Capabilities Integration and Development System (JCIDS) process and the doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy (DOTMLPF-P) analysis to determine which kind of approach needs to be taken to solve an identified capability gap.

Each domain of the DOTMLPF-P solution can be utilized to implement changes within the military. Doctrine examines how the military operates and sees if there is a better way to instruct the military to operate better. The organization analysis looks to see if there is a better organizational structure or capability that can be formed to solve a problem. The training domain will assess how the force is trained to see if there can be an improvement made to the force that will offset the capability gap. A materiel analysis explores necessary equipment and systems that are needed by the force to operate effectively to fill the gap. The Leadership domain will analyze how the military prepares its leaders to lead the force. The personnel analysis examines the availability of qualified people to support the restructuring to support the proposed solution. The facilities domain will survey military property, installations, and military industrial facilities that can support the forces that will be used to fill the capability gap. Lastly, the policy domain

explores the Department of Defense, interagency, or international policy issues that could affect the proposed solution to fill the capability gap.[78] One, or all of these domains can be used to help fill a capability gap. However, to fill the capability gap identified of needing more advanced health care providers closer to the fight, the domains of doctrine, organization, training and education, materiel, and personnel will be the domains that will be discussed. The MNT is a feasible, suitable, and acceptable option to provide additional prolonged medical care at the Role 1 during LSCO.

[78] AcqNotes, "JCIDS Process: DOTMLPF Analysis," accessed 1 May 2020, http://acqnotes.com/acqnote/acquisitions/dotmlpf-analysis.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

After conducting an analysis of Army HSS in regard to future LSCO with near-peer threats, a conclusion has been made that AHS does not have the medical treatment capacity or capability to successfully care for the number of casualties that are projected. This discovery has led to an assumption that the U.S. Army Nurse Corps can help fill this medical gap. Considering nurses are currently underutilized in the close and support areas with no nurses being employed at the Role 1 and only one assigned within the Role 2, the recommended solution to bolster HSS in LSCO include creating and implementing MNTs within IBCTs to increase the capability and capacity of medical treatment in the forward areas. This can assist with initial treatment of the wounded and in sustaining the warfighter until evacuation is available supporting the idea of prolonged field care. This is a new concept that is not currently being trained on or resourced. However, change must begin to happen so our current health service providers and current systems can begin training for future war just as other Army service branches are doing.

The idea is for the MNT to assist in filling the gap in HSS by augmenting the forward battalions who are expecting a higher number of casualties in LSCO during an operation. A recommendation is for each IBCT to have two MNTs. Each team consists of one FNP and two RNs. From the time the MNT is requested to augment a battalion, it adds one to two additional care teams per aid station with advanced medical skill sets. It is ideal for the MNT to travel with the requesting battalion prior to the start of the operation. As a contingency plan, the Role 1 and Role 2 can coordinate transfer to the requesting battalion through a designated ambulance exchange point. However, ground

transport of the team is a contingency because if the enemy threat is too high, ground transportation routes may be hindered at the start and during an operation. The MNTs can stay together and add two care teams per aid station or split and assist two different battalions at the same time. The scope of practice for an FNP allows for the diagnosis, prescribing of medication, and treatment of casualties; providing a higher level of care which is outside the scope of a RN or medic. In addition, an FNP can work independently without supervision of a medical doctor. Having an additional diagnosing provider, forward of the Role 2, would increase the time a casualty is suggested to be seen by a licensed provider at the Role 2.

The MNT can stay with the battalion as long as required. If a battalion is conducting continuous operations with a constant casualty flow, it is important for the MNT to allow the battalion medical providers time to rest as well. Once the MNT is no longer required for patient care, they will return to the Role 2. Duties at the Role 2 can consist of, but not limited to: assisting in triage and patient hold, managing trauma bays, conducting routine sick call, preventive medicine operations, and or supplement the FST/FRST. The MNT will remain at the Role 2 BSMC until requested by a battalion for ongoing or future operations.

When patient loads have decreased during LSCO, the MNT will conduct battlefield rotations to the Role 1 aid stations through ground transportation to conduct preventive measures, assist in sick call procedures, and treat DNBI. Battlefield rotations are when providers rotate to different units within the area of operation to conduct forward health care assessments and treatment, which does not require the patient to travel back to the Role 2 for medical care. These rotations will help to decrease provider

burnout at the Role 1 aid station by assisting in the workload. It will also help the healthcare providers at the Role 2 by decreasing the patient load traveling to the Role 2 for care.

"Burnout is a psychological syndrome characterized by emotional exhaustion, depersonalization, and a sense of reduced accomplishment in day-to-day work."[79] It is an important safety aspect to consider because military providers in LSCO will be under continuous physical and emotional stress caring for the wounded. A systematic review showed a relationship between provider burnout and medical errors for providers dealing with emotional exhaustion and depersonalization.[80] Emotional exhaustion is the "feelings of being overextended and depleted of one's emotional and physical resources" and depersonalization is "referred to cynicism and defined as a negative, callous, or excessively detached response to various aspects."[81] The errors reported from burnt out providers were, "diagnostic error, therapeutic error, suboptimal psychosocial care, suboptimal diagnosis, and treatment and suboptimal quality assurance."[82] The main goal

[79] Rikinkumar S. Patel, Ramya Bachu, Meryem Malik, and Mansi Shah, "Factors Related to Physician Burnout and Its Consequences: A Review," *Behavioral Sciences* 25 (October 2018): 1, accessed 11 December 2019, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6262585/pdf/behavsci-08-00098.pdf.

[80] Carolyn S. Dewa, Desmond Loong, Sarah Bonato, and Lucy Trojanowski, "The relationship between physician burnout and quality of healthcare in terms of safety and acceptability: a systematic review," *BMJ Open* (21 June 2017): 12, accessed 11 December 2019, https://bmjopen.bmj.com/content/bmjopen/7/6/e015141.full.pdf.

[81] Ibid., 1.

[82] Ibid., 12.

is to ensure that each injured soldier is receiving safe, quality medical care from minor injuries to the life-threatening ones.

Implement the MNT

A way to implement the MNT is through the JCIDS. JCIDS is used to work toward future solutions for capability-based problems identified within the Army. JCIDS assesses eight domains and can be used to identify capability gaps and make future change. These designated domains are DOTMLPF-P. JCIDS and DOTMLPF-P are important guides for the force management process. The JCIDS process can help guide the needed changes and the DOTMLPF-P solution ensures that the issues at hand are all being dealt with. This process will support future changes within Army HSS and allow for medical support to be organized in order to position personnel and medical assets in the most resourceful place on the battlefield. The doctrine, organization, training and education, materiel, and personnel will be the only domains discussed.

Doctrine

To make the required changes to add MNTs to fill the capability gap of HSS during LSCO, non-materiel solutions must be implemented. The doctrine domain is the easiest and quickest change to make, ranging from 18 to 24 months, and will offer a solution to the capability gap by adding MNTs to HSS and give guidance to commanders and medical personnel on the utilization of the MNT to support LSCO. The mission of the MNT must be clear to the audience and its capabilities must be emphasized so commanders can understand what the MNT can do to support decisions that must be made to accomplish the medical mission in support of the main effort. The MNT's

mission is to provide a mobile nursing care team to the requesting battalions within an IBCT operating in support of the main effort. It is also imperative that nurses who are a part of the MNT understand their roles and responsibilities and what assets the MNT can provide to the warfighter. A change to the HSS doctrine must be made to describe how the MNT functions within the brigade, and the roles and responsibilities of the team. This doctrinal change will create a shared understanding between HSS providers and command structures from company to brigade level. Commanders will gain an understanding in when they could, and should, request for additional HSS from an MNT. These changes in the HSS doctrine will be nested under and support the new updates to FM 3-0, Operations.

Organization

An organizational change to the existing military table of organization and equipment (MTOE) of the BSMC will have to be reconfigured to add additional nursing personnel to staff the MNT within the current organizational structure. The Current BSMC only has authorization for one BCT nurse. There are not any MTOE assigned NPs to the organization. There is one medical doctor and two physician assistants that manage the care at the Role 2. To propose this organizational solution, a unit reference sheet must be prepared at U.S. Army Training and Doctrine Command proponent branch schools and centers of excellence supporting the new design structure. Section One will discuss the mission of the MNT, Section Two will address the suggested organizational change, and Section Three is the request of additional equipment discussed previously in the materiel section. Section Two will explain that the BSMC will need two FNPs and four additional RNs to create two MNTs. These teams will be organic to the BSMC and will

augment the battalion aid stations during LSCO when casualty estimates are expected to be overwhelming and or MEDEVAC by ground or air may be limited due to increased enemy threat. The main purpose at the Role 1 is to assist in providing triage and tactical combat casualty care to provide lifesaving intervention at the point closest to injury or wounding. The FNP will manage the additional trauma tables and the RNs main job will be to assist the FNP with the trauma tables. The RN can also assist in triage, prepping patients for evacuation, or assisting in prolonged field care. This supplementary treatment at the Role 1 will optimize the outcome and assist in stabilizing wounded soldiers to survive evacuation to the Role 2.[83]

Training and Education

The training and education domain will affect the Army Nurse Corps' nurses with FNPs and RNs being priority. The MNT will function with FNPs and RNs. These nurses will require additional combat care training, trauma training, and organized military training to incorporate the MNT in the battlefield environment. There are some new options for some RNs or NPs within the Army Nurse Corps to continue their education in the academic year 2021 that would fully support this MNT concept. The first option is for RNs to enter into a Doctor of Nursing Practice NP program. This FNP program prepares the RN to become an independent practitioner with a specialty in family medicine and primary care with skills to assess, diagnose, treat, and educate patients and families with a focus on disease management, health prevention, promotion, and policy. These RNs receive extensive education in research and evidence-based practice. This program

[83] HQDA, FM 4-02.

exposes RNs to military medicine and field training experience while understanding advanced practice roles and leadership in the Federal Healthcare system to become skilled in interdisciplinary collaboration, translation of evidence into practice, implementation of best practices, and outcome evaluation to optimize quality and safety. This program ensures that the RN becoming an FNP is prepared to "be assigned and deploy in support of humanitarian and war time missions as the primary care provider taking care of DNBI and managing trauma care within a field hospital."[84] The second option is an emergency nurse certification program. This program prepares personnel who already have an FNP graduate degree with the additional competencies to provide trauma and emergency care. These NPs would receive a post graduate certificate with the emphasis in trauma training using evidence-based practice. This program will include focusing on emergency room and resuscitative care.[85] The Third available option allows for nurses to apply to Long Term Health Education and Training's (LTHET) DNP program in Emergency Medicine. The emergency medicine NP program will provide didactic and clinical training, to include procedures, that prepares the nurse to care for injured and critically ill patients independently in a military treatment facility as well as a combat environment. The curriculum focus is on resuscitative procedures and advanced

[84] U.S. Army Human Resources Command (HRC), "AN AY21 LTHET Programs," AIM, accessed 10 December 2019. https://aim.hrc.army.mil/portal/getdocument.ashx?id=AAATl2AAdAAAQQPAAf, 2.

[85] Ibid.

assessment and treatment of complex medical cases.[86] These three options directly support training and education of RNs and FNPs to support the MNT operation.

Nurse Corps officers must also obtain other critical continued medical education requirements through the military to increase their knowledge on combat casualty care, emergency medicine, and Army operations. Each nurse assigned to provide care within a MNT should have at a minimum the following medical courses: combat casualty care, prehospital trauma life support, advanced trauma life support, trauma nursing care course, advanced burn life support, and extremity war surgery course.[87] Each of these courses are already offered within the military and would only require allocating the resource for a nurse who is assigned to the MNT to complete the mandatory training to obtain the certifications.

Although there are courses that are already available for RNs and NPs to enroll in, the Nurse Corps needs to create a nursing centered course within the Army that focuses entirely on field medicine with combat stress simulation. This course is not offered at this time within the U.S. Army. The reason for this addition is because the equipment and supplies used in the field are different than the equipment and supplies that are used within the military hospitals and adding a-like environment will best simulate working under the stresses of combat. The MNT can utilize lessons learned from their training to apply to future operations. It is important for medical providers to understand how the field equipment should be used and operated before using it for the first time to save

[86] HRC, "AN AY21 LTHET Programs."

[87] HQDA, FM 4-02.25.

soldiers' lives on the battlefield. These courses would enable the nurses to provide expert care whether located at the Role 1 battalion aid station or the Role 2 BSMC.

In addition to these medical specialty courses, the Army Nurse Corps must advocate for a more robust curricula to understand Army operations and additional authorized slots within Army institutional learning. Nurses should attend a longer Captain's Career Course like other non-AMEDD officers. Captain's Career Course is just shy of ten weeks and covers a basic concept of Army operations and exposes AMEDD personnel to a medical field environment that they may not have seen before. By having only AMEDD officers attend the same school and not mix with other Army branches, leaves little opportunity to learn from and understand anything other than the AMEDD. The Nurse Corps also needs to obtain more authorized slots at the one-year Command and General Staff College and add additional slots for nurses at the four-month non-residency Command and General Staff College. The opportunity to be immersed with fellow Army branches and study other areas of interest outside of the medical arena allows the nurse to better understand Army operations and learn how to better incorporate nurses into the overall mission. Being a nurse is more than just providing medical care to soldiers. Nursing encompasses daily planning, coordinating, and a continuously supporting operations that happen in garrison and the deployed setting. Military institutional learning assists the nurse in understanding how to execute operations in support of mission success. This increased knowledge of Army operations will assist nurses in knowing and understanding the battlefield in which they will be operating. Once doctrine changes have been updated, funding and resourcing must take place for the increase in materiel.

Materiel

The materiel domain will be an easy fix to support the MNT concept. The battalion aid station and the BSMC will require additional supplies to support the additional MNT care team and the number of casualties expected in LSCO. The Tactical Combat Medical Care (TCMC) MESs need to be fielded to companies, batteries, or troops and accounted for on the property book. With a significant gap identified in HSS in regard to access to care in LSCO, the recommended change in materiel solution is to add one to two TCMC MESs to each battalion within the IBCT. The TCMC MES cost $169,884.36 per MES..[88] An IBCT battalion currently has two TCMC MES for medical treatment in the Role 1 aid station on their MTOE. Adding one to two TCMC MES to the MTOE meets the criteria of affordability, feasibility, and strategic responsiveness. In consideration to planning, the TCMC MES is projected to provide medical equipment for a continuous 72-hour operation. This solution does not require any additional research or development of new equipment to bring the system on line, or to field it. This solution also saves time and money with no requirements for system upgrades or modifications. Additionally, there is no need for government off-the-shelf or commercial off-the-shelf items to be requested. This materiel solution would have no changes from the current TCMC MES.

This process requires only that a joint DOTMLPF-P change recommendation is used since there is no need for new materiel development, but rather a request to increase

[88] U.S., Army Medical Materiel Agency, "Medical Services Information Logistics System (MEDSILS)," Medical Research and Materiel Command, accessed 16 September 2019. https://app.usamma.amedd.army.mil/medsils/medsils_catalog.cfm?NIIN= 016475649.

quantities or alternate application of existing materiel within the organization. The request will be to add two additional TCMC MESs per battalion within an IBCT. This will allow for one to two MNTs to supplement the Role 1 when requested during a LSCO. The MNT will augment the battalion and set up the equipment upon arrival. When the MNT completes its mission with the Role 1, the MNT will conduct an inventory of the class VIII medical supply quantities within the MES and send a request to the brigade medical supply office for replenishment. The operational risk to the battalion is having to carry additional equipment or medical personnel. However, if an MNT supplements a battalion during LSCO, it would not be feasible for the MNT to transport a full MES and the required personnel through the battlefield. If there were no additional MESs added to the current table of organizational equipment for the battalion, an MNT could potentially deplete the battalion's medical supplies during direct support.

Adding two TCMC MESs will enable medical providers to treat more casualties at the Role 1 for initial treatment and stabilization. This materiel solution is to have two additional functional medical treatment areas per MNT, with authorized equipment to the Role 1 battalion aid station for direct patient care. The additional trauma tables can be located within the Role 1 aid station or used during tailgate medicine provided by the MNT. The life cycle of the materiel within the MES range from three months to more than five years. Since there are no changes to the MES itself, there would be minimal problems with sustainment during training or operations because the resupply is already on the authorized stockage list from the Brigade Medical Supply Office, and orderable from the U.S. Army Medical Materiel Agency.

Personnel

LTC O'Connor mentioned MASCAL shortfalls of lack of enough medical personnel, lack of sleep, inadequate rest cycles, shortage of blood supply, and at times inadequate logistics support.[89] The MNT can directly impact every shortfall identified. The MNT would provide additional medical personnel, be able to step in for the other providers to eat and sleep, and bring additional supplies with them prior to the start of an operation.

The Army Nurse Corps would need to increase requisite positions within the Corps to staff the MNTs. The Army should begin with staffing the fourteen IBCTs first instead of the Armored BCT or Stryker BCT. This would require a total of fourteen FNPs and twenty-eight RNs. If the MNT successfully increased the capacity and capabilities of the HSS, adding the MNT to the ten Armored BCTs and seven Stryker BCTs would be a future plan. The total nurses needed to be added to the Army Nurse Corps would be thirty-one FNPs and sixty-two RNs. Once the BSMCs have the authorized MTOE updates, nurses can be assigned to their unit and start working together during field exercises.

Application of the MNT during field exercises will have measurable outcomes during training as the number of casualties will be logged and can be compared with the actual number of casualties who were seen by a provider at the Role 1 aid station. It is also important to note the difference in time from injury to provider to then being evacuated to the Role 2 or Role 3 by ground or air transport. There will be measurable

[89] O'Connor interview.

outcomes by tracking these numbers with and without the MNT in place at the Role 2. This casualty tracking can be applied to future training and LSCO so commanders and the MNT will know how many MNTs to request with their projected casualty estimates.

In garrison, the additional personnel can take an empanelment of soldiers to decrease the work load off of the other medical providers that are within the BCT. Having additional medical personnel allows an increased access to care to ensure that each and every soldier is healthy and ready to deploy.

If this option is not feasible because of budget constraints a contingency plan would be to have an MNT as MTOE assigned personnel on a BSMC's MTOE. These nurses would work within a military treatment facility and come to the unit for training and deployment with their MTOE assigned unit. This solution is currently being used for medical personnel who are meeting the mission of a military treatment facility, while conducting field exercises and training with an Army Medical Brigade. A disadvantage of this contingency solution is that MTOE assigned personnel would not be able to train full time as an MNT because they would be dispersed at different army locations practicing in their specialty and only coming to the IBCT during training and deployments. With that being said, the MNT needs to have ample time to work together in a variety of stressful medical situations to be a cohesive team.

Another contingency would be to change the structure of the MNT where there is one FNP, one RN, and one senior 68W combat medic and or an FNP with a dedicated two-man team of senior 68W combat medics that have had additional training in prolonged medical care. This option may be more realistic and easier to fill since there are more medics than RNs in the Army.

Concept of Change

The concept of change to increase the capability and capacity of HSS will require force integration from the force integration functional areas to include structuring the organizations, manning, equipping, training, sustaining, deploying, stationing, and funding the force to support the MNT. The implementation of the proposed change must begin with the change in doctrine, and multiple informational briefs to the medical company and command leadership from the battalion, brigade, and division level. These informational briefs are paramount to the medical community's understanding of how their care can affect the forward troop's casualty care, and enable the commanders understanding of the operational processes of the MNT. Since the MNT will be assigned to the BSMC's MTOE, the BSMC Commander needs to understand how he or she can support operations within the company, and how the company can support the outlying battalions. The battalion commanders need to understand how to request MNT support, when the best time is to receive the support, and what type of operations the MNT can augment. It is vital that brigade commanders, their staff, and the brigade surgeon grasp the concept of the MNT so they can be utilized to their maximum effectiveness during operations and plan accordingly during the military decision-making process. Those involved in making decisions need to understand the MNT before operations begin and then utilize the MNT during operations to keep their troop strength healthy and sizeable. In addition, the division surgeon cell needs to simply understand the concept of change and the role of the MNT to provide advice to the brigade, and utilize MNTs in future operations. Once all the parties have been adequately trained through briefs and practical

field exercises and know and understand how to utilize the MNTs capabilities to enhance their HSS, casualties will have an increased care capacity during LSCO.

Feasibility

The key players in approving and resourcing the HSS solution are the DCS G-3/5/7, DCS G-8, Secretary of Defense and the President of the Director of Army Budget. The DCS G-3/5/7 will prioritize requirements and oversee the development of The Army Plan and The Total Army Analysis working on incorporating the Army Nurse Corps in HSS to meet the Army's goals. The DCS G-8 will identify and prioritize resource requirements to produce the required HSS capability into LSCO.

Suitability

The proposal and activation of the MNT will provide a trained and ready force from the Army Nurse Corps. The contribution to HSS will support the sustainment war fighter function to the forward troops. Maintaining training and providing a realistic training environment for the MNT will allow for nurses to be prepared for future LSCO and bring an increased HSS capability and increased capacity to the forward troops increasing the number of men and women on the battlefield. Not only will the MNT be able to aid in sustaining life in emergency medical situations, but they will be able to provide preventive treatment to maintain the general health and welfare of the DNBI soldiers. A concern with this solution is putting too many low-density military occupational specialty personnel too close to the fight increasing risk of their own lives. The MNT nurses must be willing to provide care close to the fighting forces, risking their own lives, to save the lives of many. Having this willingness may be challenging to find,

since many nurses have become very comfortable working in military treatment facilities and many have never experienced the deployed environment in an austere setting. It will take a culture change within the Nurse Corps, but as positions are available and more and more nurses fill these roles, many nurses may realize they have a passion for being closer to the fight.

The MNT can succeed in known and contingency requirements as it conducts cyclic readiness. A constant analysis of the battlefield will show if HSS is meeting or is not meeting its requirements and will also be able to provide raw data related to if HSS requires additional resources, such as the MNT. By implementing sustainable readiness, the Army will mitigate the risk of the required HSS. Having the ability to increase the MNT to meet emerging requirements is suitable as it gives HSS room for growth in future LSCO.

Acceptability

Overall, the MNT provides a solution to increasing prolonged field care for casualties in LSCO and the design of the MNT is suitable, feasible, and acceptable to start answering the questions of how the Army will provide HSS to MASCAL during LSCO. If the Army does not begin to plan on increasing its HSS capacity, the catastrophic loss of lives within our ranks will impact our operations. The loss of thousands of lives will not only decrease the Army's troop strength for operations, but the decrease will also affect morale. Soldiers will immediately be affected when their battle buddies die of wounds because they did not have enough medical providers to care for them after they were injured during war. Captain Arthur M. Smith, U.S. Naval Reserve (Retired) stated,

> If appropriate priority is not given to forward medical care, evacuation, and a sophisticated casualty regulation network, a commander runs the risk of a huge logistical burden and an adverse impact on morale as the dead and injured accumulate. Inattention to these issues will mean the loss of trained troops who could have been treated, stabilized, and even returned to duty.[90]

The recommendation is that the MNT conduct battlefield rotations to the Role 1 as the MNT may be able to cause a decrease in the DOW rate, especially during MASCALs, similar to the way the FSTs did when they began to enhance the Role 2. This service will increase the capability and capacity of HSS within the IBCT during LSCO.

[90] English and Taylor, *The Operational Art: Canadian Perspectives*, 63.

APPENDIX A

INTERVIEW WITH STEVEN J. O'CONNOR (PERSONAL INTERVIEW)

CD: Ok, so thank you LTC(R) Steve O'Connor. I would just like you to state your name and let us know you are consenting to this interview.
SO: My name is Steven J. O'Connor, LTC, U.S. Army, Retired, and I do give consent to record and use this information as you need.
CD: Thank you sir. The first question is where did you serve in Vietnam?
SO: I served in two different places. The one that I would like to talk about most was my initial assignment which was in the 12th Evac Hospital, Cu Chi, Vietnam. It was the base camp at that time for the 25th Infantry Division, and that's where we had, I had, the experience with mass casualty situations. I served also at the 36th Evac in Vung Tau and it was, we supported everyone, mostly out of the Delta and we had few, if any, MASCAL situations.
CD: OK, and so the next question is which unit did you serve? I understand the first one was with the 25th with the 12th Evac and were you still with the 25th with the 36th Evac?
SO: No, the 12th Evac just supported the 25th Infantry Division. We were the hospital on that base camp. We took casualties from everywhere, but basically we were an asset of the 25th ID because we were on their base camp. The 36th was south west of Saigon and we supported everybody. I am not aware of being attached or on the base camp of any particular unit.
CD: The third question is what was your duty position and what would you say your job description was?
SO: I was a junior staff operating room nurse and our job description was we scrubbed and circulated and took care of our patients as they were assigned.
CD: Can you describe to me a little bit about how your unit was organized?
SO: It was to me, a typical hospital. You had the commanding officer, XO, the chief nurse, the wards, mostly all medicine and surgery, pre-op, triage, OR, Recovery, and then the support, labs, x-ray.
CD: In your experience how often did you deal with mass casualty situations?
SO: In the six months that I was there, we probably had four or five real MASCALS where we had so many patients pretty soon we were overwhelmed and we had to divert to other hospitals.
CD: Can you describe a little more about how many patients you think that was?
SO: Well I can tell you, I can't tell you the date or particular operation it was, but there was one that we worked essentially 52 hours straight. You got a catnap on a gurney, or litter, or in the break room. We worked that long. Most of them were worked over 10 hours. Everyone was working.
CD: Can you describe how the team functioned during that time? You said no one is sleeping. Do you think tensions arose?
SO: I don't think there was so much tension and everyone got tired and was looking for the end, but I don't think there was tension among the staff like you know people growling or getting snippy with each other, in fact, I think we stepped up and took care of each other. If you had a lull and went in a grabbed something to eat and there was still not

a patient on your OR table you grabbed someone else and told them to go grab a sandwich. That's my only time in my whole experience in the army that we had the mess hall cater to us because we didn't even get out to go to chow. So, I think it was a very cooperative effort and I think it was more of we would take care of each other, than tension.
CD: Good. So, you guys almost had people sustaining you, so you could sustain that MASCAL?
SO: Like I said it was the only time in my 22 years of military experience you didn't have to go to the mess hall you just went into the break room. It wasn't fancy food, mostly finger food because it's what you had time to eat.
CD: What were some of the strengths your medial support teams provided during Vietnam while caring for mass casualties? Do you think that your top strengths were having a fully operational operating room? Having wards? What do you think fully supported that warfighting effort?
SO: I think it was the operating room. Although the wards, seemed to me that, maybe it's a prejudice point of view, but in a war zone the big thing is to treat casualties and although disease can produce casualties they are not as often, in my opinion, life threatening, so I think our biggest strength was our operating room staff, the OR, Anesthesia, triage, pre-op, and post-op.
CD: Where do you think some of the medical support maybe lacked while you were in Vietnam? Do you think there were things you needed more of? You had ORs, which you think were the best. Do you think you needed more ORs? Another area of support that could have better focused on during that time?
SO: I think in our usual routine day where we did delayed primary closure and got a fresh casualty or two that we had adequate support, I mean we had generally all the supplies we needed. We had more operating room than we needed cause we had a second quad that had 6 OR tables in there and we didn't use all of those on a regular basis. We used the 4 to 5 tables in the primary OR all the time but like you said, on the average day I believe we had all of what we needed. There were some things we ran short of because the supplies were in Saigon and was hours away and so that's the way the supply chain worked. Overall we had great support. Where we didn't have enough support was during the MASCAL situation. You can't staff and stock for that. You just can't have enough people that lie around waiting for that to happen. Same thing with supplies because you never know how big the push would be. That I'm aware of, on that big push that was 52 hours we didn't run out of things. We ran short of blood and some of those things, but as far as sutures and linen we had what we needed and there weren't enough people of course, but they just Armied on.
CD: Do you feel there were enough providers, supplies, support person or systems in place to handle the amount of casualties produced from the war?
SO: Yea, and I'll reiterate, during the really big MASCAL situations, no there weren't enough people otherwise you wouldn't work those long stretches, but I don't think you can have enough people.
CD: Well we wouldn't call them MASCALs. There's a specific definition which is what we are talking about here.
SO: Exactly. And you know overall we had the right people, the people that weren't

slackers, and they pitched in and worked and worked hard. Even when we had some MASCALs that were only 10 hours or so, somebody would go rest for a while or go to bed and then they would come and see who they could relieve or what they could do to help. Sometimes it was even very difficult to get people to go and relax and try to get some sleep because they wanted to stay. So, it was difficult to marshal that kind of thing. It happened. We had adequate supplies except in the really bad ones and sometimes we would run short of blood.
CD: Did any of your casualties that came to you have surgery further forward or were the first surgical capability at that time?
SO: As a general rule we were the original recipients. They were fresh from the field, right off the chopper. Frequently they didn't come in on a Dustoff, they came in on a Gunship or a Slick because they were brought right from the field. Some that would bring more troops or supplies for those troops took casualties out with them.
CD: Were they being ground evac'd to you?
SO: No, they, to the best of my knowledge, all or the better part of our casualties came by helicopter.
CD: So basically, from point of injury they had their initial hand on care and loaded them in a bird and brought them straight to you?
SO: That's correct.
CD: From what you can remember, do you think that most of the people coming to you, was adequate time coming to you from point of injury?
SO: From my understanding, you know, that trip was relatively quick if they could get a chopper in. And that meant, not my personal experience, just from what I've read, they had certain rules of engagement, they didn't like to land in an unsecure LZ (speaking of Dustoff), so the Gunships and Slicks often landed in an unsecure LZ delivering more troops, ammunition, or supplies. They bring those wounded out to us. So did the Dustoffs/MEDEVACs, but we've got as many, at least I think, we got as many on Slicks and Gunships then we did from Dustoff.
SO: Can you explain the Slicks and Gunships?
SO: Both Huey's. A Gunship had rocket pods and mini guns and door gunners. The Slicks just had the door gunners; 60 caliber machine gun on each side. And they were mostly used to deliver the supplies and troops.
CD: What were some of the ways you and your teams were able to mitigate any shortfalls you have identified within the health service support? Some of the shortfalls you have mentioned were lack of sleep, rest cycles, blood supply during MASCALs?
SO: The blood supply thing, I'm not sure because my job, experience and rank, I do know I am aware of a time or two they put out a call to the support units on Cu Chi base camp to come to the 12th and donate blood. I also know there were emergency runs with helicopter that brought blood and I'm not sure what else. That's how that was mitigated. We did rest cycles the best we could. If someone was really not functioning well we kind of took over for them and said, "Why don't you sleep on this gurney for a minute or two?" You know, basically, everyone worked till it's done.
CD: Were there any problems in regard to not having the capability or capacity to support casualties? If no problems are identified what capabilities and support did your team provide that allowed continued success of your mission?

SO: I guess the only way to answer that is we worked till we were done. We had a very cohesive group, most physicians, nurses, and operating room techs that if you weren't needed you still went initially to see how big this was going to be and then you came back to give others a break. And that's how we did it.
CD: Ok, from what we've been talking about is there something that you want to add or go back to?
SO: No, I haven't thought of anything in particular I want to go back to, but the thing of it is, is I would go back to Vietnam in a heartbeat to do the job that I did there.
CD:
CD: Awe. That's nice!
CD: One thing that I didn't write down, what were your dates in 12th Evac?
SO: I arrived in early January and left sometime in June 1967.
CD: Do you remember the months you were with 36th Evac?
SO: End of June until sometime in March 1967. In Vietnam about 15 months.
CD: Perfect. All the questions are completed. Do you have any further questions of me?
SO: None at this time. I want to thank you for including me and I hope it was of some help or interest.
CD: At this time, I am going to stop recording. Thank you.

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