

Part One

Fulfilling a Need: From Conception to Combat

Chapter One

An Honorable Heritage

“When I have your wounded.”

Maj. Charles Kelly¹

His name is Andrew Russ. A tall, soft-spoken Californian, he is a brand new 2d Lt. in the U.S. Army. His commission was earned through the Reserve Officers’ Training Corps program at San Diego State University, where he graduated in 2005 with a degree in biology.

His initial interest was medicine. But he comes from a family of aviators; his dad was a Navy F-4 fighter pilot and his older brother is already in the Army flying the OH-58D, Kiowa. He could not resist the call to fly as opposed to being a physician.

“It has kind of been a family thing,” Russ admitted quietly.

Yet he took his commission in the U.S. Army Medical Service Corps (MSC) because he wanted to fly MEDEVAC as opposed to Navy fighters or Army attack helicopters. Why?

His answer was self-deprecating: “It’s a feeling you get when you help someone else. In college, I worked as an emergency medical technician on an ambulance and in an emergency room.... I liked actually being out there to help bring them from where they are to sustained care, because that is really one of the most important parts, getting them there. It’s a feeling of satisfaction you get when you take someone from where they got hurt ... to where someone else ... can fix them.”²

Russ trained on Black Hawks, graduated as the only MSC officer in a class of 50, and reported to his MEDEVAC Company at Fort Drum, New York. It belongs to the 10th Mountain Division. That unit is heavily involved in the Long War against terror. Russ will see hard duty in places across the globe. He understands the heritage of MEDEVAC and what it will require of him.



2d Lt. Andrew Russ at Fort Rucker, Alabama, in 2006.
Source: Author.

“Somebody has to do it,” Russ said. “Selfless service is one of the seven Army values.... I would like to be part of that heritage.”³

He and so many other young men and women like him are the future of MEDEVAC.

Early Efforts

The MEDEVAC heritage to which Russ and his contemporaries aspired to join was slow to develop and had its tribulations and challenges. From the very beginning of modern aviation, the early pioneers questioned the utility of aircraft designed around a rotating wing. Even Orville and Wilbur Wright delved into the concept.

“Like all novices,” Wilbur Wright wrote, “we began with the helicopter, but soon saw that it had no future, and dropped it ... If its engine stops, it must fall with deadly violence, for it can neither float like the balloon nor glide like the aeroplane. The helicopter is much easier to design than the aeroplane, but it is worthless when done.”⁴

Others were not so despairing. Igor Sikorsky, eventually considered the “gentle genius” of the helicopter community, built his first helicopter in the Ukraine in 1909. He abandoned the project because he could not find an engine that could produce enough power to generate a useful lift capability. This was the fundamental problem, and it would require many years to overcome. Yet he intuitively sensed that when man learned how to hover and take off and land vertically without needing a runway or prepared field, he would truly be able to exploit the third dimension as he and the other aviation pioneers dreamed to do.⁵

Different aviation pioneers saw the utilitarian value of using “fixed” wing aircraft for medical evacuation. In 1910, Capt. George H.R. Gosman, U.S. Army Medical Corps, actually built an aircraft modified to show that casualties could be carried. He submitted a report to the War Department but it was not acted upon. Two years later, the Secretary of War did review another such proposal, but rejected it because he did not feel that aircraft were sufficiently developed for such duty.⁶

During World War I, several countries did experiment with the use of aeroplanes for MEDEVAC. These countries came to the same conclusion as the U.S. Secretary of War: the need was compelling, but the aircraft were not technologically up to the tasking. The U.S. Army also continued its low-scale developmental efforts. By 1920, four DH-4s were modified to carry two litter patients and a medical attendant. Some were dispatched to duty along the border with Mexico, where U.S. Army troops were keeping a wary eye on developments in Mexico. After several soldiers were so evacuated, an after-action report stated that, “No longer will the luckless recruit ... be jolted for hours in a rough riding automobile over cactus and mesquite, but borne on silvery wings, cushioned by a mile of air, will be conveyed in the twinkling of an eye to the rest and comfort of a modern hospital.”⁷

In 1921, the U.S. Army took delivery of a Curtis Eagle airplane that carried four litter and six sitting patients. The aircraft was dispatched to ferry patients from Mitchell Field, New York, to Bolling Field, Washington, DC. Unfortunately, the aircraft was flown too close to a severe electrical storm and crashed, killing all seven on board. This one accident had a chilling effect on any further development of aircraft for aeromedical evacuation before World War II.

However, intellectual efforts continued. One Medical Corps officer, Col. Albert E. Truby, did an inclusive study of airplane ambulance. He predicted that airplane ambulances would be used in the future for the following purposes:

1. Taking doctors to crash sites and bringing the wounded back to hospitals.
2. Transporting patients from isolated stations to large hospitals where they could receive better treatment.
3. Transporting seriously wounded soldiers from the front to hospitals.
4. Transporting medical supplies in emergencies.⁸

Another officer, Lt. Col. G.P. Lawrence, Medical Corps, published an article in the *Military Surgeon* in which he pointed out that any fixed wing aircraft would be limited by the availability of prepared runways. He suggested that the autogiro, a hybrid aircraft with a fuselage-mounted engine for forward thrust but a free rotating or rotor wing for lift, be modified for evacuation duties. It only needed a short runway. They were developed in Europe, and several were imported to the United States in 1928.

Lawrence's article also suggested a tactical plan for incorporating the use of the autogiro in current Army medical regiments. He especially recommended them for medical teams accompanying fast moving tactical formations. Thinking grandly, he also proposed the establishment of an "Ambulance Wing" consisting of 300 officers, 2,300 enlisted troops, and 200 autogiros to directly support a field army. The result would be a vast reduction in evacuation time.

Lawrence wrote, "The patient handled by autogiro would find himself in the general hospital at one jump in approximately half an hour from the time he left the collecting station..." No records indicate that his suggestion was ever acted on or even reviewed.⁹

World War II

When the United States was drawn into World War II, aircraft production was vastly expanded. A variety of aircraft of all sizes was produced and deployed to the far stretches of the globe. Field commanders intuitively used the fixed wing cargo and utility aircraft for medical evacuation. Visionaries, however, had not given up on helicopters. Igor Sikorsky had continued his efforts, as had 300 other companies. All were stimulated by massive increases in military procurement spending and tried to produce a usable helicopter. He led them all when he produced and flew the two-place VS-300, the first successful helicopter to fly in the United States, on 14 September 1939. The United States and Great Britain eventually procured the VS-300, and it served with both of their military forces as the R-4. He considered the unique lifesaving capability of the helicopter as one of its



World War II R-4 Helicopter.
Source: Army Medical Department Museum.

most important attributes.¹⁰

Four of those R-4s deployed with an air commando task force called Project 9 (subsequently renamed the 1st Air Commando Group) to the China–Burma–India Theater in 1943 to support allied forces operating against strong Japanese forces that had attacked into northern Burma. It was co-commanded by Col. John Alison and Col. Philip Cochran. Among their many assigned tasks was the rescue of downed airmen and evacuation of wounded.

Unfortunately, the R-4s did not adapt well to combat. Commanders immediately recognized that they were flimsy and underpowered for the challenges they faced. One was lost en route to the theater when the C-46 carrying it crashed. Another was destroyed when the pilot flew into a power line on a training flight. (This unit ultimately grew into the Air Force Special Operations Command, which now operates worldwide.¹¹)

As the battles raged in the jungles of Burma, calls for medical evacuation became constant. Fixed wing aircraft from L-1s to C-47s were sent in when airfields could be hacked out of the jungles. They would deliver medical supplies and haul out wounded. This had an immediate and positive effect on troop morale.

“A man could be wounded anywhere in the battle area, and that night, he would be in a hospital in India,” wrote Alison in an after-action report. On many occasions, where possible, smaller aircraft would land near the battle lines and bring out the most critical casualties. More than 350 soldiers were saved this way.¹²

On 21 April 1944, one of the Project 9 L-1 light observation aircraft carrying a pilot and three wounded British troops was shot down and crashed in a rice paddy in Burma. The paddy was not adequate for a fixed wing aircraft, but a small, open area was available nearby. The evacuation mission was assigned to 1st Lt. Carter Harmon. “Send the eggbeater...,” the alerting message read. Harmon would fly one of the two remaining R-4s to attempt to evacuate those wounded and rescue the pilot. Because of the distances involved, Harmon needed the maintenance personnel to rig an additional fuel barrel onboard so that he would have enough range to get to the downed men and back.

Harmon was concerned that the 175-horsepower engine would not be up to the task. He had to fly over some high terrain. The thinner air at higher altitudes reduced lift capability and occasionally caused the engine to stall in the hover. Too little lift, too little oxygen. He knew that he was pushing his aircraft to its physical limits, but strong Japanese forces were searching for the American pilot and his three British wounded.¹³

To reach the survivors, Harmon leapfrogged through a series of airfields. At one, air commando mechanics removed the fuel barrel and installed a wing tank from a destroyed L-5 observation aircraft. This gave him the capability to overfly his last fuel stop.

While the mechanics were installing the tank, Harmon coordinated a recovery plan with other Project 9 assets. Using a map of the area, they identified a sand bar—which was in a river about 10 miles from the survivors—that was long enough for small L-5 fixed wing aircraft to land and take off. Harmon could only bring out one survivor at a time. He would shuttle all four to the sand bar for transfer, thereby saving a great deal of time.

With the plan set and the new fuel tank installed, Harmon took off. He was led to the crash site by one of the L-5s. As it orbited above, he descended into the landing zone and loaded the first survivor. When all was ready, he pushed the engine to full power and watched the rotor tachometer exceed the “redline.” The shuddering aircraft slowly lifted and cleared the trees. Harmon then delivered the wounded soldier to the sandbar and repeated the process a second time. Both survivors were then trans-loaded to L-5s and flown to a main airfield that had a hospital.

When Harmon tried to take off for the third recovery, the engine overheated and had to be shut down. The next morning, the engine was cool enough to start and Harmon recovered the last two persons.¹⁴

Harmon remained at the forward airstrip for another 11 days and recovered many more soldiers from the jungle. He flew 23 missions before advancing enemy units forced the abandonment of the airfield, and he was ordered to redeploy farther to the rear. The value of the helicopter as a key initial instrument in the evacuation chain had been established. This was tempered with the stark demonstration that the immutable laws of aerodynamic physics defined what helicopters could and could not do.¹⁵

Other commands heard about Harmon’s success. In late June 1945, as U.S. Army forces battled the Japanese Army in the Philippines, helicopters (and fixed-

wing aircraft) were used to evacuate wounded soldiers of the 38th Infantry Division, which were engaged in the bitter mountain fighting on Luzon.

The helicopters were a mix of R-4 and newer R-6 aircraft assigned to the 5th and 6th Aviation Repair Units, and they were actually located on U.S. Navy Liberty-Class cargo ships anchored in Manila Bay. After an adequate landing zone was hacked out of the jungle, the helicopters—flown by 1st Lt. James Brown, 1st Lt. Robert Cowgill, 1st Lt. John Noll, 2d Lt. Louis Carle, and 2d Lt. Harold Green—were dispatched and recovered 70 critically wounded personnel, who were then



2d Lt. Louis Carle flying an R-6 in the Philippines in World War II.
Source: Dustoff Association.

delivered to hospitals within 30 minutes. Unlike the Harmon recovery, these helicopters encountered sustained enemy resistance, and several were damaged. The effort did demonstrate the efficacy of using helicopters to evacuate larger numbers of wounded troops. The pilots were awarded Air Medals for their efforts.¹⁶

In his after-action report, the Surgeon from the Air Service Area Command, Maj. E.T. Hauge, recommended that sections of eight helicopters be assigned to each division for aeromedical evacuation. Later, when planning for the possible invasion of Japan, the casualty evacuation plan included the use of helicopters in formed rescue squadrons.¹⁷

These vignettes were only isolated events. Helicopters were a rarity in this war. Only 385 were produced—mostly in 1944 and 1945—and few made it overseas into the combat zones.¹⁸ Yet their value as critical additions to the evacuation chain was immediately obvious to all who cared to see. Yet the end of the war removed much of the emphasis for their further development and use.

Post–World War II

The Army continued some developmental work with helicopters. However, the major realignment of military forces, which occurred in 1947 and saw the U.S. Air Force created as an independent service, caused great uncertainty about who would perform what tactical missions. The Secretary of Defense, James V. Forrestal, addressed these issues in 1948 at a roles-and-missions meeting held in Key West, Florida. The agreements signed there and implementing instructions called the Joint Army Air Force Adjustment Regulations 5-10-1, which were published in 1949, delineated what tactical missions Army aviation could fly. They were limited to observation, reconnaissance, local messenger and courier service, emergency wire laying, and evacuation. Furthermore, the Air Force also controlled procurement, research and development, and much of the training and maintenance of Army Aviation.¹⁹

In 1949, a young Maj. Spurgeon Neel, Medical Corps, was serving as the surgeon of the 82d Airborne Division. A few years before, he had seen an old gyrocopter that had been used as a test bed MEDEVAC vehicle. He watched the continued development of the early helicopters and later participated in a test of a Sikorsky H-5 as an evacuation platform.

Afterwards, he stated, “We concluded that it was not only feasible, but it was most desirable that this be pursued.” He briefed the results of his test to his division superiors, but nothing was done. However, it generated within him a personal dedication and passion to develop within the Army and perhaps the entire nation a fully developed MEDEVAC capability. He would act on that passion many times throughout his distinguished career. However, Neel’s initiative was an isolated event. The real motivator for MEDEVAC would appear in the frozen fields of Korea just a few years hence.²⁰



Maj. Gen. Spurgeon Neel, the patron saint of MEDEVAC.
Source: U.S. Army.

The Korean War

On 25 June 1950 the military forces of North Korea attacked South Korea. North Korea was initially opposed by South Korean forces, which could not hold. The South Korean government requested support from the United States and United Nations (UN). The UN responded favorably and requested support from member nations. The United States pledged support, and within days U.S. military units assigned to the U.S. Far East Command, commanded by Gen. Douglas MacArthur, were flowing to the Korean Peninsula. The Army forces were assigned to the Eighth U.S. Army, and U.S. Air Force units were attached to the Far East Air Forces (FEAF).

Almost immediately upon arrival, U.S. forces took casualties. To care for them, the Eighth Army Chief Surgeon, Col. Chauncey E. Dovell, directed the creation and deployment of the 8055th and the 8056th Mobile Army Surgical Hospitals (MASHs) to support the combat units. They quickly deployed from Japan to Korea and were operating by 9 July 1950 behind the 24th Infantry Division and the 1st Cavalry Division.²¹

The terrain of Korea was rugged and forbidding. The primitive road structure had very few prepared surfaces and adequate bridges over the formidable rivers that traversed the country. The combination of these factors made evacuation of the wounded via conventional ground transportation very difficult. The medical doctrine in effect at that time was a holdover from World War II. It defined the basic “chain of evacuation” as “the entire group of successive installations engaged in the collection, transportation, and hospitalization of the sick and wounded.”²²

In response to the North Korean attack, the FEAF deployed several rescue aircraft to the Korean Peninsula on 7 July 1950 including L-5s and C-47s from the 3d Air Rescue Squadron (ARS). They performed search and rescue missions for downed aircrews. By their inherent nature, they could also be used for medical evacuation. However, few usable airfields were available, and after nine days they were flown back to Japan. They were replaced by several Sikorsky H-5 helicopters, which deployed to Taegu airfield, and then moved south to Pusan when U.S. forces were forced back into that enclave. On 5 August 1950 one of the helicopters responded to an emergency call from an Army unit and picked up Pfc. Claude C. Crest, Jr. It was the first recorded MEDEVAC mission of the conflict (actually Casevac since there was no en route medical care).²³

Dovell was aware of the mission and grateful for the help. He asked the commander of the 3d ARS for a demonstration. An H-5 was flown to Taegu where it landed in a school yard. Dovell’s medical technicians examined the aircraft as a medical evacuation vehicle and announced that it was adequate to carry two litters. Dovell had two “patients” loaded in standard litters and climbed aboard. He then had the helicopter take off and land. Impressed with their ability to put it in tight places, he asked for a longer flight. They took off and flew to an evacuation hospital 100 kilometers away. Completely satisfied with the operation, he formally asked the commander of the 5th Air Force, which was subordinate to the

FEAF, for the use of his helicopters for MEDEVAC until the end of 1950.²⁴

The Commander of the 8055th MASH, Maj. Isaac Tender, Medical Corps, noted the efficacy of helicopter operations when he wrote the following in the unit history for October 1950: “Helicopters were used to remove patients from the front areas and bring them to the hospital. . . . The helicopters proved to be well worth their cost for use in removing patients from the front. . . . making a 15 minute air trip which would have been several hours by [ground] ambulance from the front to this hospital.”²⁵

This expedient was necessary for two reasons: first, the harsh conditions of Korea; second, the Army did not, at that time, have an aviation MEDEVAC (or Casevac) capability, and it would take time to build one. At the beginning of the war, the Army possessed only 56 helicopters, all of which were variants of the H-13 Bell Sioux. None of them was organized into medical units.

Dovell’s request for Air Force rescue helicopters to perform MEDEVAC made its way to the Commander of the FEAF, Lt. Gen. George E. Stratemeyer. He endorsed it and sent it to Headquarters, Air Force, in Washington, DC, on 14 August 1950.



Korea era H-13 Helicopter.
Source: Army Medical Department Museum.

He asked for an “evacuation and utility squadron” of 25 H-5 helicopters and trained medical personnel to perform front line evacuation. This caused some very intense doctrinal discussions on the Air Staff because many analysts thought that the initial evacuation of casualties to front-line aid stations was properly a U.S. Army function. However, the Air Force Surgeon General Maj. Gen. Harry G. Armstrong agreed with the request. He directed to send FEAF 14 more H-5s and to raise the allocation of H-5s for the 3d ARS to 23 helicopters. Yet, the priority mission for the helicopters would remain search and rescue with MEDEVAC a secondary capability, and a specifically designated “evacuation squadron” would not be formed.²⁶

Concurrent with this action, Dovell had also forwarded a request through Eighth Army channels for 50 helicopters for MEDEVAC support. MacArthur endorsed it and forwarded it to Army Headquarters in Washington, DC. The request was reviewed and endorsed by the Army Surgeon General, Maj. Gen. Raymond W. Bliss, who had visited Korea and agreed with the need for the MEDEVAC helicopters. Planners began the necessary actions to create several initial helicopter detachments for MEDEVAC duty. The first units and aircraft arrived in Korea in January 1951. Implicit with this action was the understanding that the Army would now have the responsibility for aerial MEDEVAC from front-line aid stations back to the MASHs.²⁷

This understanding was formalized in follow-on agreements between the Army and Air Force on 2 October 1951 and 4 November 1952, which made the Army responsible for “battlefield pickup of casualties, their air transport to the initial point of treatment, and any subsequent move to hospital facilities within the combat zone.”²⁸

However, until the Army detachments arrived, the helicopters from the 3d ARS continued to handle the MEDEVAC calls. To be more responsive, the helicopters and crews sat alert at the MASH locations. Additionally, they carried medical supplies and fresh blood forward when they went for casualties. As of 20 February 1951, Air Force helicopters had MEDEVACed 750 critically wounded soldiers. Dovell estimated that fully half would have died if they had been moved by surface transport. During the conflict, two-thirds of the helicopter missions flown by the U.S. Air Force 3d ARS were for MEDEVAC taskings. U.S. Marine Corps and Navy helicopters also assisted with Casevac, and in one battle in November, retrieved more than 900 wounded from the battle area.²⁹

One young Air Force pilot, Capt. Richard Kirkland, documented this service in a personal memoir of his service in Korea with the 3d ARS. Flying the H-5 with a medic onboard, he routinely rotated between duty at one of the MASHs and several forward rescue sites. Kirkland had previously flown fighters in World War II and had watched helplessly as several unit mates had been shot down and not rescued. Initially unhappy with his assignment to helicopters, he realized that the helicopter could serve as a rescue vehicle for airmen. He was surprised, though, at his initial posting to a MASH unit. That changed the next day when he got his first mission and saw the ruggedness of Korea.

“There were roads to most of the battalion aid stations in the combat zone, if

you call them roads. But they were extremely rough,” Kirkland noted. “And for a critically wounded patient, the rough ride in that vintage of field ambulance was not only agony, but often fatal.” He and his fellow rescue pilots also noted, “[We] quickly discovered that enemy gunners used the red crosses on the [vehicles] as targets.”³⁰

Throughout the autumn of 1950, the Army activated and formed medical helicopter detachments. The 1st and 2d activated on 1 October, followed by the 3d and 4th on 1 November. Each unit was assigned four H-13 helicopters and an equal number of pilots. These pilots were not medical personnel, but were non-branch specific and came from all backgrounds including infantry, armor, transportation, etc. Their assigned mission was to “provide immediate means of evacuating non-transportable and selected critically injured or ill patients needing immediate surgical or medical care not provided by forward medical facilities.”³¹

The 2d Helicopter Detachment deployed from Fort Bragg, North Carolina, and arrived at Inchon, Korea, on 22 November 1950. It was attached to the 47th Ordnance Light Aviation Maintenance Company for administration, logistics, and training until 31 December. This “break-in” period allowed the men to adjust to the harsh Korean conditions and train to the mission. It also included a great deal of focused medical training for the pilots provided by medical officers at the MASHs. On 1 January 1951, it was reassigned to the 8085th Army Unit, Eighth Army Flight Detachment, and declared “operational.” It became the Army’s first aeromedical evacuation unit in combat. It was then attached to the 8055th MASH for missions. Its first call for evacuation came the next day. Two helicopters flown by 1st Lt. Willis Strawn and 1st Lt. Joseph Fowler traveled 120 miles to Wonju, picked up two casualties per aircraft, and brought them to the 8055th.³²

The next unit to deploy was the 3d Helicopter Detachment. It left Fort Hood, Texas, and arrived in Korea on 2 December 1950. After theater training and orientation, it was attached to the 8076th MASH and assumed alert duties on 25 January 1951. The 4th Helicopter Detachment followed a month later. It formed at Fort Winfield Scott, Presidio of San Francisco, California. After arrival in Korea, it was attached to the 1st MASH, but continuous mechanical problems with its aircraft kept it from operational use. The last unit to deploy was the 1st Helicopter Detachment. It activated at Camp Pickett, Virginia, and arrived in Korea on 21 February 1951. By this point, all units within Eighth Army wanted helicopters, and the 1st Helicopter Detachment’s aircraft were stripped away. It never became operational.³³

The pilots came from all parts of the Army. Capt. Louis Hamner, MSC, was an artillery officer and commanded an aviation detachment with 10 fixed-wing aircraft and 20 officer pilots and observers. Their job was to fly beyond the forward line of troops to collect intelligence and direct artillery. Hamner was surprised when he was notified that he would be reassigned to command the 8193d. It looked like an easy tasking, and the H-13 helicopter seemed like a simple aircraft to fly. Yet he noticed that they lacked radios, internal lights, or even basic instruments for night or weather flying.

Tasking was given to the pilot as a written order or verbally. Hamner's unit remained in the same geographical area, and his pilots became very familiar with its physical features. They hung a situational map in their operations center that was kept up-to-date with both friendly and enemy locations. Settling into the mission, Hamner had only two concerns. First, the troops in the field did not understand the limitations of the helicopter. They always wanted to overload it or expected it to fly at night or in bad weather. They initially did not know how to set up a landing zone both for safety and to expedite the loading and care of casualties. Second, the H-13 was not a very hardy aircraft. It was what they were given, and they made the best of it. With just 11 aircraft flyable at any time on average, they evacuated 1,985 wounded in the first six months of 1951.³⁴

On 14 May 1951, by General Order, the Eighth Army changed all of the unit designations. The 1st Helicopter Detachment became the 8190th Army Unit (AU); the 2d became the 8191st AU; the 3d became the 8192d AU; and the 4th became the 8193d AU. The unit designation change was an interim measure. In December 1952, the Army Surgeon General created a Table of Organization and Equipment for a Medical Detachment (Helicopter Ambulance) [Med Det (HA)] that was approved by the Department of the Army. This established these units as medical vice aviation ad hoc units belonging to the Army Medical Service (AMS) and under the administrative and operational control of the Eighth Army Surgeon. Under the new structure, the units were changed:

From	To
8190th AU	37th Med Det (HA)
8191st AU	49th Med Det (HA)
8192d AU	50th Med Det (HA)
8193d AU	52d Med Det (HA) ³⁵

Two more Med Dets, the 54th and 56th, were activated in Korea in December 1952. Simultaneously, the 53d Med Det (HA) and 57th Med Det (HA) were also activated at Fort Sam Houston, Texas. Instead of Korea, the 53d was slated for Europe, and the 57th remained at Fort Sam Houston. The next September, the 53d deployed to Darmstadt, Germany, where it became operational in February 1954. Also assigned to Europe was the 58th Med Det (HA), which activated at Salzburg, Austria.³⁶

In the summer of 1952, now Lt. Col. Spurgeon Neel, a recent graduate of the Army Command and General Staff College at Fort Leavenworth, Kansas, reported for duty as the Chief of the Medical Field Service Branch at the Medical Field Service School located at Brooke Army Medical Center, Fort Sam Houston. He reengaged with his interest in MEDEVAC and did an intense study of MEDEVAC developments in Korea. Based on that review, he developed the basic considerations and doctrine for the helicopter ambulance medical detachment and recommended that they be bunched into companies for better utilization and command and control.

In a prescient article published at the end of that tour, he wrote:

Speed of evacuation is most important in the severely wounded. Casualties are a 'perishable commodity.' They cannot be stockpiled, but must receive proper treatment as early as possible. A man dies in so many minutes, not over a distance of so many miles. Any measure that will reduce the time lag between wounding and treatment will reduce both the mortality and morbidity of war wounds.³⁷

The precepts established by Neel became the basis for the evolution of MEDEVAC doctrine and the subsequent structure of helicopter ambulance medical detachments and air ambulance medical companies that still exist.³⁸

In November 1952, the Office of the Surgeon General in Washington activated an Aviation Section to strengthen medical control over MEDEVAC. It coordinated planning, operations, staffing, and supply of medical helicopter units, and was initially directed by Maj. Leonard Crosby, an MSC officer. He was also directed to develop a plan to train MSC officers as pilots for MEDEVAC duty. Initially, the Army Medical Department considered training medical officers as pilots. The intent was to have a cadre of aviators who understood both medicine and aviation. This was determined to be impractical, and MSC officers were provided the opportunity to volunteer instead. Upon completing pilot training, all were assigned as MEDEVAC pilots. The first seven completed training and earned their pilot wings in April 1953. Initially assigned to the 53d Med Det (HA) at Fort Sam Houston, several were subsequently reassigned to Korea, arriving after the cease-fire. They established the pilot pipeline for MSC pilots to fly MEDEVAC, which still continues.³⁹

Throughout the war, the standard Army MEDEVAC helicopter was the H-13. For a short time, the 8192d AU was equipped with Hiller H-23s. They were severely underpowered for the job and replaced with H-13s. Best described as a metallic "grasshopper," with a long, lanky fuselage and large bubble canopy, the H-13 was thrust into MEDEVAC duty for one simple reason: when the need arose, it was the only aircraft available that was capable of doing the mission. Its originally designated mission was observation. Expediency, however, dictated its use for MEDEVAC duties. Yet shortcomings abounded. There was no internal room for patients; they had to be carried on litter rings mounted along each side of the aircraft. This meant that en route medical care could not be provided. Eventually, medics designed a system that allowed for transfusions to be given in-flight. Since the infusion of cold fluids could induce shock, the system was designed so that the tube passed by a hot section of the engine, which then kept the fluids at acceptable temperatures. The troops in the field became experts at practical expediency. The external litters also meant that patients were exposed to the elements. A small metallic forward shield was rigged to protect from the airflow of flight, but it only partly helped. There were a few instances of evacuees freezing to death in flight.⁴⁰

The aircraft were not equipped with any advanced flight instrumentation or gyroscope-based attitude indicators. This limited their capability to fly at night or in weather. Many pilots had to complete missions at night using handheld flashlights to illuminate the instruments. Most pilots developed an intimate knowledge

of their assigned areas of operation and used that knowledge to fly “low and slow” below required instrument flight minimums to recover the wounded.

The pilots began to develop a mystique as “intrepid spirits,” who—according to the Commander of the 8076th MASH Lt. Col. Kryder Van Buskirk—“saved many lives.” One pilot, 1st Lt. William Blake of the 49th Med Det (HA), evacuated 900 casualties in his tour of duty.⁴¹

After the war, Korea historian, Albert Cowdrey, wrote of them:

Separated from the crowd, working alone, and pushing their fragile craft ever closer to the enemy, such men came to resemble the pilots of World War I in their singularity and taste for derring-do. Though the helicopter’s course still lay from the collecting station to the Mobile Army Surgical Hospital on normal runs, pickups from aid stations became common and some even occurred forward of the battalions. Early on, a marked contrast showed between the rarity and value of the few available machines, which implied great prudence in their use and the spirit of the men who flew them, urged on by the exigencies of war.⁴²

The aircraft also did not have any armor protection or self-sealing tanks. Pilots had to be very judicious about where they flew. Almost any enemy ground fire could bring down an aircraft. Perhaps the biggest limitation was the aircraft engine. The 200 horsepower Franklin 0-335-3 piston engine was just not sufficient for the task. It was grossly underpowered for carrying a pilot and up to two casualties across the varied terrain and elevations at which they operated. The engine had a bad habit of shredding fan belts, transmissions, and bearings, as well as fouling spark plugs. Batteries would freeze on cold nights and were brought indoors for protection.⁴³

The aircraft had a published maximum speed of 100 mph and a range of 300 miles. Engine fatigue usually limited that to 70 mph and 250 miles. To increase range, some pilots had extra fuel tanks mounted in the cockpit. More common pickup points kept a supply of fuel so that they could refuel more frequently. The aircraft also had limited communications capability. A T-5 series transmitter/receiver was installed, but it only had eight preset frequencies and no in-flight retune capability. As the war progressed, most predesignated casualty pickup points were issued radios and kept them tuned to one of the MEDEVAC identified frequencies. Still, many tactical units in the field who needed MEDEVAC could not tune their radios as necessary for the MEDEVAC aircraft. This forced many pilots to make approaches to locations without final situational updates before landing. In many cases, the pilots were unable to contact aviation command and control or air traffic control agencies that were introduced to better control, coordinate, and de-conflict the movement of aircraft above the battlefield.⁴⁴

However, regardless of the limitations imposed by the aircraft, it was a welcome addition to the medical chain of care for three main reasons. First, it reduced the time necessary to transport a casualty to quality care. Time always runs against critically wounded soldiers, and the helicopter—not constrained by the limitations of ground transport—dramatically reduced that time.

Second, this mode of transport was more comfortable and less traumatic for the patients. One soldier who was grievously wounded in the legs, arms, and stomach

was initially moved to the aid station by raincoat, litter, and jeep. It was a miserable travail. He was treated and then picked up by a MEDEVAC helicopter to be transported to a MASH.

His medical report stated that, “The take-off was so gentle he didn’t know when it left the ground, and the ride was so soothing he dozed off, and didn’t even notice the landing at the [Mobile Army Surgical Hospital].”⁴⁵

Third, the ability of the helicopters to fly in any direction as needed meant that the unit surgeons could direct their most critically wounded to hospitals that had special medical capabilities, facilities, and surgeons.

These positive factors had one major end result. They were a tremendous morale boost to the soldiers doing the fighting because the soldiers knew that if they were wounded, the pilots in the “grasshopper” helicopters would get them and deliver them into a huge medical system that was organized, manned, and equipped to take care of them.⁴⁶

Said one young soldier after he had been MEDEVACed, “When I saw that helicopter land it looked like a mechanical angel coming—it was an answer to a man’s prayer.”⁴⁷

At the beginning of the conflict, command and control of the MEDEVAC units resided with the Eighth Army Surgeon. With the activation of two corps headquarters (I and IX), he passed that authority to the corps surgeons. All requests for MEDEVAC were forwarded within medical channels through regiment to division to corps. The request had to follow a standard format that included:

- Number of patients and condition;
- Location;
- Landing instructions, to include color of identification smoke;
- Description of site;
- Current tactical situation;
- Number of blankets needed; and
- Amount and type of blood needed in case of in-flight transfusion.

When the corps surgeon approved the request, a mission order was called to the closest helicopter detachment. Because of the limited number of helicopters, the missions were prioritized by the seriousness of the casualties. This task of prioritizing the missions meant that in many cases, the surgeon had to make life-and-death decisions because there were never enough MEDEVAC helicopters to satisfy the demand.

On at least two occasions, divisions asked for their own MEDEVAC helicopters. The 3d Infantry Division sent forward a request that was endorsed by I Corps. Later in the war, the 45th Infantry Division made a similar request, again with Corps endorsement. The Eighth Army Chief Surgeon rejected both requests. He answered that there were not enough helicopters, and the current area support and standby coverage were adequate.⁴⁸

Despite the process being cumbersome, it worked. In one after-action report on MEDEVAC, it “was extremely effective ... It was not uncommon for a helicopter

to be airborne within eight to ten minutes after a patient reached a medical installation [battalion aid station]. Often, he was on an operating table at a surgical hospital within an hour after he suffered the wound.”⁴⁹

In June 1953, all six of the Korea Detachments were again reorganized, this time under the 1st Helicopter Ambulance Company (Provisional). As suggested by Neel, its mission was “to provide adequate tactical, administrative, and logistical support to the helicopter detachment.” It was, in turn, assigned to the 30th Medical Group, which was responsible for theater-wide evacuation.

Upon activation, the company commander, Capt. Earl Russell, an artillery officer, conducted a mission analysis. He determined that the detachments were authorized a total of 30 helicopters and 42 pilots. Yet they were assigned only 16 helicopters and 15 pilots. With this level of equipment and manning, he determined that they could perform their primary mission of battlefield evacuation to the surgical hospitals, but not their secondary mission of lateral and rear evacuation. He saw these shortages as acute limitations to mission accomplishment.

Russell also wrote that the policy of assigning combat arms pilots to his helicopter detachments to complete their Korea tours was not working well. Although the intent was to remove them from combat, the pilots realized immediately that picking up wounded from the battlefield was still a continuation of combat. He recommended that only MSC pilots be assigned to the medical detachments.

Russell observed that the H-13 — while dependable — was not optimal for medical evacuation. He recommended that the newly produced Sikorsky H-19, with its higher speed, range, and payload be adapted for MEDEVAC duties.⁵⁰

In the last few months of the conflict, the Army shipped two Transportation Companies, the 6th and 13th, each equipped with 20 of the new H-19s, to Korea. These aircraft were much larger than the H-13s; had much improved all-weather flight instrumentation; and, while designed and designated to provide general support such as troop and supply transport, could also perform Casevac, supplementing the MEDEVAC helicopters. On 23 March 1953, several helicopters evacuated an unspecified number of wounded from regimental aid stations and took them directly to a hospital near Seoul.

A month later, H-19s from the 6th recovered 683 sick and wounded UN and Republic of Korea prisoners released by the North Koreans. In July and August, the 13th Transportation Company evacuated a total of 1,547 wounded soldiers as both sides waged local attacks before a cease-fire ended the hostilities.

One after-action report stated, “The greater capacity of the H-19 aircraft make them particularly effective in convoy or mass evacuation.”⁵¹

Just as the cease-fire was taking effect, Neel arrived in Korea to command the 30th Medical Group, the single management headquarters for all nondivisional medical personnel. He had assigned to his group seven surgical hospitals; two evacuation hospitals; several support battalions, companies, and ground evacuation units; and the 1st Helicopter Ambulance Company (Provisional). As the fighting dissipated and casualty flow decreased, he saw the true value of the helicopter as an evacuation tool. He later noted:

I learned that the helicopter is not only a ... good ambulance-type vehicle to move a patient from where he is wounded directly to that hospital which is best situated, equipped, and staffed to take care of his unique condition. But I was most impressed as a manager at the contribution the helicopter makes to the management of overall medical resources: the number of hospitals, the location of the hospitals, the staffing. Instead of trying to put neuropsychiatry in each hospital or neurosurgery, or ophthalmology, or orthopedics, you can have hospital 1 be an orthopedic center, hospital 2 be an eye center, hospital 3 be a chest center. Then you bring the patient to the correct center for whatever his condition is. Now that is predicated on medical control. ... if the surgeon has control of the helicopters, the same guy who has control of the hospitals, then we can use a systems approach.⁵²

Two years later, Neel authored a detailed lessons learned for MEDEVAC operations in Korea. In it he made several overarching points:

1. **Organization.** Helicopter evacuation within the combat zone is the responsibility of the AMS. The company-sized unit is superior to small cellular elements. It should remain under the command of the field army or a centralized medical command should one be available. The inherent speed, range, and flexibility of ambulance helicopters dictate against their assignment to subordinate commands.
2. **Control.** Integration of the evacuation and treatment components of the field army's medical service is essential. Helicopter evacuation units should remain assigned to field army or an appropriate central command headquarters. The dispatch of individual helicopter sorties should be the responsibility and function of the corps surgeon who is at a sufficiently high level to determine realistic priorities, yet close enough to the action to keep abreast of the immediate situation. Only AMS agencies should accept evacuation requests. Command surgeons alone know the status of medical treatment facilities, such as surgical lags, location of special treatment teams, and projected displacements of medical installations.
3. **Communication.** No separate communications net is required to control helicopter evacuation. Airborne radio sets should be netted with appropriate Air Force agencies and fire support coordinating centers to provide control of aircraft in flight.
4. **Personnel.** Helicopter pilots, particularly those flying reconnaissance type helicopters engaged in battlefield pickups, should be officers of the MSC. They must possess sufficient medical training and experience to make sudden decisions regarding the destination of patients. MSC pilots should receive greater consideration in the development of career patterns. Greater emphasis should be placed on integrating Medical Service pilots into the overall effort of the AMS.
5. **Aircraft.** Aircraft such as the H-13 allow for recovery from restricted places, and their external mount for casualties provides for quicker loading and unloading. Larger helicopters with internal load capability are also needed. A mix is best. We do not need to provide for enough medical evacuation helicopters to handle all contingencies. When necessary, hospital empty out

for unit movement, mass casualty situations, or supplemental evacuation support can be provided from the Transportation Corps, or another agency. The H-13 needs better flight instrumentation and navigational gear, but not if it will reduce available cargo load capability.⁵³

By the end of hostilities on 27 July 1953, the role of the helicopter as a key part of the evacuation chain and continuum of care had been well established. Ill-equipped for the mission, and initially ad hoc in organization, the men and machines of MEDEVAC overcame harsh terrain, primitive conditions, and a brutal enemy to evacuate almost 18,000 casualties. Air Force rescue helicopters also picked up another 8,373 U.S. and UN personnel.⁵⁴

But was it aviation or medicine? As Col. Allen Smith, U.S. Air Force Medical Corps, a medical historian wrote in a postmortem:

Present military thinking still includes a large segment which considers the sick and wounded as so much impedimenta which must be moved at a certain cost per ton mile to maintain military efficiency. Another quite different kind of thinking, particularly among medical circles, would provide the quickest and best possible medical care. Both viewpoints have validity, but only if both are considered together. The real answer lies not so much in the compromise wherein both viewpoints relinquish certain claims, but in each viewpoint gaining from the other certain additional principles which result from the tremendous advances in transport equipment and techniques and in medical care.⁵⁵

The biggest contribution of the MEDEVAC helicopters was to reduce the time between when a soldier was injured and received care. Maj. Gen. Lawrence Keiser, commander of the 2d Infantry Division, wrote in an after-action report, “The injuries to the majority of these [unit] patients were so severe that it is doubtful if they would have survived evacuation by field ambulances.”⁵⁶

Additionally, it is impossible to calculate the number of men saved by the timely delivery of medical supplies or fresh blood delivered by the MEDEVAC helicopters. Overall, the mortality rate for those who died after reaching medical facilities was 2.4%, as opposed to 4.5% in World War II. The MEDEVAC helicopter was undoubtedly a major contributor to that reduction.⁵⁷

Albert Cowdrey, a historian of the war, offered perhaps the best critique of MEDEVAC in Korea when he wrote:

Costly, experimental, and cranky, the helicopter could be justified only on the grounds that those it carried, almost to a man, would have died without it... 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.⁵⁸

The experiences of Korea clearly showed the efficacy of helicopter MEDEVAC and established its place in the chain of evacuation and continuum of care. The spirit of MEDEVAC created in that conflict became the standard. The tactics and techniques established are continuously refined on the battlefields of future conflicts.

