

HISTORY OF AEROMEDICAL EVACUATION IN THE KOREAN
WAR AND VIETNAM WAR

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MASTER OF MILITARY ART AND SCIENCE
Military History

by

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Modern US Army rotary wing aeromedical evacuation operations and doctrinal concepts can be traced back to the Korean and Vietnam Wars. These early concepts have formed the foundation for the current doctrine, structure, and employment of aeromedical evacuation assets on the battlefields of today. Aeromedical evacuation operations performed during the Korean and Vietnam Wars were executed in an exceptional manner. The medical personnel, hospital system, medical evacuation, and many other medical functions all contributed to the overall success of medical operations. The overall purpose of this research is to identify and describe the major historical operational factors of US Army rotary wing aeromedical evacuation system in the Korean and Vietnam Wars. The successful operations of US Army rotary wing aeromedical evacuation system in each of these wars permit a historical comparison between them.

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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

HISTORY OF AEROMEDICAL EVACUATION IN THE KOREAN WAR AND VIETNAM WAR, by Major William G. Howard, 85 pages.

Modern US Army rotary wing aeromedical evacuation operations and doctrinal concepts can be traced back to the Korean and Vietnam Wars. These early concepts have formed the foundation for the current doctrine, structure, and employment of aeromedical evacuation assets on the battlefields of today. Aeromedical evacuation operations performed during the Korean and Vietnam Wars were executed in an exceptional manner. The medical personnel, hospital system, medical evacuation, and many other medical functions all contributed to the overall success of medical operations. The overall purpose of this research is to identify and describe the major historical operational factors of US Army rotary wing aeromedical evacuation system in the Korean and Vietnam Wars. The successful operations of US Army rotary wing aeromedical evacuation system in each of these wars permit a historical comparison between them.

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ACRONYMS

AFB	Air Force Base
ARVN	Army Republic of South Vietnam
ASR	Air Sea Rescue
CASEVAC	Casualty Evacuation / Transport
CSAR	Combat Search And Rescue
FEAF	Far Eastern Air Force
MAAG	Military Assistant Advisory Group
MAC	Military Airlift Command
MACV	Military Assistant Command Vietnam
MASH	Mobile Army Surgical Hospital
MAST	Military Assistance to Safety and Traffic
MRO	Medical Regulating Officer
NSA	Navy Support Activity
OTSG	Office of the Surgeon General
PACAF	Pacific Air Forces
TO&E	Tables of Organization and Equipment
UN	United Nations
USAF	United States Air Force
VC	Viet Cong

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CHAPTER 1

INTRODUCTION AND BACKGROUND

Introduction

History has provided answers to future military questions. One just has to review the details and research for the answers, so the same mistakes will not be made repeatedly. For example, Napoleon's campaign in Russia during the early 1800s resulted in long supply lines that were unable to sustain his forces. Since the campaign was not over before winter, his forces were not prepared, were short of supplies, and forced to withdraw to France. During their long march, Napoleon lost 75 percent of his forces due to disease or nonbattle injuries and the cold weather. The Germans, however, did not review the problems and failures of Napoleon's campaign before their Russian offensive on 22 June 1941, during World War II; otherwise, they might not of had the same problems and failures that Napoleon had in the early 1800s.

Modern US Army rotary wing aeromedical evacuation operations and doctrinal concepts can be traced back to the Korean and Vietnam Wars. These early concepts have formed the foundation for the current doctrine, structure, and employment of aeromedical evacuation assets on the battlefields of today. The overall purpose of this research is to identify and describe the major historical operational factors of US Army rotary wing aeromedical evacuation system in the Korean and Vietnam Wars. The successful operations of US Army rotary wing aeromedical evacuation system in each of these wars permit a historical comparison between them.

The author will describe and discuss the general background of medical evacuation in chapters 1 and 2 and will address the primary and subordinate research

questions as they relate to the US Army aeromedical evacuation system utilized in the Korean War. During chapter 3, the author will address the research questions as they relate to the US Army aeromedical evacuation system utilized in the Vietnam War, to conclude with chapter 4, summarize the findings, draw conclusions, and make recommendations for action and further study.

The Research Question

This research study focused on the primary question: How did the US Army rotary wing aeromedical evacuation system, utilized during the Korean and Vietnam Wars, contribute to and shape today's US Army rotary wing aeromedical evacuation system? The following secondary investigative questions were developed and analyzed in order to evaluate and answer the basic research question: What were the organizational structures of US Army rotary wing aeromedical evacuation system during each of the wars? This question will cover the initial history, structure, and how the US Army rotary wing aeromedical evacuation system evolved to include numbers and types of helicopters and unit size. In addition, it will include the geographic locations of these units. How were US Army rotary wing aeromedical evacuation assets utilized during each war? This question will cover how the units and helicopters were generally utilized and what were some of the challenges facing the unit commander. How were US Army rotary wing aeromedical evacuation assets employed during each war? This question will cover in more detail the tactical employment of the units, actual specific missions flown, and specific accounts of exemplary service. What rotary wing aeromedical evacuation lessons did the US Army learn in each war? How were US Army rotary wing aeromedical

evacuation lessons learned from the Korean War applied by the US Army during the Vietnam War?

Assumptions

The author assumes that the historical contributions of the US Army rotary wing aeromedical evacuation system can be evaluated, that both primary and secondary sources will be valid and reliable means in reaching a conclusion, and that the Combined Arms Research Library will have enough primary and secondary sources to provide historical data to complete the thesis.

Definitions of Terms

There are common key terms and definitions used in the thesis. While sometimes used in different context, the following list of definitions is used:

Aeromedical Evacuation. The movement of patients under medical supervision to and between medical treatment facilities by air transportation.¹

Casualty. Any person who is lost to the organization by having been declared dead, duty status--whereabouts unknown, missing, ill, or injured.²

Casualty Evacuation/Transport (CASEVAC). The movement of casualties by nonmedical transportation assets without provisions of en route medical care.³

Died of Wounds (DOW). A hostile or battle casualty who dies after having reached a medical treatment facility.⁴

Disease and Nonbattle Injury. A person who is not a battle casualty but is lost to his organization by reason of disease or injury or by reason of being missing where the absence does not appear to be voluntary due to enemy action or to being interned.⁵

Dustoff. A tactical call sign or code name given to Army rotary wing medical evacuation helicopters performing aeromedical evacuation or medical evacuation (MEDEVAC) during the Vietnam War.⁶

Mass Casualty. Any large number of casualties produced in a relatively short time period, usually as the result of a single incident, such as a military aircraft accident, hurricane, flood, earthquake, or armed attack.⁷

Medical Evacuation (MEDEVAC). The timely and efficient movement of patients while providing en route medical care to and between medical treatment facilities.⁸

Medical Treatment Facility. A facility established for the purpose of furnishing medical and or dental care to eligible individuals.⁹

Patient. A sick, injured, wounded, or other person requiring medical or dental care or treatment.¹⁰

Limitations

The author lacked experience in conducting independent, original research, sufficient time during the ten-month Command and General Staff Officer Course, and access to outside funds to conduct face-to-face interviews. Moreover, the primary limitation for this research project was the reliance upon secondary sources for the majority of the information, even though the author utilized several primary sources. Keeping this in mind, an overwhelming amount of written material pertaining to the subject resulted in a limited focus to Army rotary wing aeromedical evacuation during these two wars. The limited time allotted, the seventy-five-page limit, and lack of opportunity to travel will constrain the amount of primary source information that will be available.

Scope and Delimitation

The scope of the thesis will be limited to US Army rotary wing aeromedical evacuation during the Korean and Vietnam Wars. The US Navy (USN) and US Air Force (USAF) neither during this time nor now have dedicated rotary wing aeromedical evacuation helicopters, even though the USAF made the widespread use of the term aeromedical evacuation. This term aeromedical evacuation utilized by the USAF actually refers to the evacuation at the operational and strategic levels through the means of transporting casualties by fixed wing aircraft from theater to theater and theater to continental US. The thesis will only briefly cover the contributions of the USAF tactical combat search and rescue (CSAR) rotary wing casualty evacuation and transport (CASEVAC) until Army aeromedical units were established. The medical personnel, hospital systems, and supply of all three branches of Army, Air Force, and Navy contributed to the overall success of medical operations in the Korean and Vietnam Wars. These areas were a very important part of the accomplishments of the medical services, but were not included in this research. In addition, the thesis did not focus in on the training, detailed command and control network, and the interwar periods.

Several other modes of casualty ground medical evacuation to nonstandard evacuation were utilized during the Korean and Vietnam Wars. The other modes were by ships, combat and civilian vehicles, animals, and foot. Even though these were an integral part of the evacuation system, they were not included in this research.

Background

Aeromedical evacuation operations performed during the Korean and Vietnam Wars were executed in an exceptional manner. The medical personnel, hospital system,

medical evacuation, and many other medical functions all contributed to the overall success of medical operations.

To fully appreciate and understand the impact and importance of the US Army rotary wing aeromedical evacuation during the Korean and Vietnam Wars, it is important to have an understanding of how casualties and patients were evacuated in earlier times. The author will briefly cover casualty and patient evacuation from the American Civil War, Spanish American War, World War I, and World War II. With this understanding and evolution of earlier US military casualty and patient evacuation, one will understand the significant impact and importance of the United States Army rotary wing aeromedical evacuation during the Korean and Vietnam Wars.

The American Civil War was the last great conflict waged before germ theory warfare entered the battlefield. Hospitals were unsanitary places, where, as the surgeon W. W. Keen later described it:

We operated in old blood-stained and often pus-stained coats, the veterans of a hundred fights. We operated with clean hands in the social sense, but they were undisinfected hands. We used undisinfected instruments from undisinfected plush-lined cases. If a sponge or instrument fell on the floor it was washed and squeezed in a basin of tap water and used as if it were clean.¹¹

A British surgeon by the name of Joseph Lister published his work on antisepsis two years after the end of the American Civil War. His effort would lay the groundwork for accelerated progress in the Spanish-American War, World War I, World War II, Korean War, and Vietnam War.

At the beginning of the American Civil War, the Union Army Medical Department was unprepared to treat and evacuate the number of casualties and patients this war produced. The experienced veterans of the Mexican War had no idea of the

magnitude of the difficulties that would be involved in dealing with casualty evacuation on the scale of those seen during the Civil War.¹² As a result, the Union Army surgeons were called upon, for the first time, to develop plans for evacuating and hospitalizing a great number of casualties. This was a huge new undertaking with no developed methods of transportation for the wounded; a formal ambulance service did not exist. Each regiment theoretically had two ambulances that did not belong to the Medical Department; the Quartermaster Corps was the Army's executive agent for patient evacuation. When ambulances were available they were driven by civilian drivers. These civilian drivers often fled at the first sound of shooting. The ambulances during this time came in two forms: the four wheeled and the two-wheeled version. The latter was issued in larger numbers in the beginning of the war and was very uncomfortable for the wounded. Near the end of the war, only the four-wheeled version remained in service.

In the first years of the war, medical ambulances were in such short supply that three days after the First Battle of Bull Run on 21 July 1861, some three thousand wounded men still lay on the field. Washington hospitals would find themselves so overcrowded with casualties that cots had to be set up in the halls of Congress in order to facilitate the care of many of the wounded soldiers. There were even reports that wounded soldiers were forced to walk unaided back to Washington due to a lack of a coordinated evacuation system. A few key individuals quickly identified a desperate need for improving or reforming casualty care and evacuation.

During the early months of 1862, the medical director of the Army of the Potomac Jonathan Letterman, a surgeon, took the first steps toward developing a system of evacuating casualties and patients from the front lines. His plan called for the

development of the first ambulance companies with permanently detailed soldiers from the ranks for ambulance work. Major General McClellan, commander of the Army of the Potomac, was so impressed with Letterman's plan that he approved and issued on 2 August 1862 a general order to the Army of the Potomac. This general order was executed before the Chief of Staff General Halleck or the Secretary of War Mr. Stanton approved it. Letterman's plan was initially rejected by Secretary Stanton, but was finally pushed through Congress and sanctioned by law on 11 March 1864.

Letterman's initial plan was first tested on 17 September 1862 at the Battle of Antietam, which employed field stations and ambulances. After the US Army officially adopted Letterman's plan, it was finally standardized during the Spanish-American War in 1898. Letterman's plan is the cornerstone for modern-day casualty evacuation.

During the Spanish American War, the Army fully implemented Letterman's plan. His plan was based upon a "chain of evacuation," where the casualties were carried or assisted from the battle area to aid stations. Finally, field ambulances carried them to clearing stations and transferred them to field hospitals for further treatment.¹³ Casualties were evacuated by rail and water transportation back to the bases or general hospitals. Letterman's chain of evacuation forms the basis of today's evacuation doctrine including the evolution of modern aeromedical evacuation doctrine.

A soldier lies in a tent hospital in Siboney, Cuba, in July 1898, a victim of yellow fever. That month, senior US Army officers fresh from victories at San Juan Hill and Santiago proposed immediate evacuation: "The army is disabled by malarial fever to such an extent . . . that is in a condition to be practically entirely destroyed by the epidemic of yellow fever sure to come."¹⁴ The country of Spain actually surrendered before the

president had time to weigh his options. Even though, the US had used the new evacuation doctrine for clearing the battlefield. The real enemy of the Spanish American War of 1898 would prove to be of another nature. The US suffered fourteen times as many deaths from tropical diseases than from enemy action. Malaria and yellow fever would be the new enemy during this war.

World War I, like other wars before it, saw many new medical improvements to meet the ever-changing threats. The introduction of mustard gas and the increased efficiency of conventional weapons meant larger numbers of combat casualties. The initial use of mustard gas resulted in too many casualties to be cared for in the nearby field hospitals. The result would be dramatic improvements in the total number of hospitals and in triage. In addition, the first motorized ambulances replaced the horse or mule-drawn wagons of early wars. The doctors observed that the casualties' recovery rates were increased when the wounded soldiers could be evacuated from the front lines before infection had set in.

The first evacuation of wounded military personnel by an airplane occurred during World War I at Flanders, France, on 18 April 1918. A French medical officer Dr. Chaissang had drawn plans for the modification of two French planes. He supervised the modifications of the planes, which provided enough space for two wounded soldiers behind the pilot's cockpit. The patients were inserted through the side of the fuselage. Aeromedical evacuation of the wounded was used to a minor extent in World War I because of the practical availability of the airplane for this type mission. The fuselages of the converted military tactical types were too narrow to accommodate stretchers, and the patients were not helped by exposure to the cold air.¹⁵

The first successful air ambulance in the United States was created by Captain William C. Oaker and Major William E. Driver in 1918. They converted a biplane so a standard army stretcher would fit into the rear area. This airplane was used in giving assistance to mail-carrying pilots who experienced a high rate of crash landings during this period. Oaker and Drivers' plane could land near the remote crash sites and evacuate the injured pilots. The use of the air ambulance plane allowed a doctor to fly to the injured pilot, treat him on the spot, and then fly him to a hospital if required.¹⁶

Some 80 percent of all World War II injuries were from bombs, mortars, and shellfire--not bullets. The result was more severe wounds accompanied by shock. World War II would be the first war that plasma was introduced. When required, the plasma was mixed with sterile water and injected into the blood stream to sustain life until surgery could take place.

Even though during World War I the air ambulance made significant advancement, at the beginning of World War II many military authorities believed air evacuation of patients was not only dangerous, but also, medically unsound and militarily impossible. General David Grant's, the first air surgeon of the Army air forces', proposal for an air evacuation service was met with much opposition in the upper levels of the Army. However, Grant continued to push for an air evacuation system, and in June 1942 he succeeded.¹⁷

The first large-scale combat aeromedical evacuation of the war took place in New Guinea in August 1942. The Fifth Army air force evacuated more than 13,000 patients over 700 miles to Australia in a period of seven days because of an Allied counteroffensive against the Japanese.¹⁸

By 1943, the Army Air Evacuation service had moved significant numbers of wounded soldiers by air transport. That year alone, over 173,500 casualties were air evacuated back to the United States. During the following year 1944, over 545,000 casualties were air evacuated, and in 1945 at the wars end, over 454,000 more soldiers were evacuated with a three- year total of over one million. The new air evacuation doctrine showed that aeromedical evacuation was a new alternative. One key leader who was convinced of the importance of aeromedical evacuation was General Dwight D. Eisenhower, Supreme Allied Commander in Europe. Weeks after D day, General Eisenhower stated, “We evacuated almost everyone from our forward hospitals by air, and it has unquestionably saved hundreds of lives--thousand of lives.”¹⁹

Helicopters were rarely used during World War II. The first aeromedical evacuation test flight was the Sikorsky R-6 in November of 1943. The Sikorsky R-6 helicopter carried one pilot, one medical attendant, and two simulated litter casualties that were attached to the outside of the helicopter to facilitate loading and unloading. The casualties could be seen by the pilot and attendant during flight. On 23 April 1944 the first actual US Army helicopter aeromedical evacuation rescue mission took place by Lieutenant Carter Harman. Lieutenant Harman rescued casualties from stranded forces about twenty-five kilometers west of Mawlu, Burma.

Air evacuation of military patients continued after the end of World War II. On 7 September 1949 the Secretary of Defense directed that evacuation of all sick and wounded, in peace and war, would be accomplished by air as the method of choice. Hospital ships and other means would only be used in unusual circumstances.²⁰ An era of aeromedical evacuation had finally emerged.

¹US Army, Field Manual (FM) 101-5-1 and Marine Corps Reference Publication (MCRP) 5-2A, *Operational Terms and Graphics* (Washington, DC: Headquarters, Department of the Army, United States Marine Corps, 30 September 1997), 1-3.

²*Ibid.*, 1-24.

³*Ibid.*, 1-24.

⁴*Ibid.*, 1-52.

⁵Peter Dorland and James Nanney, *Dustoff: Army Aeromedical Evacuation in Vietnam* (Washington, DC: Department of the Army, 1982): 29-30.

⁶US Army, FM 101-5-1/MCRP5-2A, 1-54.

⁷*Ibid.*, 1-98.

⁸*Ibid.*, 1-99.

⁹*Ibid.*, 1-99.

¹⁰*Ibid.*, 1-119.

¹¹“Military Medicine,” *American Heritage* 35 (June 1984): 65.

¹²Mary C. Gillet, *The Medical Department, 1865-1917* (Washington, DC: Center of Military History United States Army, 1995): 153.

¹³Eloise Engle, *Medic: America's Medical Soldiers, Sailors, and Airmen in Peace and War* (New York: John Day, 1967), 29.

¹⁴“Military Medicine,” 69.

¹⁵*A Concise History of the USAF Aeromedical Evacuation System* (Washington, DC: Department of the Surgeon General, United States Government Printing Office, 1976): 2-3.

¹⁶*Ibid.*

¹⁷*Ibid.*, 8.

¹⁸Allen D. Smith, “Air Evacuation--Medical Obligation and Military Necessity,” *Air University Quarterly Review* 6 (summer 1953): 103.

¹⁹*A Concise History of the USAF Aeromedical Evacuation System*, 11.

²⁰Smith, 102.

CHAPTER 2

KOREAN WAR

A specialized vehicle of high cost and limited effectiveness, the medevac chopper won its fame as an evacuation vehicle under conditions that were unique to the Korean War. As a wealthy nation that admired technical innovation and placed a high value on individual life, the United States was well fitted to finance such a pioneering effort. Preexisting medical skills of a high order were necessary to make the trial a success, for only a medical service of great sophistication could have dealt competently with the massive and near-fatal injuries that were the helicopter's specialty. The endeavor was not militarily significant, but it boosted morale by demonstrating that, against all purely material considerations, the nation intended to save every possible life. The typically high-cost, low-yield experimental period during the Korean War proved the potential of a vehicle whose future impact on all emergency medicine, both military and civilian, would be great indeed.¹

“Seeking the Roots of Dustoff--Helicopter Proves
Self as Life Saver in Korean War, Part Two”

Introduction

The research for this chapter focused on the first portion of the primary question: How did the US Army rotary wing aeromedical evacuation system, utilized during the Korean War, contribute to and shape today's US Army rotary wing aeromedical evacuation system? The author developed the following subordinate investigative questions in order to evaluate and answer the basic research question: What were the organizational structures of US Army rotary wing aeromedical evacuation during the Korean War? How were US Army rotary wing aeromedical evacuation assets utilized during the Korean War? How were US Army rotary wing aeromedical evacuation assets employed during the Korean War? What rotary wing aeromedical evacuation lessons did the US Army learn during the Korean War?

Dr. Richard Meiling, Chairman of the Armed Forces Medical Policy Council,

stated with conviction before the outbreak of the Korean War in 1950:

As a peacetime operation, the air transportation of patients is steadily improving in efficiency. As a military operation under combat conditions, a lot of improvement is still required. There still is the small minority which is unable or unwilling to recognize the inherent soundness of air evacuation.²

Many senior officers from the Army, Navy, and Air Force still believed that ships and ground transportation were the most efficient and best ways to evacuate casualties. The resistance and reluctance to utilize rotary wing aeromedical evacuation at the beginning of the Korean War impeded the development of a sound detailed system of aeromedical evacuation. The primitive state of the road network in Korea attributed to the significant transportation difficulties (see figure 1). The scarcity of hard-surface roads, the lack of lateral links between the few main highways, and the harsh climate often made it extremely difficult to transport casualties from forward units. This lack of both infrastructure and adequate US medical facilities in Korea helped to establish Army rotary wing aeromedical evacuation as the reasonable and necessary course to follow.

Helicopters appeared in significant numbers for the first time during the Korean War. They were utilized primarily in a support role, performing logistic resupply to ground forces, transporting soldiers, as well as reconnaissance missions; however, planners failed to realize the importance of the helicopter as an essential option for casualty evacuation.

During the early months of the Korean War, rotary wing aeromedical evacuation was thought of as a last resort method of transporting the wounded, as it was only utilized in those extreme cases when the casualties could not be evacuated by means of stretcher

bearers, field ambulances, trains, or hospital ships. The US Army's policy and doctrine at this time was to keep the casualties as far forward as possible, so they could be returned to combat; the Army's medical evacuation system was designed to be in line with the Army's policy.

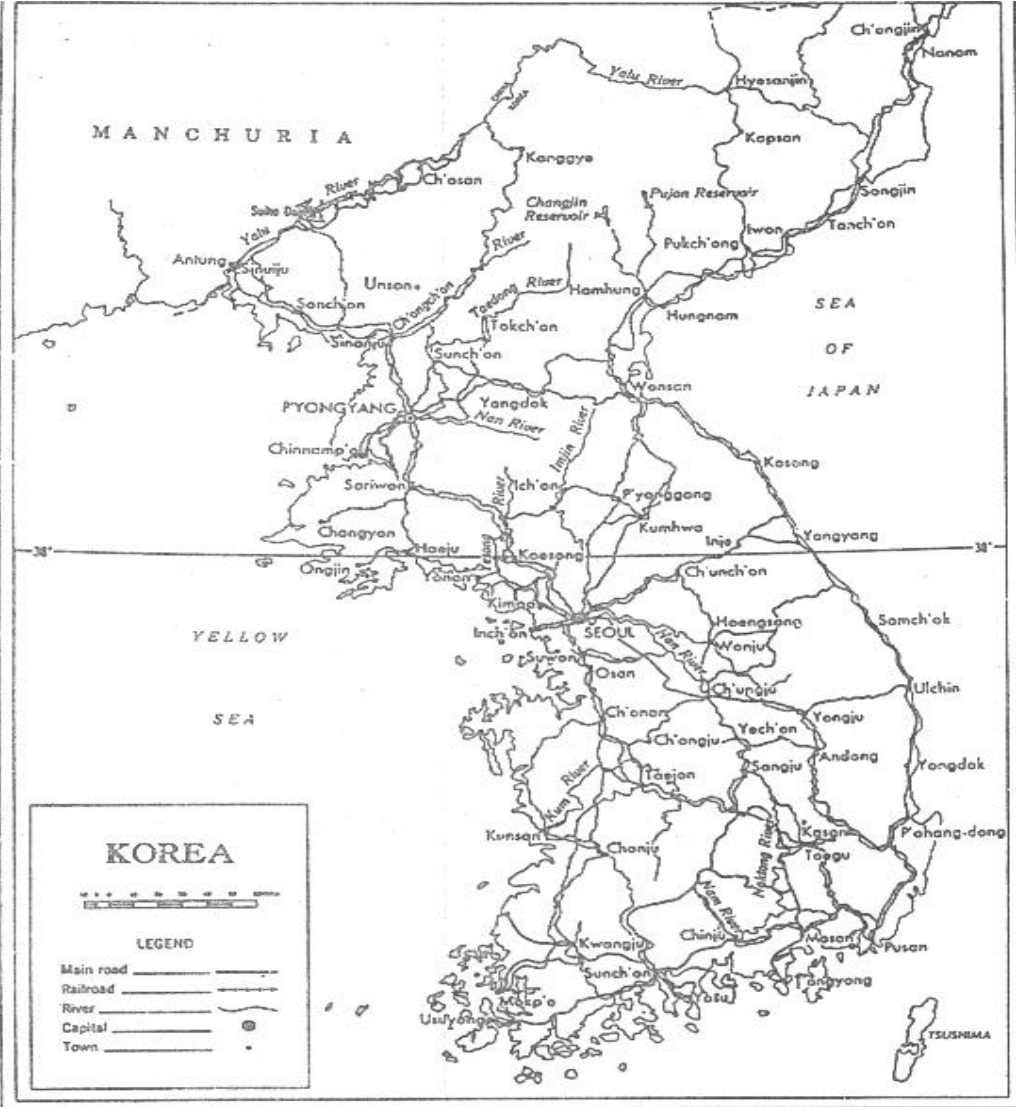


Figure 1. Korean Map. Source: Frank A. Reister, *Battle Casualties and Medical Statistics* (Washington, DC: Department of the Army, 1973), 25.

Senior officers recognized at the strategic level that USAF fixed wing aircraft offered the cheapest and fastest means to evacuate casualties from Korea to the US. Even though this was recognized early on, it still would take approximately eighteen months after the beginning of the war to see fixed wing and rotary wing aeromedical evacuation aircraft gain widespread acceptance--not through policies or doctrine but through its proven usefulness and effectiveness.³

Aeromedical Evacuation Organizational Structures

The initial history of the organization starts with the USAF, and later Army aviators, employing the equipment available to them, developed a rotary wing aeromedical evacuation doctrine that would become a sophisticated part of the Army's medical evacuation and treatment system during the war. However, the Army aeromedical evacuation "MEDEVAC," as it became known, concept was created and developed by the soldiers and officers in Korea, such as the Eighth Army surgeon, with little backing from the Army Medical Service establishment back in the US. Nevertheless, as the concept proved itself, the Surgeon General recognized the need to create a formal MEDEVAC structure in the Army Medical Service and to staff MEDEVAC units with true medical aviators, rather than pilots borrowed from other branches. During the war, pilots from other branches flew the lifesaving helicopters and became de facto Army Medical Service members; others would actually transfer to the Army Medical Service Corps. While these pilots from other branches flew the MEDEVAC missions, no true Medical Service Corps pilots existed in Korea until after the 1953 armistice.

In the Korean War Air Force units actually provided the first rotary wing CASEVAC--not aeromedical evacuation, even though the term ‘aeromedical evacuation’ was used out of context throughout the war describing USAF rotary wing casualty evacuation. The Air Force unit 3rd Air-Sea Rescue (ASR) Squadron arrived in Korea in July 1950 under the command and control of Captain Oscar N. Tibbetts and was the first helicopter unit utilized during the Korean War for this mission. It is important to know that this unit actually was not an aeromedical evacuation unit by the true definition of the word, since the USAF did not have dedicated rotary wing aeromedical evacuation helicopters. The USAF was able to dedicate helicopters to the CASEVAC mission since there was little air opposition in Korea. Consequently, one of the squadron’s detachments began responding to evacuation requests for Army casualties. Recognizing the effectiveness of rotary wing evacuation, Captain Leonard A. Crosby, Army Medical Service Corps, set up a demonstration in the courtyard of Taegu Teacher’s College on 3 August 1950. Captain Crosby demonstrated how to employ MEDEVAC helicopters for tactical frontline evacuations with great success, and one week later, the Fifth Air Force commander authorized the use of helicopters for tactical frontline evacuation of Army soldiers.⁴

After hearing of the success of Captain Crosby’s demonstration, Major General Raymond W. Bliss, US Army Surgeon General, became convinced that the Medical Department needed its own air ambulance helicopters. During a visit to Korea in October 1950, General Bliss discussed medical evacuation problems with General MacArthur and upon his return reported to his staff that: ‘MacArthur feels that helicopters should be in the Tables of Organization and Equipment (TO&E) and should be part of medical

equipment--just as an ambulance is.’⁵ The Surgeon General requested two helicopter ambulance companies of twenty-four helicopters each. By 20 October 1950, the Army for immediate airlift had purchased eight helicopters for the Far East Command. Major General George E. Armstrong, deputy surgeon general, successfully carried the fight to the Army staff and would succeed Bliss later in 1951. At this point, the USAF and Army agreed that Army units would provide tactical frontline rotary wing aeromedical evacuation, and USAF units would provide strategic fixed wing aeromedical evacuation outside the combat zone.

The first four Army aeromedical evacuation helicopter detachments arrived in Korea and were assigned to the operational control of the Eighth Army, but supervised by the Eighth Army Surgeon beginning in January 1951. Each of these detachments was broken down into two sections, a pilot or commissioned officer section that included the commander and an enlisted mechanic section. The sections were authorized four personnel each, one pilot and mechanic per helicopter. In addition to the personnel sections, the detachments were authorized two Bell H-13s and two Hiller H-23s helicopters, equipped with two exterior pods for litter casualties; one ambulatory casualty could also be carried at the same time under ideal conditions in the cockpit if required.

The 1st Helicopter Detachment never became operational, because its helicopters were diverted to other units immediately upon arrival to Korea, but the remaining three detachments were each attached to a forward-deployed Mobile Army Surgical Hospital (MASH) for command and control, rations, quarters, and administrative matters, since the detachments did not have internal support capabilities.⁶ The Army’s 2nd Helicopter Detachment had four helicopters that flew from the 8055th MASH located at **ASCOM**

city, south of Kimpo Airfield (K-16) outside Seoul. The 3rd Helicopter Detachment with four helicopters was attached to the 8063rd MASH located at Changhowon-ni, Yojo, and Chongpyong-ni. The 4th Helicopter Detachment had four helicopters which flew from the 8076th MASH located at Chunchon.

There were four mobile Army surgical hospitals (MASHs) in Korea at this time. One MASH was assigned to each of the three Corps, I, IX, and X, and one was held in reserve. As the hospitals rotated forward, one of the MEDEVAC helicopter detachments was attached to each of the active MASHs, which resulted in the detachments moving from hospital to hospital, as they rotated.

The 2nd Helicopter Detachment was the first actual MEDEVAC helicopter detachment to arrive in Korea at Kimpo Airfield (K-16) in January 1951. The detachment was organized from assets of the 82nd Airborne Division that had been activated at Fort Bragg in October 1950 before its deployment to Korea. The detachment shipped its four H-13C models from San Francisco to Korea but never saw them again. To fix the loss, the Army airlifted eight H-13Ds to Korea directly from the Bell factory in Niagara Falls, New York. However, mishandling of the helicopters at the airfield in Korea damaged four of them and the 2nd Helicopter Detachment could only salvage four airworthy helicopters. Eventually, the 3rd and 4th Helicopter Detachments came on line and provided Army rotary wing MEDEVAC support to the United Nations' (UN) forces throughout the war from their rotating MASH attachments. The 2nd, 3rd, and 4th Helicopter Detachments were originally considered general aviation units and not medical units since they did not have an official medical TO&E.

On 20 August 1952, the Army published the first official TO&E 8-500A for an air ambulance detachment with seven officers, twenty-one enlisted soldiers, and five helicopters. The first 8-500A Detachment was the 53rd Medical Detachment (Helicopter Ambulance), activated at Brooke Army Medical Center, Fort Sam Houston, Texas, on 15 October 1952. Three more official MEDEVAC units with the 8-500A TO&E--the 49th, 50th, and 52nd Medical Detachments (Helicopter Ambulance--were organized to replace the existing more or less ad hoc detachments in Korea during December 1952. During the early part of 1953, these units plus three others--the 37th, 54th, and 56th (the latter two existed only on paper)--were combined to form the 1st Helicopter Ambulance Company (Provisional) that combined all MEDEVAC detachments under a unified command for the first time. The official sources differ on whether this took place in February or June 1953.

In November 1952, the 49th Medical Detachment (Helicopter Ambulance), commanded by Captain John W. Hammett, was organized as the first purely medical aviation detachment with the new 8-500A TO&E in Korea, which evolved from the 2nd Helicopter Detachment. Hammett, a World War II artillery liaison pilot, later actually transferred to the Medical Service Corps. The helicopter and personnel authorization for the new 49th Medical Detachment (Helicopter Ambulance) remained the same as the 2nd Helicopter Detachment.

When the Army decided branch chiefs should have their own aviation staff sections, the Office of the Surgeon General (OTSG) received an aviation section to coordinate planning, operations, staffing, and supply for medical helicopter units. That strengthened medical control over MEDEVAC. The OTSG also pushed for training

Medical Service Corps officers as helicopter ambulance pilots. The push began in early 1951, but it took a year to amend regulations to allow it, which resulted in the Army creating a quota for twenty-five Medical Service Corps officers, mainly new lieutenants, to take flight training in October 1952. Eight Medical Service Corps officers started the first flight training class, and seven completed it successfully in February 1953.⁷ By the summer of 1953, the Medical Service Corps received a standing quota for ten Medical Service Corps officers to enter the Army Aviation Achool each month; and by 1 October, the Army Medical Service Corps had twenty-four qualified pilots and had five additional pilots transfer over from other branches.

Shortly after the end of the Korean War, the OTSG persuaded the Army to consider litter capacity in all future helicopter purchases whatever the primary mission. This was a factor in the selection of the Bell UH-1 Iroquois (Huey), which carried MEDEVAC to new levels during the Vietnam War.

Now one can understand the initial history and evolution of the Army's rotary wing MEDEVAC detachments in Korea to include, the first more or less ad hoc detachments of the 2nd, 3rd, and 4th without actual official TO&Es evolve into the new 49th, 50th, and 52th Medical Detachments (Helicopter Ambulance) with an official new 8-500A TO&E. Also, covered were the troop strengths, numbers of helicopters and their geographic locations of the detachments. The detachments were required out of necessity to evolve to meet the new challenges of the war in Korea, and these changes in organization would be the initial framework leading to the Helicopter detachments that later would be called upon to serve in the Vietnam War.

Aeromedical Evacuation Utilization

Quick adoption and utilization of the Army helicopter, as an aeromedical evacuation platform was the result of both the nature of the Korean War and the Korean countryside. The broken and rugged terrain separated troops from each other and from medical facilities while the poor infrastructure and guerrilla warfare tactics used by the enemy initially, also contributed to the problem. Roads were rough and crowded making the ground evacuation of casualties traumatic, slow, and full of problems. In contrast, the MEDEVAC helicopter flight was fast and generally much smoother causing fewer traumas to the already injured casualties.

Army rotary wing MEDEVAC was only a subdivision of the overall evacuation procedure in the Korean War. A basic understanding of the tactical frontline rotary wing MEDEVAC utilization process is necessary to fully understand the mission and the process.

Injured soldiers from the front lines were initially brought to battalion aid stations by the means of litter teams, jeeps, trucks, and ambulances. At the aid stations, the casualties would receive first aid and emergency treatment as needed, and once stabilized, they were transported by ground to collection stations, where the more critically wounded casualties were flown by Army MEDEVAC helicopters to a MASH. Other casualties went by ground ambulance to division clearing stations. From the division clearing stations, casualties were then evacuated by Army MEDEVAC helicopters or ground to evacuation hospitals.⁸

During the Korean War the utilization of the rotary wing aeromedical evacuation system developed into a more routine procedure. At the beginning of the war before

Army MEDEVAC detachments arrived in Korea and became operational, the 3rd ASR Squadron utilized the H-5 and the H-19 helicopters and was given the task of evacuating tactical frontline casualties to MASH units located further to the rear. During the late summer of 1950, General Stratemeyer, Commanding General of the Far East Air Force (FEAF), wanted to expand his unit to develop a new squadron with more helicopters and trained medical personnel, but the USAF refused Stratemeyer's request. Meanwhile, the Army authorized more helicopters for its units and started organizing helicopter ambulance detachments for utilization in Korea.⁹ In essence, these decisions meant that the Army would be responsible for the majority of the tactical frontline rotary wing MEDEVAC, while the USAF would provide strategic fixed wing aeromedical evacuation farther to the rear.

During MEDEVAC missions, the Army helicopter detachments flew the H-13D and the Hiller H-23B, both of which were equipped with external pods. The casualties were originally placed in the open litters for evacuation, but the detachment soldiers modified the litters into pods to provide casualties with a protected environment. Then eventually the pods were modified again to allow casualties to receive transfusions while in flight. The rapid evacuation of these seriously wounded soldiers directly from the front lines to the appropriate level of the medical treatment significantly enhanced the survivability of the soldiers. The fatality rate from seriously wounded soldiers, which had stood at 4.5 percent during World War II, fell to 2.5 percent during the Korean War. MEDEVAC pilots evacuated more than 20,000 casualties of all nationalities during the Korean War. For example, First Lieutenant Joseph Bowler of the 2nd Helicopter Detachment evacuated 824 casualties between 10 January and 2 November 1951.¹⁰

The new Army Medical Detachment (Helicopter Ambulance) commanders had many challenges facing them, their personnel, and most of all their equipment during their general utilization of the detachments. “There were conditions the weak, fragile Korean War helicopters could not work in, and things they could not do. Both machines and pilots were too scarce to be lightly risked.”¹¹ The pilots and ground mechanics had to learn by trial and error how to get the most out of the MEDEVAC helicopters under these conditions.

Almost any damage from enemy fire was fatal to the helicopters. Therefore, the commander’s rules for their use were strict and tightly monitored by the Eighth Army Surgeon’s Office. Missions were restricted to serious injuries, and the pilots had a right to refuse any mission that would damage the helicopters. Pickups were supposed to occur only at medical treatment facilities and only in daylight hours. Nevertheless, the pilots often ignored the rules when there were emergencies. As one officer put it, they would go to “any spot that was big enough to get the blades into.”¹² MEDEVAC helicopters were supposed to avoid fire, because any hit could be fatal to the helicopter and pilot. Helicopters could not fly high or fast enough to evade fire, and if hit they could not glide to safe landing areas; on a few occasions, it was even reported that MEDEVAC helicopters were shot at by Chinese jet fighters. These helicopter pilots, if shot down, could not even use parachutes due to low altitudes and rotors.

MEDEVAC helicopters were not supposed to even fly at night because the Bell H-13 helicopter had no radios, instrument lights, or cockpit lights. Still, pilots often flew to aid wounded soldiers in enemy territory day or night, and there were several reports

where pilots held flashlights between their legs to read the instrument panel to get back to the airfield or MASH.

Additional challenges were the training of the ground troops to guide helicopters in, provide coordinates, utilize marker panels, and utilize colored smoke grenades, to name just a few since the early MEDEVAC helicopters did not normally have radios. Sometimes the lack a of radio was a blessing, making the language largely irrelevant. MEDEVAC helicopter detachments supported all the polyglot UN troops. Attempts to communicate with the helicopters arriving into a Turkish or Greek landing zone might have been more dangerous than helpful, but the panels, smoke and sign language worked regardless of the language. For example, in September 1951, a pilot trying to evacuate two wounded Turks could not find them until a Turkish spotter plane buzzed him to get his attention and led him to the wooded summit where the casualties waited. The pilot descended just far enough to clip the treetops with his rotors, thereby alerting watching Turkish soldiers that the trees were too high. Quickly, the Turks chopped enough trees down for a landing, and the pilot flew the casualties to the MASH without ever talking to the ground forces.¹³

The range of the helicopters was limited. A MEDEVAC helicopter could fly only two hours unless the pilot carried along five-gallon jerry cans of gasoline in the cockpit or on the empty litter pods and refueled while the patients were loaded. Even the batteries in the helicopters were also very weak, to the point that some of these helicopters could not be restarted sometimes without external power. To avoid being stranded, pilots often kept the engines running during refueling.

Maintenance was always a commander's nightmare during this time because parts shortages were common due to a slow procurement that the Army could not control. These helicopters required six hours of maintenance for each hour airborne and averaged only a little over an hour of flying a day, carrying an average of perhaps 1.5 casualties per day.

One of the major challenges for detachment commanders was identified with the Army helicopter aeromedical evacuation system communication network. Requests from forward units for helicopter assistance went to headquarters and back through poor communication systems for approval. This caused a delay in the quick response, which could have been possible.

With the reasons stated above, one could clearly see all the initial challenges for the detachment commanders and the reluctant reasoning of the senior generals on the utilization of the MEDEVAC helicopter. Even though the Eighth Army specifically ordered that Army MEDEVAC helicopters not be utilized or jeopardized in missions likely to encounter enemy action, MEDEVAC pilots often took risks that higher authority would have not granted to save lives and justify the use of the helicopter.

With the knowledge of general utilization of these detachments, flying from MASH location to tactical frontline collection stations and division clearing station to MEDEVAC wounded soldiers, at sometimes great risk to themselves; one will understand the general utilization of these detachments. Along with this knowledge and knowing all the challenges of the detachment commanders, helicopter maintenance, lack of radios and cockpit lighting, rules for utilization, and range restrictions; one will have

the background knowledge that will compel changes in these detachments after the Korean War to be implemented before and during the Vietnam War.

Aeromedical Evacuation Employment

Army helicopters accomplished almost all of the forward tactical MEDEVAC of casualties, and the USAF strategic fixed wing aircraft were not used generally because there were no landing facilities forward. The initial primary employment mission of the helicopter during the Korean War was CSAR, but this research only covered the Army helicopter's aeromedical evacuation missions and employment, due to the focused question and thesis restrictions. Developing the helicopter as the basic tool for medical evacuation employment was one of the most important logistical innovations of the Korean War.¹⁴ The initial missions or employments assigned to the first helicopters in Korea were to fly high-ranking officers from one location to another. This was generally forgotten as the missions were changed to MEDEVAC and rescue missions in the first weeks of the war.

The incident that changed the employment of the helicopter in Korea occurred in August 1950. The Air Force CSAR helicopter squadron was notified of a seriously wounded soldier at a frontline aid station on top of a 3,000-foot mountain with the aid station cut off from the rear area. The mission was to fly in and evacuate the soldiers; this was successfully accomplished with the soldier's life saved. The following day the primary mission of helicopters changed to aeromedical evacuation and rescue.¹⁵

The Air Force accomplished most of the initial helicopter CASEVAC in Korea, until the Army Helicopter Detachments arrived for employment. The following is a

memo to the Surgeon General from Brigadier General Jarred V. Grabb, Deputy for Operations, Headquarters FEAF.

Until 1 January 1951, the USAF performed all helicopter evacuation, except within the 1st Marine Division. The Marines handled their own evacuations except in isolated cases where help was needed they called on the Air Force. There have been 1394 personnel picked up from front line and behind the enemy line areas by USAF helicopters. Percentages of USAF versus Marine Corps or Army helicopter pickups are not available. This was discussed with the Eighth Army Surgeon and he stated the Army did not keep a consolidated record of evacuations. It is the opinion of operations personnel, Fifth Air Force, that 85 percent of all evacuations are performed by Air Force helicopters.¹⁶

The Army regularly employed helicopters for MEDEVAC missions in the early part of January 1951. On 3 January 1951 First Lieutenants Willis G. Strawn and Joseph L. Bowler flew the first MEDEVAC mission. Bowler went on to set a record of 824 medical evacuations in ten months.

The British author and Korea veteran George Forty credits the MEDEVAC helicopters with evacuating 10,000 casualties including himself. Others give higher figures though. The official Army history notes 5,040 casualties in 1951, then 7,923 in 1952, and 4,735 during the half year of fighting in 1953. The figures do not include casualties evacuated by Air Force and Marine helicopters and non-MEDEVAC Army helicopters.¹⁷ This was 10 to 20 percent of total battle casualties, which is directly in line with the memo, quoted above, to the Surgeon General from Brigadier General Jarred V. Crabb, Deputy for Operations, Headquarters FEAF.

Helicopter Detachments were doctrinally and tactically attached and located at a MASH and employed to the front lines by the surgeon in charge. Initially, there were not enough MEDEVAC helicopters to meet all evacuation needs, so they had to be used discretely thus involving the chief surgeon. Helicopter evacuation was tactically

employed, when a soldier had a head wound, chest wound, or stomach wound, because the speed with which such wounded received medical attention determined the chance for survival. Wounded soldiers who were evacuated by helicopter from the front lines were often in surgery within an hour.¹⁸

With I Corps, the following procedure for tactical employment was used by Detachment I. A battalion aid station notified the surgeon's office at I Corps of the location of the wounded soldiers; and using direct communication with the 8055th MASH, the I Corps surgeon gave the element commander the exact coordinates, the type of wound, security status of the area, and the type marker used. The pilot and the medical technician then made the necessary pickup.

The Eighth Army Surgeon said that half of the 750 critically wounded soldiers, evacuated on 20 February 1951, would have died if they had been moved by surface transportation--not by Army MEDEVAC helicopters. General Stratemeyer also had nothing but praise for the Army MEDEVAC pilots. He also continued to insist that Army MEDEVAC should continue to be separate from air rescue. On 16 January 1951 in Tokyo, General Stratemeyer gave General Hoyt S. Vandenberg, USAF Chief of Staff, a requirement for thirty-one additional helicopters for Korea.¹⁹

Army and Air Force agreements concerning Army MEDEVAC employment operations made on 2 October 1951 and 4 November 1951 made the Army responsible for tactical employment to pick up battle field casualties, their air transport to initial points of treatment, and any subsequent move to hospital facilities within the combat zone.

It is important to answer the question: How was US Army rotary wing aeromedical evacuation assets employed? The tactical employment of these MEDEVAC helicopters would lay the initial doctrine groundwork for the tactical employment of MEDEVAC helicopters in the early months of the Vietnam War. Furthermore, it is important to know who some of the heroes were and the specific missions flown during the Korean War because this mind-set of the MEDEVAC detachment commanders and pilots will lead to even more heroes flying even more complicated, specific, and dangerous mission during the Vietnam War to save soldiers' lives.

Aeromedical Evacuation Lessons Learned

Many people had high praise for Army MEDEVAC during the Korean War. General Matthew B. Ridgeway, Commanding General of the United Nations Forces in Korea, singled out Army MEDEVAC in the Nineteenth Report of the UN Command in Korea to the UN Security Council.

High praise must be paid to the elements engaged in evacuation by air of wounded personnel and individuals from behind enemy lines. Countless numbers of soldiers and countless numbers of men who would have become prisoners have been saved by prompt and efficient action of the air rescue and evacuation units. The wounded soldiers in Korea had a better chance of recovery than the soldier of any previous war. This was not only by virtue of improved medical treatments available at all echelons, but also in large measure because of his ready accessibility to major medical installations provided by rapid and evacuation.²⁰

Other praises included Doctor Elmer L. Henderson, President of the American Medical Association, who, after returning from a visit to FEAF medical facilities, described air evacuation as "the greatest thing that has come out of this Korean incident as concerns saving lives."²¹ In 1952, the USAF Office of the Surgeon General stated, "Responsible medical officers at the front lines in Korea estimated that without rapid

transportation by helicopter and immediate emergency aid including blood transfusion, 80 percent of the wounded would have died.’²²

Another advantage of Army MEDEVAC identified by the FEAF was from the humanitarian standpoint. Army MEDEVAC had an extremely positive effect on casualty’s morale. Knowing that they would be transported quickly and in as much comfort as possible to a medical facility, the casualties developed a “the worst is over” feeling, and their spirits were raised at this difficult time.²³

Allen D. Smith compiled a list of the advantages of Army MEDEVAC in Korea.

His list included the following:

1. Morale--Casualties being evacuated realized that they would receive the best possible medical care in a very short time.
2. Economy of time--Casualties were aeromedically evacuated in a matter of hours, not days.
3. Economy of personnel--Evacuation by air allowed medical personnel to remain in fixed locations where more effective medical care could be provided.
4. Economy of material--The use of helicopters and other aircraft reduced the need for forward hospitals.
5. Economy of lives--Patients were transported in relatively smooth conditions, in comparison to the bumpy, dirty surface travel in Korea.
6. Economy of transportation--Moving casualties by air saved ground transportation for use by actual fighting troops. The mobility of the forward unit was also greatly increased by removing the injured from the forward area.
7. Increased range and mobility of air travel over surface travel.²⁴

Many people had high praise for just the performance of the newly introduced MEDEVAC helicopter during the Korean War. Spurgeon Neel points out five.

1. The speed with which casualties can be evacuated by helicopter is greater than with any other method.
2. The helicopter is very flexible in that the controlling surgeon can shift the support from one unit to another unit if necessary.
3. The patient is more comfortable since he moved in the shortest time and in the best conditions possible by helicopter.
4. The patient can be moved to the treatment facility, which can best service him because of the speed, flexibility, and range of the helicopter.

5. The proper use of the helicopter permits economy of use of medical personnel. Since the helicopter will bring the casualties to the doctor, specialized people can be concentrated in forward areas and more and better surgery can be provided with fewer people.²⁵

There were also disadvantages of Army medevac operations. Ground forces had to learn that the helicopter had certain operating limitations. Helicopter could not fly in bad weather, could not land on any type of terrain, and could not then operate at night. Medical personnel had to overcome these among many different obstacles. The marking of landing sites, the transmission of accurate coordinates, and restricting helicopter evacuation to only critical cases were just a few of the solutions.

The most useful helicopters used for MEDEVAC operations were the Bell H-13 and Sikorsky H-5. A problem with the later was the type in use was no longer in production creating continuing problems with parts and making maintenance very difficult. Another disadvantage described by Neel was the cost. Transporting patients by helicopter was much more costly than using the field ambulance. Assuring the helicopters were used efficiently and for severe cases could minimize this cost.

The ratio of maintenance time versus flying time of helicopters in Korea was about six to one. This had to be considered when planning helicopter evacuation.

The following list is the top seven combined MEDEVAC lessons learned from both the Army and Air Force's experience in the Korean War.

1. In every theater of operation there should be a definite air evacuation plan, and this plan should be given to all units in the command.
2. The air evacuation detachments and squadrons assigned to the theater should be manned at 100 percent with personnel and equipment at all times.
3. All aeromedical aircraft is used for the purpose within the theater should be under a single transport headquarters. The air evacuation detachments and squadron should be assigned directly to this headquarters. Such centralization

would make more aircraft available and would permit critically wounded personnel to be used more effectively.

4. Medical evacuation should have top priority within the theater.
5. The Air Force should assume and maintain the responsibility for operating patient holding facilities.
6. Only school-trained air evacuation technicians should be furnished to air evacuation detachments and squadrons as combat crew replacements. These technicians should be
7. A field-grade Medical Service Corps Officer, experienced in all phases of troop carrier operations, should be attached to the office of the theater surgeon in a combat theater or operation.²⁶

There was a large difference in airpower used by the enemy during the Korean War from other wars in the past. The lack of an air offensive by the enemy made Army MEDEVAC operations a much easier job than it possibly could have been. With the exception of a few incidents, helicopters were relatively free from enemy air attacks. If the enemy in Korea had committed more aircraft to fly in South Korea, the success of Army MEDEVAC might not have been as great. Helicopters evacuating casualties under the attack of fighter aircraft may have found it to be an impossible task. The use of the Army MEDEVAC helicopters during the Korean War fundamentally changed the Army's medical-evacuation doctrine, existing organizational structure, utilization, and employment of these Medical Helicopter Detachments, which will lead the Army into the Vietnam War. The initial success of the air-evacuation system in Korea led to further refinements in medical and aviation doctrine during the Vietnam War and into the present day. These refinements are: better performing and reliable helicopters, helicopters that could transport more casualties, helicopters that could transport casualties inside the aircraft, and most of all a helicopter that could provide medical treatment en route by a

medic. In addition, the Army realized the further forward the MEDEVAC helicopter could go, the better chances of soldiers' lives being saved. This along with the helicopter evolution changed the Army Medical Department's evacuation doctrine going into the Vietnam War. These early pioneer MEDEVAC pilots, despite having no medical training, pushed the envelope and broke the mold on MEDEVAC methods. Despite the limited capabilities of their equipment, the MEDEVAC helicopter pilots of the Korean War established procedures and doctrine that laid the foundation of the modern Army MEDEVAC pilots.

¹“Seeking the Roots of Dustoff--Helicopter Proves Self as Life Saver in Korean War, Part Two,” 7.

²Allen D. Smith, “Air Evacuation--Medical Obligation and Military Necessity,” *Air University Quarterly Review* 6 (summer 1953): 104.

³*Ibid.*, 585.

⁴Warner F. Bowers, “Evacuating Wounded From Korea,” *Army Information Digest* 5 (December 1950): 51.

⁵Rober F. Futrell, *The United States Air Force in Korea, 1950-1953* (Washington, DC: Office of Air Force History, 1983), 589.

⁶“Aeromedical Evac,” *Air Power History* 14 (summer 2000): 38.

⁷“Seeking the Roots of Dustoff-Helicopter Proves Self as Life Saver in Korean War ... Part Two,” 7.

⁸Albert E. Cowdrey, *The Medic's War* (Washington, DC: United States Government Printing Office, 1987), 93.

⁹M. T. Martin, “Medical Aspects of Helicopter Air Evacuation,” *Journal of Aviation Medicine* 23 (February 1952): 20.

¹⁰Harry G. Armstrong, *Theater Aeromedical Evacuation System*, (Washington, DC: Department of the Air Force, 1957), 20.

¹¹Cowdrey, 95.

¹²Kenn Finlayson, "Helicopters in Combat: Korea," *Special Warfare* 14 (summer 2001): 39.

¹³Richard V. N. Ginn, *The History of the United States Army Medical Service Corps* (Washington, DC: Office of the Surgeon General and Center of Military History United States Army, 1997), 244.

¹⁴"Seeking the Roots of Dustoff-Helicopter Proves Self as Life Saver in Korea War ... Part Two," 6.

¹⁵Ibid.

¹⁶United States Air Force, *The United States Air Force Medical Service and the Korean War (1950-1953)*, (Location: Department of the Air Force, Office of the Surgeon General, 22 August 1960), 14.

¹⁷"Seeking the Roots of Dustoff-Helicopter Proves Self as Life Saver in Korea War ... Part Two," 6.

¹⁸Ginn, 244.

¹⁹"Seeking the Roots of Dustoff-Helicopter Proves Self as Life Saver in Korea War ... Part Two," 7.

²⁰United States Air Force, 76.

²¹Ibid.

²²Ibid.

²³315th Air Division. *History 315th Air Division (Combat Cargo), 1 January 1951--30 June 1951* (Location: Historical Office, 315th Air Division (CC) APO 959, 1951), 106.

²⁴Smith, 323-332.

²⁵Spurgeon Neel, "Medical Considerations in Helicopter Evacuation," *United States Armed Forces Medical Journal* 5 (February 1954): 220-227.

²⁶United States Air Force, *The United States Air Force Medical Service and the Korean War (1950-1953)*, 76.

CHAPTER 3

VIETNAM WAR

If the men can make such a sacrifice and still smile, we can do our bit, too. I keep remembering a Claymore casualty we flew. He was just a kid really, and there was nothing much left of him--no arms, legs, eyes, just that big heart beating. Each time I checked to see how he was doing he whispered "Just fine, thank you kindly." Sometimes it hurt so much inside you just crawl back to your quarters and have a quiet cry.¹

Katerine Drake

Introduction

The research study for this chapter focused on the second portion of the primary question: How did the US Army rotary wing aeromedical evacuation system, utilized during the Vietnam War, contribute to and shape today's US Army rotary wing aeromedical evacuation system? The intent of the following subordinate investigative questions is to evaluate and answer the basic research question above. What were the organizational structures of US Army rotary wing aeromedical evacuation during the Vietnam War? How were US Army rotary wing aeromedical evacuation assets utilized during the Vietnam War? How were US Army rotary wing aeromedical evacuation assets employed during the Vietnam War? What rotary wing aeromedical evacuation lessons did the US Army learn during the Vietnam War?

Helicopter aeromedical evacuation officially began during the Korean War, but in that war, land-based ambulances still transported 80 percent of the wounded. In Vietnam, "dustoff" helicopters touched down forward of the aid stations on the battlefield itself and evacuated the wounded to air-conditioned fixed hospital facilities as sophisticated as those in the US. Army rotary wing aeromedical evacuation of casualties was one of the

major advances of the Army Medical Department during the Vietnam War. In the previous chapter, during World War II when very few tactical aircraft were utilized to evacuate casualties from the field, the died of wounds rate was 4.5 percent; but during the Korean War, about one out of every seven US casualties was evacuated by helicopter, as a result the died-of-wounds rate dropped to 2.5 percent. During the Vietnam War, the actual rate dropped even further, due to the evacuation of the majority of US casualties from the front lines by Army dustoff helicopters, while the USAF Military Airlift Command (MAC) evacuated the seriously wounded from theater by strategic fixed wing aircraft back to Japan and to the US.²

Location of the Vietnam War in relation to the US created some problems since Vietnam was a country halfway around the world, which resulted in US casualties being flown over 7,800 miles to reach Travis Air Force Base (AFB), California, and almost 9,000 miles to reach Andrews AFB near Washington, DC. The nearest offshore US hospital was located almost 1,000 miles away at Clark AFB in the Philippines, but the nearest complete hospital was in Japan, 2,700 miles away. Within country, the waterways, jungles, and lack of infrastructure obstructed the tactical frontline evacuation of casualties even without the interference of combat operations.³

South Vietnam was divided into four military zones as displayed in figure 2. The northern zone, or I Corps Zone, ran from the demilitarized zone down to Kontum and Binh Dinh provinces with most of the terrain located in the high mountains and dense jungles. The II Corps Zone ran from I Corps Zone south to the southern foothills of the Central Highlands and was about 100 kilometers north of Saigon, which included a long coastal plain, the highest part of the Coastal Highlands, and the Kontum and Darlac

Plateaus. The III Corps Zone ran from the II Corps Zone to an area forty kilometers southwest of Saigon, which included the southern foothills of the Central Highlands, a few large dry plains, and jungles along the Cambodian border. Finally, IV Corps Zone included almost the entire delta formed by the Mekong River in the southern part of Vietnam that had no forests, except for the dense mangrove swamps at the southernmost tip and forested areas just north and to the east of Saigon.⁴



Figure 2. Source: Peter Dorland and James Nanney, *Dustoff: Army Aeromedical Evacuation in Vietnam* (Washington, DC: Department of the Army, 1982), 2.

Army rotary wing aeromedical evacuation became a routine part of the Army Medical Department's evacuation system in Vietnam, which was universally referred to as "dustoff," a radio call sign adopted in 1963. Medical Service Corps commissioned officer and warrant officer pilots who utilized this call sign and the enlisted members of the dustoff crews were the heirs to the Letterman legacy mentioned in chapter 1. The measures of their devotion glean from their statistics as the Medical Department lost 199 helicopters in Vietnam, and one-third of the 1,400 dustoff pilots were killed or wounded. The memorial book of the Dustoff Association recorded 90 commissioned and warrant officers killed in Vietnam, and another 380 pilots were wounded or injured as a result of hostile fire or crashes. Casualties among crew chiefs and flight medics included 121 killed and 545 wounded or injured.⁵

By 1967 there were over 94,000 injured soldiers transported by dustoff helicopters that led to the establishment of Air Force Regulation 164-1 that denounced earlier Department of Defense findings that air transport was unsafe. From April 1962 to the end of the Vietnam War, Army dustoff helicopters transported nearly one million military and civilian casualties. The success of the Army dustoff helicopters was largely attributed to the actual helicopter's system design and flight crew.

Dustoff

Our kind of flying ain't no fun
Dustoff choppers ain't got no guns.
But now and then a medic will say
A machine gun would just get in the way.⁶

Aeromedical Evacuation Organizational Structures

Major changes in the Army rotary wing aeromedical evacuation of battlefield casualties and its organization structure were witnessed during the Vietnam War. While some of the same dustoff helicopters that saw service in Korea were used initially, larger helicopters performed most aeromedical evacuations. One of the primary Army dustoff helicopters used for rescue, medical stabilization, and evacuation was the UH-1 “Huey” helicopter. These larger helicopters were a great improvement over their predecessors that were flown during the Korean War, since they carried the wounded inside the actual helicopter versus outside and provided a medic for en route patient treatment. In addition, these helicopters were much more reliable, required less maintenance, had longer range, were equipped with radios, and had inside lighting.

To understand the organizational structure and how it evolved, one needs to understand the brief history behind the unit’s primary helicopter UH-1, its capabilities, and employment. The ability to carry the casualties inside the helicopter and to provide en route treatment was instrumental to the battlefield mortality rate since casualties en route to the field hospital could receive definitive medical treatment from helicopter medics. This was paramount in reducing the mortality rate of casualties during Vietnam, along with the initiation of specialty hospitals for the treatment of certain types of injuries. Dustoff helicopters brought modern medical capabilities closer to the tactical front lines than ever before, and they provided great flexibility in the treatment of casualties. The dustoff helicopters, working with the communication network on board, made it possible to evaluate the status of casualties while in flight and possessed the ability to be direct to the nearest hospital best suited to the needs of the casualty. If a

hospital developed a backlog of casualties, notification could be sent to the helicopter, and it could be redirected to another location. During the Korean War, this would have never been possible, since the those helicopters did not even have radios.

The first helicopter ambulance unit sent to Vietnam was the 57th Medical Detachment (Helicopter Ambulance), later nicknamed “The Originals.” This would not only be the first Medical Detachment (Helicopter Ambulance), but also the first aviation unit to deploy the UH-1 helicopter in Vietnam. The detachment was authorized, by TO&E, five UH-1A helicopters. The personnel organization consisted of two sections: (1) pilot or commissioned officer section of seven that included the commander, maintenance officer, and operations officer and (2) enlisted soldier section of twenty-one that included mechanics, medics, flight operations, and supply. Army dustoff helicopters utilized a crew of four: aircraft commander (pilot), copilot, medic, and crew chief (who handled the helicopter’s preventive maintenance) armed with an automatic rifle; unless flying into dangerous areas, the crew chief was usually left behind to allow additional space for additional casualties, unlike the crew of one during the Korean War. The crew flew the UH-1 Huey from the early “A” model to the “I” model in use at the end of the war, with an official capacity for six litter casualties, but with eight to thirteen reported as transported at once. Pilots and copilots were graduates of a special course for dustoff pilots. Although some warrant officers lacked this specialized training, close teamwork resulted from the beginning.⁷ The unit’s mission was to support the 8th Field Hospital, which it was actually attached to for command and control, rations, quarters, and administrative matters at Nha Trang. This was the standard doctrinal employment of the detachment that actually changed little from the Korean War. Initially, two helicopters

were stationed at Qui Nhon and three at Nha Trang; but later as fighting escalated, Captain John Temperelli Jr., commander of the 57th, changed the helicopters' locations in order to improve response time.⁸

In late February 1963 Captain Temperelli turned over the command of the unit to Major Lloyd E. Spencer, the veteran pilots rotated out of Vietnam, and the replacements arrived. After his arrival, Major Spencer was requested to see General Stillwell and was asked how he was going to cover all the requirements in the country with just five helicopters. All Spencer could say was that he would do his best, but General Stillwell promised the first five new UH-1 "B" models in South Vietnam to the 57th. On 11 March 1963, the last of the UH-1A models were signed over for return to the US, and the following day the Support Group issued the detachment five new UH-1B models that resulted in the 57th becoming operational again at the end of March 1963.⁹

In August 1964, the Surgeon General's office named four more air ambulance units for assignment to Southeast Asia that included the 82nd Medical Detachment (Helicopter Ambulance) at Fort Sam Houston, Texas, being given a 1 October 1964 move date. The three other units were put on notice without firm departure dates. It is important to note at this time that all four of these units identified have the same TO&E as the 57th initially. The 82nd Medical Detachment (Helicopter Ambulance) became operational in November 1964 in IV Corps Zone (the Delta).¹⁰ Three of the 57th pilots were transferred to the 82nd, and three of the 82nd pilots were transferred to the 57th. This was to aid in training the crews for the critical dustoff mission. Major Henry P. Cappozzi commanded the 82nd, and Major Howard H. Huntsman commanded the 57th at this time. The question of the call sign came up, so the new commanders settled on the

“57th” call sign and unit emblem for the 82nd. The 57th pilots objected to the piracy, but the policies were practical. Both units performed the same mission, and the common symbols helped the ground forces recognize the ambulance helicopters.¹¹

After the Surgeon General announced the actual departure dates for the remaining three units in September 1965, the 498th Medical Company (Air Ambulance), another type of medical evacuation unit, was deployed to Vietnam. This unit had a TO&E different from the other medical detachments (Helicopter Ambulance). It was initially authorized twenty-four two-patient helicopters and strength of twenty-eight officers and fifty-five enlisted soldiers; but before the unit deployed to Vietnam, they received twenty-five new UH-1 “Ds” fresh from the Bell Helicopter Plant to replace the Korean War twenty-four two-patient helicopters. The 498th Medical Company (Air Ambulance), under the command of Lieutenant Colonel Joseph P. Madrano, became operational in Vietnam on 20 September 1965, with the company being divided with one and one-half platoons at Qui Nhon, one and one-half platoons at Pleiku, and the fourth platoon at Nha Trang. The company headquarters, maintenance platoon, and operations section was at Nha Trang. The distance of the platoons from the headquarters in Saigon created a few problems. However, the dispersion of the company provided excellent coverage for dustoff support; although it created many maintenance difficulties, maintenance was accomplished at three sites by the single maintenance platoon assigned to Nha Trang.¹²

The 283rd Medical Detachment (Air Ambulance) arrived in Vietnam in August 1965, followed by the 254th Medical Detachment (Air Ambulance) before the end of the year, but the 254th was not operational until February 1966 because of a backlog at the port that delayed the arrival of the unit’s equipment. The four detachments 57th, 82nd,

283rd, and 254th were authorized six helicopters each and supported III and IV Corps Zones (this was an increase to the TO&E of one helicopter and crew). However, the 498th Medical Company (Air Ambulance) was authorized twenty-five helicopters and supported II Corps Zone.¹³

March 1966, the 44th Medical Brigade, which was activated in January, assumed operational command and control of most Army medical units in Vietnam. During the next two years, the brigade coordinated the activities of the 68th Medical Group (III and IV Corps Zones), the 43rd Medical Group (South II Corps Zone), the 55th Medical Group (North II Corps Zone), and the 67th Medical Group (I Corps Zone) (see figure 3).

In 1965, another new form of air ambulance unit was established, the air ambulance platoon. These units, unlike the air ambulance units of the 44th Brigade, depended upon the combat assault divisions for command and control and supply issues. The air ambulance platoon usually consisted of twelve UH-1 helicopters, fourteen officers, and forty-four enlisted; after testing this new system, the initial air ambulance platoon was deployed to Vietnam in August 1965, as part of the 15th Medical Battalion, 1st Cavalry Division (Air Mobile). The unit consisted of a medical evacuation section with eight helicopters and a crash rescue section with four helicopters, which the platoon's pilots, unlike the helicopter detachments of the 44th Medical Brigade, used "MEDEVAC" as their call sign. This was in part to keep the old tradition from the Korean War, so that they could be immediately recognized as part of the 1st Cavalry Division.¹⁴ To protect the platoon's aeromedical evacuation helicopters, they began requesting gunships on call, but the platoon's MEDEVAC pilots thought traveling with the slower gunships wasted time.¹⁵



Figure 3. Source: Peter Dorland Peter and James Nanney, *Dustoff: Army Aeromedical Evacuation in Vietnam* (Washington, DC: Department of the Army, 1982), 1.

The next unit established in Vietnam was the 436th Medical Company (Air Ambulance) (Provisional). It was established from the old 57th and 82nd Detachments, along with the 254th and 283rd Detachments. The 43rd Medical Group took command of the provisional company, and the new group's mission was to supervise all dustoff missions in III and IV Corps Zones. It operated twenty-two helicopters and was expected to improve the coordination of the air ambulance detachments, but these improvements did not occur. Each detachment retained its own separate identity and regarded the company as just another headquarters in the chain of command, and in September 1966, the provisional company was renamed the 436th Medical Detachment (Company Headquarters)(Air Ambulance) and attached to the 68th Medical Group.

In March 1967, General Westmoreland told the Commander in Chief, US Army, Pacific, that his theater needed 120 dustoff or MEDEVAC helicopters and that he only had 64. In April, some measures were taken to correct the situation, and helicopters and pilots were taken from nonmedical units and assigned to dustoff units.¹⁶ In addition, in September 1967, the 45th Medical Company (Air Ambulance) and four other air ambulance detachments arrived in Vietnam, while other units were moved around to provide the best area coverage in response to the tactical situation, unlike the days in Korea where the medical helicopter detachments rotated to forward MASHs. In 1968, four more detachments were sent to Vietnam completing the final buildup of dustoff units, totaling 116 Army helicopter ambulances in Vietnam by 1969 assigned into two companies and eleven separate detachments for operational command and control purposes.

Understanding the initial history and evolution of the Army's rotary wing dustoff detachments, platoons, and companies during the Vietnam War and how they evolved into the new medical companies (Air Ambulance) seen at wars end is vital because the changes were required to keep pace with the changing US Army, doctrine, and the nature of war itself. This will always be the case, and these changes can be seen in today's current medical company (Air Ambulance) organization. In addition, the troop strengths, numbers of helicopters, and their geographic locations of the detachments, platoons, and companies covered were. The dustoff units were required out of necessity to evolve to meet the new challenges of the war in Vietnam, and these changes in organization would be the initial framework and organizational structure leading to the current medical company (Air Ambulance) that the US Army currently has with little changes.

Aeromedical Evacuation Utilization

General utilization of aeromedical evacuation in the Vietnam War, like the Korean War, was broken down into separate systems, but due to the primary focus of the research on Army rotary wing aeromedical evacuation, the author will primarily focus on the forward tactical Army aeromedical evacuation system.

Army dustoff helicopters usually flew the evacuation missions from the tactical front line and the intratheater flights within the battle area. M.S. White, in a study illustrated the breakdown of evacuations for the three services. The study showed the percentages of wounded evacuated to the US as 60 percent Army, 35 percent Navy and Marine Corps, and approximately 5 percent Air Force.¹⁷ This is a direct result of the different missions performed by the services in Vietnam.

If one element of medical logistics was selected to be responsible for increasing the number of lives saved, it would certainly be the utilization of Army dustoff helicopter ambulance units. The helicopter evacuation crews utilized the UH-1 helicopter ambulances in evacuating nearly all-tactical frontline casualties, while the Air Force CSAR helicopters occasionally assisted in these operations as CASEVAC helicopters transporting casualties.

A different utilization was that the 57th sometimes accepted healthy passengers on a space-available basis with the condition the passengers might have to leave the helicopter in the middle of nowhere if the pilot received a dustoff request while in the air. As the year went on, the 57th was utilized more and more to fly dustoff missions. In September 1963, the 57th actually evacuated 197 Vietnamese civilians from the Delta, where the Viet Cong (VC) had destroyed three large settlements. This led to the dustoff helicopter crews making flights with Vietnamese jammed in the passenger compartments and standing on the skids.

As the war went on, it was apparent that rescuing wounded soldiers from the dense jungles was a valid requirement, and consequently, the Army would now have to devise another utilization for the dustoff helicopters. This jungle extraction would lead to a completely new method of utilization. One of these examples was when Captain Donald Retzleff, 1st platoon, 498th Medical Company, Nha Trang, performed the first actual hoist rescue mission 17 May 1966. The mission was flown in support of the 101st Airborne Division, twelve miles north of Song Ba. The medic rode the cable down since it was the first time the hoist was utilized, and once on the ground, the medic showed the ground troops how to place the wounded soldier in the vest. The first casualty lifted was a

lieutenant who had been killed an hour earlier. Before that day was over, the hoist had lifted seventeen soldiers wounded in action to safety.

The continued use of the hoist throughout Vietnam created several improvements. A rigid litter was added for patients who were too seriously wounded to be put in the vest. Neither the vest nor the litter worked very well in the dense jungle areas. To solve this problem the “Jungle Penetrator” was developed. The penetrator was a torpedolike three-foot projectile attached to and lowered from the helicopter. Once on the ground, the seats were pulled down from the bottom half of the projectile, and the wounded was strapped on.¹⁸ The first jungle penetrators arrived in Vietnam in June 1966 and were placed in use after extensive training in October 1966.

The use of the hoist required great skill, training, and courage by the dustoff crews. The pilot usually communicated simultaneously with the ground unit and the medic and the crew chief in the rear of the helicopter, since it was crucial the helicopter remain motionless while hovering 200 feet in the air. The slightest movement was amplified through the hoist cable to the ground. In addition, there was considerable anxiety waiting for the VC to fire on the helpless, hovering helicopters. Often there was darkness or strong crosswinds that made the operation even more difficult. All dustoff and MEDEVAC units operating in Vietnam were using the hoist by the end of 1966. As the jungle penetrator became more popular, the use of the vest was eventually discontinued. The rigid litter was used for patients who were unconscious or too seriously wounded for the jungle penetrator.

Aeromedical evacuation over time almost became routine in Vietnam as the Army dustoff helicopters transported over sixty-four thousand casualties in 1966, and by 1967,

there were sixty-one helicopters providing dustoff support. Colonel Joseph P. Madrano, Medical Service Corps, who had been with the 498th Medical Company (Air Ambulance) in Vietnam, later emphasized the important story was not in the glamour of air evacuation but in its establishment as a routine part of a larger evacuation and treatment system. Certainly, the dustoff crews approached their duties in a straightforward way. As one pilot put it, "I'm not the hero type, just pulled a mission when called, got the poor guy out, took no chances but never turned one down either."¹⁹

At the peak of combat operations in 1968, the Army utilized 116 air ambulance helicopter which transported from six-to-nine casualties at a time. Army dustoff helicopter flights averaged about a thirty-five minute duration.²⁰ Heavy armor plates protected the pilot's seat, cockpit doors, and cabin floor as a precaution even though the Geneva Convention stated that helicopter ambulances should have large red crosses painted on the sides, nose, and bottom. In Vietnam, some crews in certain units only painted a small red cross on the nose; because they believed that the VC would use the large red crosses on the sides for targets, they painted over the other red crosses. Captain Ronald F. Hopkins, a pilot in the 2nd Platoon, 498th Medical Company, said, "We sometimes felt that VC are aiming particularly at the big red crosses on the side of our choppers, but they're probably shooting at any helicopters they see. At any rate, they do not respect the red crosses at all."²¹

Like the commands during the Korean War, the new Army Medical Detachment (Helicopter Ambulance) commanders in Vietnam had many challenges facing them, their personnel, equipment utilization and most of their entire immediate command and control network. Although the some of the challenges were similar, many were different due to

the nature of this war, geography, senior leaders, and evolving doctrine. As units arrived in Vietnam initially, the largest problem was supply-related issues. For example, since the 57th Medical Detachment (Helicopter Ambulance) unit was not authorized a cook, a six-month supply of C-rations was obtained before deploying, and since there were no survival equipment for the helicopters, the men made up kits from the local stores before leaving the US. The typical kit contained a machete, canned water, C-rations, lensatic compass, extra ammunition, signaling mirror, and sundry items they thought they would need in a crisis: and the kit was stored in a parachute bag.²²

Even though the dustoff units were under some form of the Army Medical Department command and control network, there was always the bureaucracy of the senior headquarters, which created challenges. For example, on 8 February 1962, the US Military Assistance Command, Vietnam (MACV) was established which, before MACV, the Military Assistance Advisory Group (MAAG) acted as the senior military headquarters for all military units in Vietnam. The MAAG was comprised of Army, Air Force, and Navy sections, which were responsible for advising their counterparts in the Vietnamese military. As the first Commander, US Military Assistance Command, Vietnam (COMUSMACV), Lieutenant General Paul D. Harkins did not eliminate the MAAG, but kept it for advisory and operational matters in support of MACV. The MAAG also responded to the Commander-in-Chief, Pacific (CINCPAC), for the administration of the Military Assistant Program. The multiple lines of communication created some confusion within US units in Vietnam. For example, since MAAG had operational control of Army aviation units, the senior advisor assigned to a Vietnamese Army Corps could request US Army aviation support, and in fact, the Vietnamese corps

commander could directly request dustoff helicopter support. So, a request for aeromedical evacuation consisted of a minimum of three individuals; the Vietnamese Corps commander; the MAAG representative; and the commander of the helicopter unit. Problems that could not be settled between the advisor and the dustoff helicopter commander were elevated to General Harkins. The dustoff helicopter commander had to deal with and satisfy on a daily basis the Vietnamese Army, MAAG, MACV, and the US Army Support Group. Many commanders faced a futile bureaucratic chain of command.²³

Another difficult command challenge arose in September 1962 when General Stillwell, commander of the Army Support Group, Vietnam, contemplated transferring the 57th from the Medical Service to the Army Transportation Corps. Captain Temperelli, commander 57th at the time, accompanied by Lieutenant Colonel Carl A. Fisher, **USASGV** surgeon and commander of the 8th Field Hospital, visited General Stillwell and convinced him to maintain the current policy for operational command and control.²⁴

The early Army rotary wing aeromedical evacuation system and utilization of dustoff helicopters in Vietnam went through growing pains, as its doctrine from the Korean War era was refined under new and different combat conditions. The 57th Medical Detachment arrived with five UH-1A model Hueys, but they were handicapped by difficulties in obtaining logistical support, particularly for fuel problems and spare parts including main rotor blades. Even the size of the red cross on the helicopter was even debated which led to some pilots believing the bigger it was, the better. In some reports, nonstandard or CASEVAC helicopters at the battle scene would extract

casualties rather than call for dustoff, but this entailed the usual “scoop and run” risks for the casualties. Some of the soldiers who were evacuated by this means died because they did not have somebody to stop the bleeding since they were usually just thrown on. However, reliance on the dustoff system was to the advantage of commanders and their soldiers. It provided medically trained crews, and a sufficiently large helicopter enabled the treatment of these casualties in flight.²⁵

One of the greatest challenges in the early years of the Vietnam War was the resolution for the ownership of the dustoff helicopters. Many senior officers challenged the doctrine of medical control over these aeromedical evacuation units and their helicopters in Vietnam, which was established early on from the Korean War era. The 57th had to fend off officers with desires to ride on the helicopters. A colonel who wanted the detachment to fly him to different sites routinely pestered pilot Captain Robert D. McWilliams, Medical Service Corps, repeatedly to the point that McWilliams finally told the colonel he would have first priority on a ride by becoming a casualty, until then he would not have one.

Since the 57th had the only UH-1s initially in Vietnam, it had no supply of replacement parts for the helicopters, which resulted in many challenges for Captain Temperlli. The unit even had to cannibalize parts from its own helicopters to keep the others flying. For example, during the visit of General Harkins and General Earle G. Wheeler, Army Chief of Staff, two of the 57th’s helicopters were on the ramp with no rotor blades because they had no spares. Situations like these and others discussed earlier in the thesis initially strained the 57th’s ability to employ their helicopters to the fullest potential.

After more aviation units arrived in Vietnam that also had the UH-1s, more problems of a different nature began. Combat units began to demand the 57th's few remaining spare parts. This finally culminated in November 1962, when the 57th actually received instructions to bring all of its starter generators to Saigon. This was to provide parts for a large-scale combat assault, since many of the combat UH-1s had defective tail rotor gearboxes and faulty starter generators. Temperelli personally took the generators to Saigon and reported to Brigadier General Joseph W. Stillwell, commander of Army Support Group, Vietnam, that the lack of the generators on the 57th's helicopters would leave South Vietnam without air evacuation coverage. Temperelli suggested that the 57th could actually fly in support of the assault, but Stillwell refused. Temperelli left without the generators, but with a promise that they would be returned after the assault. Only one of the generators made it back to the 57th ironically, which resulted in the unit being completely grounded from 17 November to 15 December 1962. It was incredible that the only aeromedical evacuation unit in the country was shut down for almost a month. When the one generator was returned, the one operational helicopter was shifted back and forth between Nha Trang and Qui Nhon in an attempt to provide coverage at each location.²⁶

Since the 57th flew few missions in the first year in Vietnam, many people argued there should not be a dedicated dustoff helicopter unit. Some even suggested removing the red crosses and assigning support tasks to the idle medical helicopters. Each time they were informed that they could have priority only if there were casualties.

In 1963, the major disagreement heated up again of the challenges of utilization and command and control of the dustoff helicopters. Colonel John Kligenhagen,

Transportation Corps, commander US Army Support Command, Vietnam, discovered that the aeromedical evacuation helicopters of the 57th were not flying as much as some of the utility helicopters of Klingenhagen's command. Colonel Klingenhagen proposed a plan that would paint over the red crosses of the dustoff helicopters and utilize them as general-purpose helicopters most of the time, which could be called upon for aeromedical evacuation mission if required. Newly promoted Major Temperilli's response was since there was a shortage of fuel trucks in Vietnam, that the Army could utilize fire trucks in the same manor as a general-purpose trucks. Simply empty out the water and fill with aviation fuel. If there was a fire, the truck could drain the aviation fuel and fill with water to put out the fire. Colonel Klingenhagen told Major Temperille that was unacceptable because the trucks could never respond in time; thus, Major Temperille responded that the same was true for his dustoff helicopters.²⁷

Klingenhagen still maintained his philosophy that aeromedical evacuation was an aviation operation that entailed the movement of casualties. Klingenhagen convinced Brigadier General Joseph W. Stillwell, commander of the Army Support Group, Vietnam, that his thought process was correct. Stillwell attempted to remove the operational control of the 57th from the theater surgeon's control that resulted in Temperille having a personal meeting with General Stillwell, at which he able to temporarily squash the transfer proposal, but the efforts still did not cease. When General Stillwell left Vietnam in June 1964, Major Charles L. Brady Kelly, Medical Service Corps, then the commander of the 57th, presented Stillwell with a farewell gift that symbolized the struggle. His medics mounted five red crosses and the tail numbers of the

five dustoff helicopters on a wooden plaque. Kelly remarked; “Here General, you wanted my God-damned red crosses, take them.”²⁸

Dustoff and MEDEVAC crews who flew missions during the Vietnam War had one of the most dangerous and difficult jobs that entailed landing and evacuating casualties under enemy fire, but was routine for these crews by war’s end. One-half of the members of these crews earned Purple Hearts for wounds during their one-year tour of duty. Dustoff and MEDEVAC units in Vietnam flew 496,573 missions from 1962 to 1973, and over 900,000 casualties were evacuated to various medical facilities.

With the knowledge of general utilization of these detachments, platoons, and companies flying to tactical frontline pick-up zones and aid stations to evacuate wounded soldiers, at sometimes great risk to themselves, one will understand the general utilization of these dustoff units, which has developed the groundwork for the utilization of the medical company (Air Ambulance) of today. The utilization of these assets had to change as the war changed from transporting civilians, to the other extreme of transporting deceased soldiers, and to the development of the hoist to overcome the jungles of Vietnam. Along with this knowledge and understanding of all the challenges of these dustoff commanders, helicopter maintenance, and most of all, the constant battle for command and control; one will have the background knowledge of what compelled changes in these units and strengthened the command and control issue of these units to remain under the Army Medical Department. This issue has been a constant struggle for the Army Medical Department during and after the Vietnam War, but the success during this war has ensured the existence of dustoff units and their command and control structure into the future.

Aeromedical Evacuation Employment

Early in January 1963, an Army of the Republic of South Vietnam (ARVN) assault in the Delta convinced many senior officers that the 57th should be tactically employed closer to the fighting. Three American advisors and sixty-five ARVN soldiers were killed, and the 57th helicopters at Nha Trang and Qui Nhon were too far north to help evacuate the wounded. On 16 January, the Support Group ordered the 57th to move to Saigon for tactical operational reasons. The 57th only had one flyable helicopter at the time, but Temperelli was told again that new UH-1B models would be on the way. On 30 January, the 57th arrived at Tan Son Nhut Air Base in Saigon.²⁹ Shortly after the move to Saigon, Major Lloyd E. Spencer took command from Temperelli in February 1963.

In April 1963, two of the 57th's helicopters went on a semipermanent standby mission to the town of Pleiku. Most of their tactical employment missions were in support of small US Army Special Forces teams in the highlands. In late June 1963, one of the helicopters at Pleiku was assigned back to Qui Nhon to continue coverage of that sector again. In I Corps Zone to the north, US Marine H-34 helicopters conducted both combat aviation support and CASEVAC missions. The 57th's helicopters at Pleiku and Qui Nhon provided tactical support for II Corps Zone, and the three helicopters at Saigon covered II and IV Corps Zones, respectively. Even though all four regions of South Vietnam were covered, the evacuation capabilities were thinly employed.

In February 1964, the 57th's third group of new pilots, crews, and maintenance personnel arrived and were under the command of Major Charles L. Kelly. On 1 March 1964, the Support Group ordered the helicopters at Pleiku and Qui Nhon to move to the Delta. Two helicopters and five pilots, now called Detachment A, 57th Medical

Detachment (Helicopter Ambulance), Provisional, flew to the base at Soc Trang. Major Kelly also moved with Detachment A south, since he preferred the field-to-ground duty. At Soc Trang the detachment lived in crude huts with sandbags and bunkers for protection, while the rest of the 57th in Saigon lived in air-conditioned quarters. Despite the differences, most pilots and crew members preferred Soc Trang.³⁰

It was at Soc Trang that Kelly, the first of many dustoff heroes in Vietnam, began the dustoff tradition of valorous and dedicated service. With the buildup of war activity, the 57th for the first time was receiving enough tactical dustoff requests to keep all the pilots busy, the dustoff helicopters were showing signs of age and use, and General Stillwell could not find replacement helicopters for the detachment. The pilots were flying more than 100 hours each month in dustoff missions, and some pilots stopped actually logging their flight hours after 140 hours, so the flight surgeon would not ground them for going over their monthly ceiling. Even so, the dustoff mission was once again under attack by the Support Command, which was pressuring the 57th to put removable red crosses on their helicopters and to begin accepting general-purpose missions. Kelly informed his men that the 57th must prove it is worth and “by implication, the value of dedicated medical helicopters--beyond any shadow of a doubt.”³¹ The 57th not only flew tactical missions in response to requests, but also began to seek missions by flying on a planned circuit of 720 kilometers at night. This plan at many times delivered each night from ten-to-fifteen casualties to their medical destinations, otherwise they would have waited until the next day. During March 1964, this strategy resulted in 74 hours of night flying that evacuated nearly 25 percent of that month’s 450 evacuees. Finally, General Stillwell abandoned the idea of having the 57th use removable red crosses and gave them

unconditional support for the remainder of his tour in Vietnam. He would never again support the dustoff units doing anything other than its evacuation role.³²

Another problem for Kelly at this time was a lack of pilots. The Surgeon General's Aviation Branch tried to have new Medical Service Corps pilots assigned to nonmedical helicopter units in Vietnam. They thought the new pilots would benefit more from the combat training than from dustoff flying. In June 1964, Kelly provided his response:

As for combat experience, the pilots in this unit are getting as much or more combat-support flying experience that any unit over here. You must understand that everybody wants to get into the Aeromedical Evacuation Business. To send pilots to nonmedical unit or anywhere else is playing right into their hands. I fully realize that I do not know much about the big program, but our job is evacuation of casualties from the battlefield. This we do day and night, without escort aircraft, and with only one ship for each mission. The other (nonmedical) units fly in groups, rarely at night, and always heavily armed.³³

By the beginning of 1966, the dustoff crews were very proficient and tactically sound. With four years of experience to learn from, the dustoff missions had evolved into a very specialized method of aeromedical evacuation. Crews were extremely close knit that resulted in each member of the four-man crew having very defined responsibilities. The success of the missions depended upon everyone knowing what they were supposed to do and doing it. The typical request would come from one of several sources. If an American or allied unit had casualties and a strong enough radio, it would call dustoff directly. If dustoff could not be reached directly, the request went to the unit's headquarters and from there to dustoff.

Whichever method was used, certain information had to be given. The necessary information included the exact location of the landing zone; the number and condition of

casualties; the type of wounds; radio frequency and call sign of the requesting unit; any special needs, such as hoist; terrain feature; enemy activity; and weather conditions. The first four were critical in order for the mission to be flown, but two elements in the request were open to interpretation, especially the condition of the wounded and the intensity of enemy fire. Often the conditions of the casualties were exaggerated in order to get them rapid medical evacuation. The other one was the landing zone being reported secure, when it was not, in an effort to assure an aeromedical evacuation mission.³⁴

A dustoff crew on standby could be in the air in less than three minutes after receiving the tactical evacuation request. Once in the air, the pilot would tune to the dustoff frequency and receive his mission directions. While en route the pilot would also find the requesting unit's frequency and notify it the crew was on the way. In addition, the pilot collected vital information about the landing zones. The copilot usually flew while the pilot worked the radio, and in the rear the crew chief and medic prepared for the wounded.

Once in the landing zone, the crew chief and medic would quickly load the wounded or supervise the loading by personnel of the ground unit. When the casualties were loaded, the crew chief would give the pilot the signal to take off, and then the medic and crew chief would treat the casualties. The medic would report the condition of each casualty to the pilot who would radio this information to the nearest medical regulating officer (MRO). Based on this information the MRO would direct the dustoff helicopter to the proper medical facility.³⁵

The number of casualties evacuated by Army dustoff helicopters rose from 13,004 in 1965, to 67,910 in 1966, to 85,804 in 1967, and reached a high of 106,229 in 1969. In

1969, more than 104,112 missions were completed by crews flying about 78,652 combat hours.³⁶ Each time a casualty was moved, he was counted again. In addition, a significant number of the evacuees were US and Vietnamese civilians.

It is important to answer the question: How was the US Army rotary wing aeromedical evacuation assets employed during the Vietnam War? Because the tactical employment of these dustoff helicopters will be the initial doctrine for the tactical employment of dustoff helicopters after Vietnam, which can still be seen in the modern medical company (Air Ambulance). Furthermore, it is important to know who some of the heroes were and the specific missions flown during the Vietnam War, because this mind set of these early dustoff commanders and pilots will build the reputation, refine the doctrine, and develop the tactical employment concepts of today's dustoff companies.

Aeromedical Evacuation Lessons Learned

The Vietnam War was new experience for the American Armed Forces. This was even truer for the Army dustoff units and soldiers. The experience with aeromedical evacuation in the Korean War was only a brief introduction to the Vietnam War. MEDEVAC helicopter flights in Korea rarely flew over enemy territory, and the terrain of Korea did not have the thick jungles and forests that often obstructed aeromedical evacuation helicopters in Vietnam. Army hospitals in Korea were relatively mobile, moving with the troops if required, while in Vietnam almost all hospitals were in fixed locations.

Many people believe that aeromedical evacuation was the bright spot for the US in the Vietnam War. Major General Spurgeon Neel responded, in an oral interview, when

asked what the major lessons gained from the Vietnam War were, in respect to the operation of the aeromedical evacuation system:

It (medical care) is not a subsystem of logistics or a subsystem of personnel; it is a system of its own which involves hospitals and supply and maintenance and evacuation and service and management. It reaffirmed in my mind that if you had a system with helicopters, it would be a lot less expensive and a lot more efficient than a system without the helicopters. I think that when people look back at what were the significant breakthroughs in Vietnam, they are going to talk about the vascular surgery; they are going to talk about the whole blood distribution, and all like this; but I think the one most important contribution that the Vietnam experience made to the nation is proving the feasibility of using helicopter type evacuation to provide a more efficient medical service. I think we have clearly demonstrated that, and I think that in addition to all of the good surgery that was done and all the other heroic things that were done, that is the one BIG thing that is going to profit the nation.³⁷

Helicopter pilots and crews also encountered many problems in their attempts to evacuate casualties. Initially, the poor navigation equipment and shortage of instrument-trained pilots made it difficult to navigate the mountainous terrain of Vietnam. Added to that, the weather often made it even more difficult.

One problem that continued through the war was the ground unit's expectation that the Army dustoff helicopters would transport the dead. Although there was nothing in the **USARV** regulation that authorized this, both the Army Republic of South Vietnam (ARVN) and American soldiers expected it. Nonmedical CASEVAC transport helicopters often evacuated both dead and wounded, and if dustoff helicopters had routinely refused to evacuate the dead, the combat units may have decided to rely exclusively on their nonmedical transports for evacuation of both wounded and dead. Combat operations might have also suffered since the ARVN soldiers often would not advance until their dead were evacuated. So most dustoff helicopters evacuated the dead if it did not jeopardize the life of the wounded.³⁸

The language barrier was also a problem that hindered the work of the helicopter evacuation crews. Almost half of the wounded evacuated by the crews could not speak English, and the crews usually could not speak Vietnamese, Korean, or Thai to communicate with the casualties. Even when the dustoff units shared bases with ARVN units, the language problem was serious.

Pilots and crews also had to deal with the always-present threat of a serious accident. More pilots died from night and weather induced accidents than from enemy fire. The difficulties of flying a night mission were many since roads and towns normally used as aids in navigation were not well lit. Terrain, especially the mountains, became a great danger to pilots who lacked adequate navigation instruments. Adequate lighting at landing zones was virtually nonexistent. All these factors together result in many pilots refusing to fly night mission while a few, like Major Patrick Brady, preferred them.³⁹

The ever-present danger of being shot was always a threat for the Army dustoff helicopter crews. Comparing their loss rate with the nonmedical helicopter crews, the rate was 1.5 times as high. About ninety aeromedical evacuation helicopter pilots were killed by hostile fire or crashed because of hostile fire over the ten-year period. Another 380 were wounded or injured because of hostile fire. Hoist missions were very dangerous missions; one out of every ten hits on dustoff helicopters occurred during hoist missions. The standard mission averaged an enemy hit once every 311 missions, but the hoist missions averaged an enemy hit once every 44 missions, approximately seven times as dangerous.⁴⁰

Another problem for the helicopter pilots was the resentment felt by some of the ground commanders because of their inability to have direct command and control over

the dustoff helicopters and the evacuation process. Even though there was usually a large rank difference between the pilots and the ground commanders, there were few instances when the ground commander succeeded in getting direct support without first going through the proper request channels.

The over classification of casualties was a continuing problem during the Vietnam War. This in conjunction with the lack of proper definition of the evacuation categories caused much controversy. Much of the controversy dealt with the classification. Most ground commanders had a difficult time saying their wounded could wait for twenty-four hours for medical attention, which was the time limit for priority casualties. USARV headquarters changed the regulation to read, "Priority: Casualties requiring prompt medical care not locally available. The precedence will be used when it is anticipated that the casualty must be evacuated within four hours or else his condition will deteriorate to the degree that he will become a urgent case."⁴¹ Some officers, such as Major Patrick Brady, thought there should only be two categories, urgent and nonurgent. He thought all missions should be flown as urgent, resources permitting, and the requestor should be allowed to set his own time limits on nonurgent casualties.

During aeromedical evacuation missions, there were two extreme methods used by the dustoff pilots. Some like Kelly, Bloomquist, and Brady paid little attention to the security of the landing zones, the weather, or the time of day. Others were very cautious. The USARV regulation favored the more cautious approach. There was much tension between the pilots of these two styles of aeromedical evacuation. There was no attempt, and it probably would have done little good, to resolve the tension by any higher command. The regulation left the ultimate decision whether to reject or abort a mission

up to the individual helicopter commander. Major Brady, during his first tour in Vietnam, was told that if he kept taking so many risks he would be killed or earn the Medal of Honor, which he received during his second tour. Although most pilots did not perform to the exact level of Kelly, Bloomquist, and Brady, they did act bravely and honorably and earned widespread respect and gratitude from those who served in Vietnam.

The Army Medical Service Corps aviation officers demonstrated their importance during the Vietnam War as a deployable medical asset. Along with these officers, the dustoff crews also possessed the same determined spirit as their predecessors in earlier wars. Through the persuasiveness of their actions, the courageous dustoff crews had also made the point that they were integral to the Army Medical Department, no different from their predecessor ambulance crews in the Civil War, Spanish American War, World War I, World War II, and the Korean War. The thought and attempts to dislodge them from medical control was a constant struggle, but was doomed to failure. Major Patrick Brady believed that Major Charles Kelly had introduced a uniquely medical orientation to dustoff that made it fundamentally different from general aviation. Kelly's death sealed a tradition of intense pride by dustoff crews in their mission. Aeromedical evacuation was firmly established in the day-to-day support of combat operations in Vietnam. Dustoff helicopters were doctrinally forward deployed into operational areas throughout Vietnam.⁴²

¹Drake, Katherine. "Our Flying Nightingales in Vietnam," *Reader's Digest* 91 (December 1967): 73-79.

²Irving Stone, "Aeromedical Airlift Joins the Jet Age," *Air Force/Space Digest* 51 (March 1968): 66.

³Spurgeon Neel, *Medical Support of the United States Army in Vietnam, 1965-1970* (Washington, DC: Department of the Army, 1973), 13.

⁴John L. Cook, *Dustoff: Illustrated History of the Vietnam War* (New York: Bantam Books, 1988), 21.

⁵Richard V. N. Ginn, *The History of the United States Army Medical Service Corps* (Washington, DC: Office of the Surgeon General and Center of Military History, United States Army, 1997), 321.

⁶*Ibid.*, 320.

⁷*Ibid.*

⁸Neel, *Medical Support of the United States Army in Vietnam, 1965-1970*, 71.

⁹Peter Dorland and James Nanney, *Dustoff: Army Aeromedical Evacuation in Vietnam* (Washington, DC: Department of the Army, 1982): 27-28.

¹⁰Neel, *Medical Support of the United States Army in Vietnam, 1965-1970*, 71.

¹¹Fred M. Clingman, *Analysis of Aeromedical Evacuation Logistics in the Korean War and Vietnam War* (Location: Department of the Air Force, Air University Air Force Institute of Technology, 1989), 85.

¹²Dorland, 49-52.

¹³Neel, *Medical Support of the United States Army in Vietnam, 1965-1970*, 71.

¹⁴Dorland, 48.

¹⁵Cook, 93.

¹⁶Dorland, 55.

¹⁷M. S. White, "Medical Aspects of Air Evacuation of Casualties from Southeast Asia," *Aerospace Medicine* 39 (December 1968): 782.

¹⁸Steve Haldeman, "Jungle Medevac," *Army Digest* 24 (August 1969): 45.

¹⁹Ginn, 321.

²⁰Carl Berger, *The United States Air Force in Southeast Asia, 1961-1973* (Washington, DC: United States Government Printing Office, 1977), 280-281.

²¹Kenneth E. Pletcher, "Aeromedical Evacuation in Southeast Asia," *Air University Review* 19 (March 1968): 22.

²²Dorland, 24.

²³Cook, 25-27.

²⁴Dorland, 27.

²⁵Ginn, 321.

²⁶Dorland, 25-27.

²⁷Ginn, 322.

²⁸Ibid.

²⁹Clingman, 78.

³⁰Ibid., 82.

³¹Dorland, 34.

³²Clingman, 83.

³³Dorland, 37.

³⁴Cook, 101-102.

³⁵Clingman, 88.

³⁶Neel, 9.

³⁷Spurgeon Neel, US Air Force Oral History Interview by John W. Ballard on 3 March 1977, Brook AFB, TX, 32-33.

³⁸Dorland, 79-81.

³⁹Ibid., 81-82.

⁴⁰Ibid., 117.

⁴¹Ibid., 121.

⁴²Ginn, 328-329.

CHAPTER 4

CONCLUSION AND RECOMMENDATIONS

We must be cautious about one important factor. No matter how well-done the research, or how carefully conceived the writing, we can never be completely certain nor can we ever be in complete agreement, about what actually happened in the days of the past. None of us can fully and faithfully recall impressions, perceptions, or emotions, which led to certain decisions. Particularly this is true for the writer who might not have been present at the event or place of decision.¹

Jerome G. Peppers Jr., *Military Logistics*

The Korean and Vietnam Wars are significant chapters in the country's military history, and the Army rotary wing aeromedical evacuation played a vital role in both wars. The overall purpose of this research was to identify and describe the major historical operational factors of the US Army rotary wing aeromedical evacuation system in the Korean and Vietnam Wars and to answer the primary question: How did the US Army rotary wing aeromedical evacuation system, utilized during the Korean and Vietnam Wars, contribute to and shape today's US Army rotary wing aeromedical evacuation system? The subordinate investigative questions were all stated previously in chapters 2 and 3 and were answered in these respective chapters. The primary focus of this chapter is to restate these questions along with a brief answer. In addition, the author will summarize the finding, draw a conclusion, and make recommendations for action and further study.

Subordinate Investigative Questions

What were the organizational structures of US Army rotary wing aeromedical evacuation during each of the wars?

It was apparent early on during the Korea War that the senior leaders recognized the need to develop an Army aeromedical evacuation unit with an official TO&E to support the Army combat troops in Korea in order to relieve the USAF CSAR units from the CASEVAC missions. This was finally accomplished in the establishment of the medical detachment (Helicopter Ambulance) and realignment of this unit to the operational command and control under the Eighth Army Surgeon attached to a corresponding MASH, which resulted in a more efficient application of the aeromedical evacuation helicopters. Many new organizations, such as the medical detachment (Helicopter Ambulance), medical platoon (Air Ambulance), and the medical company (Air Ambulance), were conceived as a result of the Vietnam War experience to meet all the new and unusually complex demands and challenges of that war.

The forward Army rotary wing aeromedical evacuations in both wars were ultimately under the command and control of some form of the Army Medical Department. Although, this was a continuous struggle because of the many attempts to uproot the command and control of these helicopter aeromedical evacuation assets and to move them under the command and control of the Transportation Corps during the Vietnam War. This enabled officers with the most knowledge of aeromedical evacuation doctrine and medicine to make the ultimate decisions concerning the utilization, employment, who should be evacuated, and which location should be chosen.

How were US Army rotary wing aeromedical evacuation assets utilized during each war?

Army rotary wing aeromedical evacuation helicopters and crews played an essential role in the successful aeromedical evacuation of casualties in both the Korean

and Vietnam Wars. The aeromedical evacuation helicopter's utilization changed from a rear-area asset during the Korean War move to a forward-deployed asset during the Vietnam War. In addition, the helicopters during the Korean War were flying just to fixed battalion aid stations; however, during the Vietnam War they transitioned to flying to the actual point of injury. During these forward evacuation missions throughout the Korean War, there was no en route medical patient care, and the patients were transported outside the helicopter. However, during the Vietnam War, the patients received en route patient care, and the actual patients were transported inside the helicopter. These changes would enable the medic to provide patient status to the pilot, who would pass the information over the radio.

During the Korean and Vietnam Wars, radios were utilized extensively for aeromedical evacuation. Radios were used for communicating the requirements to the helicopter units in forward aeromedical evacuation locations during both wars. Throughout the Korean War, communication to the helicopters was transmitted from the corps surgeon's office to a corresponding MASH. On the other hand, during the Vietnam War, the unit suffering the casualties contacted the actual aeromedical evacuation helicopters and or units directly if their radio had the ability to transmit the long distances. If the radios were unable to transmit the distance, the request was sent directly to the requesting unit's headquarters.

How were US Army rotary wing aeromedical evacuation assets employed during each war?

During both wars the Army's rotary wing aeromedical evacuation units were primarily tactical employed forward to support aeromedical evacuation missions. Air

Force CASEVAC helicopters and crews initially completed the tactical employment forward supporting the Army aeromedical evacuation system during the Korean War. This was due mainly to a lack of official Army aeromedical evacuation units, helicopters, and trained pilots. Army helicopters and crews eventually took over the aeromedical evacuation forward missions. Army rotary wing aeromedical evacuation was not done extensively until the Vietnam War. During the Vietnam War, Army dustoff and MEDEVAC helicopters were the primary means of forward aeromedical evacuation of casualties. Many medical officers with combat experience in Vietnam agreed that the reliance upon the helicopter was not a condition that was limited to the peculiarities of the Vietnam War. The Vietnam War era officially ushered in the rotary wing platform as a valuable resource for responsive and efficient patient evacuation.

What rotary wing aeromedical evacuation lessons did the US Army learn in each war?

Demanding situations during the Korean and Vietnam Wars exposed several areas in which various lessons were learned. Confusion often existed in both wars as to the command and control and utilization of these Army rotary wing aeromedical evacuation units. To prevent confusion as to responsibility and accountability, a thoroughly coordinated command and control chain of command should be established. This would require a thoroughly coordinated forward aeromedical evacuation plan that should identify the responsibilities of each key unit. The plan should be provided to all units, so that the responsibilities are well known to all concerned. In addition, the enormous responsibility of Army rotary wing aeromedical evacuation units demands that they be staffed and equipped as close to 100 percent of authorization as feasible.

The helicopter was first employed as a medical evacuation platform on a large-scale basis during the Korean War. The advantages of using the helicopter over ground transportation was one of the most valuable lessons learned during the Korean War, and that lesson was validated and expanded during the Vietnam War. The Army rotary wing aeromedical evacuation units transported the casualties to medical care faster and in a more stable environment than did ground transportation. The use of the helicopter reduced the number of medical facilities and medical personnel required, allowing care that is more specialized.

The need is for ground commanders to be educated, so they will realize how important aeromedical evacuation planning and rehearsal is for them and their troops. Although the evacuation of casualties is a medical problem, the ground commanders benefit when the casualties have been evacuated in a timely manner. For aeromedical evacuation to be successful, the support of the ground commanders is an absolute necessity.

Aeromedical evacuation had an exceedingly positive effect on the soldiers that were wounded, injured, or sick in Korea and Vietnam. A great sense of confidence and security existed because aeromedical evacuation would soon arrive and evacuate those in need to a medical facility to receive care. In addition, there was a requirement for all aeromedical evacuation units with a similar purpose and mission to be under a single command and control headquarters. This would prevent duplication of efforts, permit more helicopters to be available, prevent confusion about responsibilities, and finally allow maximum use of the limited medical units and personnel available.

How were US Army rotary wing aeromedical evacuation lessons learned from the Korean War applied by the US Army during the Vietnam War?

The use of the helicopter as an aeromedical evacuation platform during the Korean War was a vital lesson that was very successfully applied during the Vietnam War. Although the lessons of the aeromedical evacuation helicopters were applied during Vietnam, many details were ignored. Maintenance and equipment support for the Army rotary wing aeromedical evacuation helicopters was lacking in Vietnam, just as it had been during the Korean War. A lack of trained technicians initially existed in Vietnam, just as it did in Korea. An obvious definition of responsibilities, as to command and control, who could be evacuated, and how to employ the assets existed during the Korea War. In Vietnam, the same was true initially during the early years of the war. The overall lessons learned from aeromedical evacuation during the Korean War were for the most part not utilized as learning tools in the Vietnam War. Although Army rotary wing aeromedical evacuation was an obvious success during both wars, it was through the personality of the commanders, unrelenting work, and creativity of officers and soldiers during these wars that the missions were accomplished.

Further Research

The research discovered significant changes and transitions in the area of Army rotary wing aeromedical evacuation during the interwar period between the Korean War and the Vietnam War that should be researched. This would actually reveal another subordinate question: What significant changes took place in Army rotary wing aeromedical evacuation during the interwar period from the Korean War to the Vietnam

War? The author identified the question for further research, since it could actually be another thesis in itself.

Conclusion

The conclusion from the analysis of Army rotary wing aeromedical evacuation throughout the Korean and Vietnam Wars was that both were interconnected which shared a common theme of dedicated casualty evacuation that evolved to meet the new specific demands and nature of those wars. During both of these wars, the fundamentally new doctrine and organizational structures proved successful as the units evolved. This evolution was instrumental and relevant in the development of the current US Army Medical Department's evacuation doctrine and unit organization. With minor modifications (but numerous name changes), the evolution from Korea to Vietnam and from Vietnam to present is virtually the same framework for today's fleet today. The current Army Medical Company (Air Ambulance) seen today is a direct result of the unit's organization structure, utilization, employment, and lesson learned from the Korean and Vietnam Wars. The concepts and doctrine developed during these wars influence the modern-day units of employing aeromedical evacuation helicopters far forward on the battlefield, having one medical company (Air Ambulance) in a direct support role of one per division and one per corps and the organization structure of the fifteen helicopter companies. The requirement evolved out of necessity to develop a better helicopter to transport the casualties. During the Korean War the H-13 helicopter with one engine, no radios, no lights, and no en route patient care was utilized; it carried two litter patients outside and maybe one patient inside the helicopter during flight.

During the Vietnam War the UH-1 “A” though “I” model helicopters with one engine with more power, radios, navigation aids, lights, hoist, and en route patients care by a medic were utilized; they carried up to six litters and one ambulatory or a mixed combination of patients inside the helicopter during flight. Finally, the modern-day UH-60A and UH-60Q helicopters, which have two high-performance engines, greater speed, greater lift capabilities, aircraft survivability equipment, complex radios and navigation equipment, oxygen, great lift capabilities, and greater patient capabilities. These helicopter choices evolved because of certain lessons learned and commander challenges from both wars.

The current doctrine for aeromedical evacuation units is they are under the command and control of a medical headquarters; this is the direct result of their efficiency, effectiveness, and responsiveness during the Korean and Vietnam Wars. The modern-day Army aeromedical evacuation units will always have new challenges in the future, but future leaders, like Majors Kelly, Bloomquist, and Brady, will always be present to face those challenges.

Recommendations

During future conflicts and wars similar to the Korean and Vietnam Wars, Army rotary wing aeromedical evacuation is likely to be the only viable solution to the problems facing the US military of transportation of the casualties in a timely manor. It should not be thought of as the only method of evacuation to be utilized and employed when other systems or platforms cannot be used. Army rotary wing aeromedical evacuation should be planed, developed, rehearsed, and designed as the primary method of evacuation of casualties. One centralized command and control should be established

with the responsibility for the entire aeromedical evacuation process and system within the combat zone.

The Army rotary wing aeromedical evacuation system set the standard for the entire military during both wars for casualty evacuation. The Korean and Vietnam Wars were examples of successful development of the casualty evacuation system, which taught the US much about Army rotary wing aeromedical evacuation. Since it was so successful during this time, it actually was instrumental in transforming the civilian emergency care system. The Departments of Defense, Transportation, Health and Education, and Welfare joined in a project called Military Assistance to Safety and Traffic (MAST) in order to establish a civilian rotary wing evacuation system equal to the system utilized by the Army. In one of the program's early successes, Army helicopters piloted by Vietnam veterans flew more than four-hundred missions evacuating families from a flooded area after hurricane Agnes in June 1972.²

In order for the lessons learned to become actual lesson practiced, they must be required to be studied and trained at the unit level at every opportunity. The US Army Medical Department's rotary wing aeromedical evacuation system must prepare for other challenges that may lie ahead. While cognizant that history never repeats itself exactly and that no Army ever profited from trying to meet a new challenge in terms of the old practices, the Army rotary wing aeromedical evacuation system nevertheless stands to benefit immensely from the study of its experiences during the Korean and Vietnam Wars. This study should be of value in serving the Army Medical Department to develop future operational concepts, while at the same time contributing to the historical record.

¹Jerome G. Peppers Jr., *Military Logistics: A History of United States Military Logistics, 1935-1985* (Huntsville AL: Logistics Education Foundation Publishing, 1988), need a page no.

²“Military Medicine,” *American Heritage* 35 (June 1984): 77.

APPENDIX A
KOREAN WAR VIGNETTES

An example of one of the Korean War Army MEDEVAC mission occurred 13 January 1951, when the entire 2nd Helicopter Detachment, commanded by Captain Albert C. Sebourn, flew to help a battalion-sized unit surrounded by Chinese troops at a school near Choksongni. Taking along a MASH doctor who had asked for a helicopter ride, Sebourn flew to the site, landed in the schoolyard, and shut down his aircraft, only to see it damaged almost immediately by a mortar round. In the school, the unit commander asked them to take his wounded and bring back ammunition. However, no one went anywhere that day because the aircraft's battery was dead, and Sebourn and the doctor slept under siege that night.

When Captain Joseph W. Hely learned what had happened, he decided to go after Sebourn. At the request of the Eighth Army, he tried to fly to the school with ammo in both litter pods. Nevertheless, a snowstorm prevented his departure. However, the next day, he made it. Taking machinegun fire on landing, he delivered the ammunition, loaded two casualties, and jump-started Sebourn's helicopter. The two helicopters made it out safely.

That same day, Hely returned with two other 2nd Helicopter Detachment's aircraft, bringing in food and ammo while taking out casualties; each flight in and out was shot at. On his last departure, Hely reportedly marked the perimeter with smoke and radioed attack instructions to an Air Force fighter. It is not explained what he used for a radio, since the H-13 did not normally have one.

Another evacuation was made the next morning before the surrounded unit withdrew. Sebourn and Hely earned the Distinguished Flying Crosses for their actions.¹

A specific tactical Army MEDEVAC mission of a different nature took place in the Iron Triangle; the 4th Helicopter Detachment based at 8076th MASH was notified to pick up two 7th Division casualties. Within three minutes of receiving the request, the helicopter with a CBS news reporter onboard by special permission was on its way. As aid and litter teams brought the casualties down from the hill, other soldiers laid out marker panels on a paddy field. The helicopter landed thirty minutes after the request and just as the litters arrived along with Chinese mortar fire. One shell landed just thirty feet from the helicopter. After US artillery was called in on the mortars, the wounded were loaded, and the pilot and reporter jumped into the smoke-filled cockpit without even checking for damage. Using a flashlight borrowed from an infantryman to read the instruments, the pilot flew his casualties back to the MASH at 21:20.²

¹“Seeking the Roots of Dustoff-Helicopter Proves Self as Life Saver in Korea War ... Part Two,” 6.

²Robert F. Futrell, *The United States Air Force in Korea, 1950-1953*. (Washington, DC: Office of Air Force History, 1983), 589-590.

APPENDIX B
VIETNAM WAR VIGNETTES

One of the most interesting helicopter jungle extraction methods was actually tested at Fort Bragg, North Carolina. It required the ground troops to strap a large collapsible box to the upper branches of a large tree. The box was dropped to them from the evacuation helicopter, and after strapping the box to the tree, the troops were to climb down and haul the injured or wounded soldier back up the tree to the box. They were to wait while the helicopter hovered over the box and the helicopter crew extended a four-foot ladder down to the box. The injured or wounded soldier would then be taken aboard, but this concept was ridiculous and too difficult to execute.¹

The previous idea along with many others was not acceptable. The initial idea of trying to bring the casualty to the helicopter just was not practicable and led to the final solution: bring the helicopter to the patient. To accomplish this, a hoist was introduced as it was mounted inside the cargo area and anchored to the floor and ceiling behind the copilot's seat. This enabled the hoist to swing outside the helicopter, so the cables and equipment were clear of the skids. It was powered by an electric winch and could lift 600 pounds 200 feet. The hoist missions required the helicopter to hover over the wounded and lower the cable to the ground. On the lower end of the cable was a vest. The wounded soldier was placed in the vest and hoisted up to the waiting helicopter. The addition of the hoist added new capabilities, but also increased the danger because it required the helicopter to hover, motionless, above the pickup site, while the operation took place in a combat zone.²

In November 1966 Captain James E. Lombard, Medical Service Corps, and First Lieutenant Melvin J. Ruiz, Medical Service Corps, while evacuating casualties near Saigon, became the first crew to be shot down on a hoist mission. As Lombard hovered and began lowering the cable, they came under fire, and he broke off the hover. With hydraulics gone and the transmission growling, they headed to a clear zone just a few minutes away. The helicopter traveled 150 meters before the engine quite, forcing Lombard to autorotate the burning helicopter to the ground. Fortunately, the crew survived and was met by friendly forces. Only two days later Lombard was again shot up on another hoist mission.³

Up to this point, the 57th Medical Company (Helicopter Ambulance), the first helicopter ambulance unit in Vietnam, worked without a tactical call sign. They simply used Army and the tail number of the helicopter. If a pilot was flying a helicopter with a tail number of 63-12345, his call sign was Army 12345 as an example. They also communicated internally on any vacant frequency they could find. Major Spencer, commander of the 57th, decided this system was not acceptable for the tactical employment of his unit. He went to Saigon and visited the Navy Support Activity (NSA), which controlled the *Signal Operations Instruction Book* that listed all the unused call words. Many entries “bandit” were more suitable for assault units, but one entry, “dustoff” seemed appropriate for the 57th’s aeromedical evacuation missions, since the countryside was dry and dusty the helicopter pickups often blew dirt, blankets, and shelter halves all over the people on the ground.⁴ By giving the 57th some identity, Spencer by accident had given a name to one of the most magnificent missions in the Vietnam War that others would later give meaning to the name as the popularity of

helicopter aeromedical evacuation grew. Late in the summer of 1963, the NSA decided to reassign all of the call signs in Vietnam. Dustoff was given to another aviation unit, the 118th Airmobile Company. Despite the urging of the NSA, the 57th refused to give up the call sign and the 118th refused to use it. The resistance was successful and the call sign remained with the 57th.⁵

Even though the 57th retained its own call sign, it still had no formal mission statement. The pilots worked on the assumption that their main purpose was to evacuate wounded and injured US military and civilian personnel. It continued to provide evacuation service to the Vietnamese when resources permitted. Major Spencer, like Major Temperelli, continued to receive pressure from ground commanders to use dustoff helicopters for administrative purposes, but finally with General Stillwell's support, he kept the 57th focused on the medical mission.

On 1 July 1964, Kelly was making an approach to pick up wounded soldiers from a particularly dangerous area when the enemy opened fire. Kelly was repeatedly told to withdraw but he refused. A US advisor on the ground gave him a direct order "get out, dustoff, get out." Kelly replied, "When I have your wounded."⁶ A few moments later Kelly died with a bullet wound through his heart. Dustoff became the call sign for all Army aeromedical evacuation missions in Vietnam and "when I have your wounded" became the personal saying of many of the dustoff pilots who followed Kelly.

Kelly became a legend, revered for his aggressive leadership and fearlessness in evacuating casualties. Ironically, his loss ensured that the Army's aeromedical evacuation operations would use his mold, one characterized by unarmed, single-ship operations without escort helicopters by aviators who, like Kelly, were experienced in night flying.

In fact, the flying skills of dustoff crews were such that some general aviation pilots believed there was a special school to teach their flying techniques. Kelly was posthumously awarded the Distinguished Service Cross.⁷

After Kelly's death, Captain Paul Bloomquist, another dustoff hero, became the commander of the 57th in Saigon. Captain Patrick H. Brady went to Soc Trang to take over Detachment A as the detachment commander. Assuming the 57th would now select its missions more carefully, the commander of the 13th Aviation Battalion in the Delta asked Captain Brady what changes would be made, now that Kelly was gone. Brady told him that the 57th would continue to fly missions exactly as Kelly had taught them, accepting any call for help.⁸

In an interview by *Time Magazine*, US Army Major Paul "Big Ugly Bear" Bloomquist was asked why he continued to stay in Vietnam. Major Bloomquist had flown 750 combat missions, been wounded three times, won twenty-seven citations, and rescued more than 800 wounded soldiers at the time of the interview. He also volunteered for a second tour of duty and refused to take leave after the first fifteen months he was in Vietnam. He replied:

Because, I like the excitement. And because I think that my crew and I can do this job better than anyone else. It is the job that counts above all, and it is the job that somebody has to do.⁹

On 6 January 1968, Major Patrick H. Brady, probably the best-known dustoff hero of the Vietnam War, Medical Service Corps, second tour in Vietnam, launched on his first mission of that day to evacuate two wounded South Vietnamese soldiers while under fire in a heavily fogged-in valley. This was after an attempt by another dustoff crew had failed. Brady tipped the helicopter over at an angle so that the rotor would blow

the fog away in front of the helicopter enough so his crew could make out the trail. Meanwhile he flew sideways so he could see more clearly out the open side window. On the second mission that same day, Brady responded to a call from a company of the 23d (Americal) Division that was trapped in a minefield in the Hiep Duc Valley where the soldiers were pinned down by six North Vietnamese companies supported from the surrounding hills by mortars, rockets, and antiaircraft weapons. Again, a previous dustoff attempt had failed. Brady required four flights to extract the casualties, which were within fifty meters of enemy soldiers at a site where two helicopters had already been shot down. The brigade commander had tried to dissuade Brady from returning after he had delivered the first load of casualties to the fire support base overlooking the valley. Soldiers there had witnessed the entire panorama. They cheered as Brady landed, while the division surgeon, who met the ship, Lieutenant Colonel William S. Augerson, Medical Corps, saluted.¹⁰

On Brady's third mission, he picked up casualties from an American unit surrounded southeast of Chu Lai. He approached the pickup zone by flying backwards to protect the cockpit from enemy fire, but the helicopter was badly damaged by gunfire that resulted in the controls being partially shot away and in the need for another helicopter. For the fourth mission that day he volunteered to pick up casualties in another minefield. A mine exploded during the pickup, wounding two of his crew and damaging yet another helicopter, but six casualties were successfully evacuated. He changed helicopters again and completed two more urgent missions before the day was over. Brady evacuated fifty-one casualties on this day. For his incredible actions, President Nixon presented the Medal of Honor in October 1969 to Major Patrick H. Brady, Medical Service Corps, the

first Medical Service Corps officer to receive the nation's highest honor and the only Medical Department officer to win the award in Vietnam.¹¹

Officers, such as Chief Warrant Officer Four (CW4) Michael J. Novosel, were representative heroes of the warrant officer dustoff pilots. Novosel had originally enlisted in 1941, completed flight school, and as an Army Air Corps Captain commanding a squadron in the Marianas, had flown in the covering force for General MacArthur's plane as it landed in Japan. He was recalled to active duty as an Air Force major in Korea and again returned to civilian life when that war ended. At the time of the early buildup in Vietnam, he was flying for Southern Airways and held an Air Force Reserve Commission as a lieutenant colonel. Prevented by age from returning to active duty in the Air Force, Novosel came into the Army in 1964 as a warrant officer dustoff pilot.¹²

By 1969, the forty-eight-year-old aviator was on his second tour in Vietnam and on the afternoon of 2 October 1969, CW4 Novosel and his crew responded to a dustoff request from ARVN units pinned down in an enemy training camp west of Saigon near the Cambodian border. Novosel was forced out of the area by enemy action six times and each time came back on another approach. After several such pickups and eleven hours of flying, Novosel himself wounded at point-blank range by an enemy soldier managed to evacuate twenty-nine wounded soldiers. President Nixon presented the Medal of Honor to Novosel in 1971 while his son, Michael Novosel Jr., also a dustoff warrant officer, looked on. The younger Novosel had joined his father in the same unit at the end of 1969, and from January to April 1970, they flew together.¹³ This overall level of dedication was found in many of the dustoff units in Vietnam.

¹John L. Cook, *Dustoff: Illustrated History of the Vietnam War* (New York: Bantam Books, 1988), 105.

²Fred M. Clingman, *Analysis of Aeromedical Evacuation Logistics in the Korean War and Vietnam War* (Location: Department of the Air Force, Air University Air Force Institute of Technology, 1989), 92.

³Richard V. N. Ginn, *The History of the United States Army Medical Service Corps* (Washington, DC: Office of the Surgeon General and Center of Military History, United States Army, 1997), 325.

⁴Peter Dorland and James Nanney, *Dustoff: Army Aeromedical Evacuation in Vietnam* (Washington, DC: Department of the Army, 1982), 27-28.

⁵Cook, 48.

⁶Spurgeon Neel, "Dustoff-When I Have Your Wounded," *United States Army Aviation Digest* 20 (May 1974): 7-8.

⁷Ginn, 322.

⁸Dorland, 37-38.

⁹"Gamest Bastards of All: The Medical Evacuation Team," *Time Magazine* 80 (2 July 1965): 25.

¹⁰Ginn, 327.

¹¹*Ibid.*, 326-327.

¹²*Ibid.*, 324-325.

¹³*Ibid.*, 324.

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