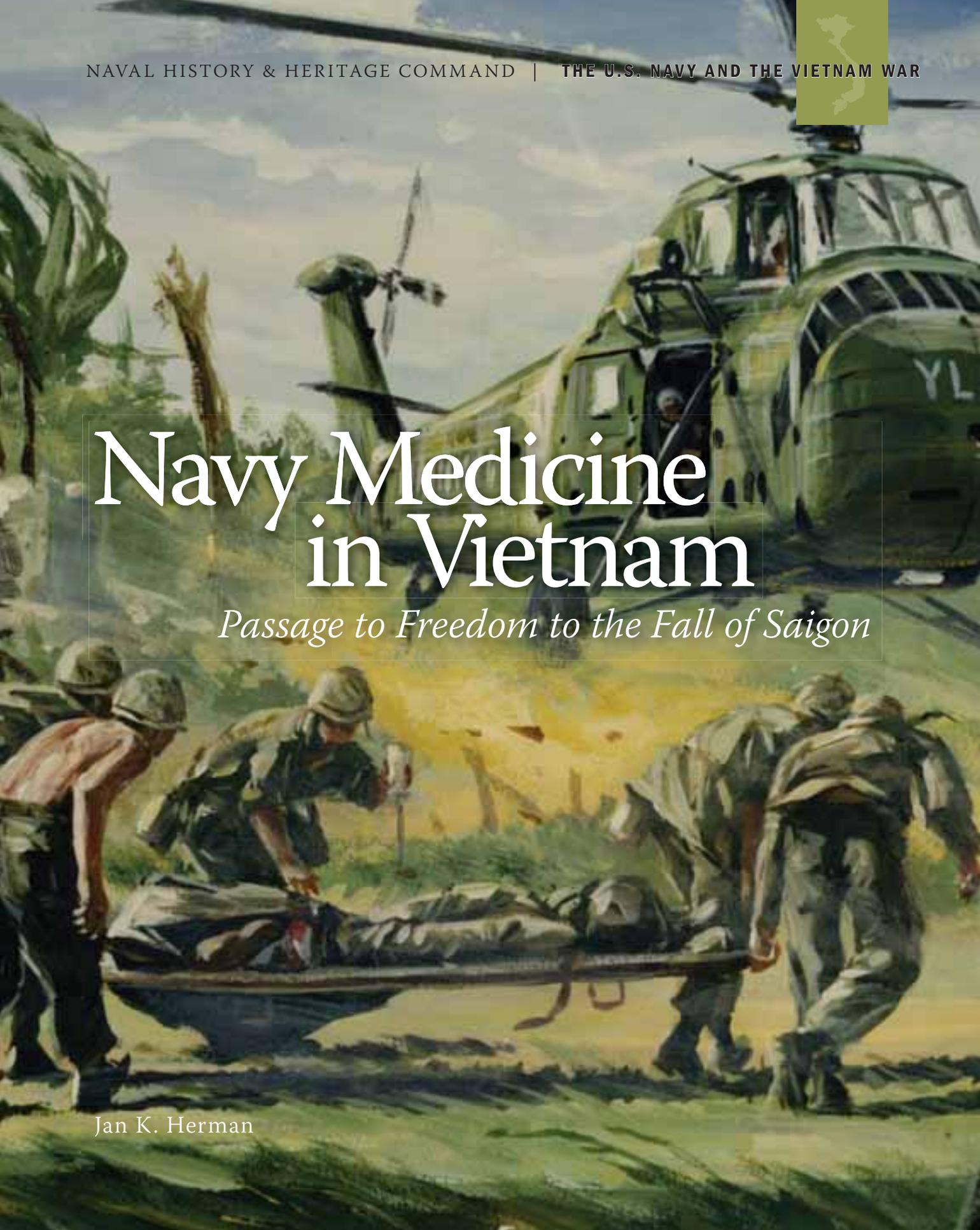




Navy Medicine in Vietnam

Passage to Freedom to the Fall of Saigon



Jan K. Herman



Front Cover: Detail from *Wounded Being Hoisted to Helo* by John Steel.
Acrylic on illustration board, 1966. Navy Art Collection.

THE U.S. NAVY AND THE VIETNAM WAR

Edward J. Marolda and Sandra J. Doyle, *Series Editors*

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Jan K. Herman



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BUMED Archives

Refugees from North Vietnam board a U.S. Navy landing craft that will transport them to a new life in South Vietnam.

INTRODUCTION

In July 1953, U.S. and North Korean military officials signed an armistice at Panmunjom ending hostilities—but without a permanent peace on the Korean peninsula. Demobilization of the armed forces began almost immediately, following much the same pattern shortly after World War II. This military decrease was across the board and keenly felt by the Navy Medical Department. The authorized ratio of medical officers to active duty troop strength was cut in half. Between 1953 and 1954, the Navy lost more than 1,000 physicians—an astonishing 25 percent reduction.

For the fleet, reductions meant that battleships went from two medical officers to one; aircraft carriers, from three medical officers to two; and LST (landing ship tank) squadrons, from two physicians to one. Besides personnel cuts, peacetime also meant

disestablishing many naval hospitals or, at the very least, downgrading them from hospitals to infirmaries.

Despite this retrograde movement in Navy medical personnel and facilities, the Cold War continued. Indochina replaced Korea as the number one hot spot. When French colonial rule in Indochina came to a chaotic end in 1954, following the climactic defeat at Dien Bien Phu, the U.S. Navy helped evacuate 721 French troops and transport them back to their homes in France and North Africa. These pitiful soldiers suffered not only from wounds but also from a variety of jungle diseases and malnutrition. The hospital ship *Haven* (AH 12), which had already seen action in World War II and four tours during the Korean War, was again pressed into service for the trip. When one of the Legionnaires died en route,



NA 80-G-647080

Orphans fold sheets at a Haiphong refugee camp, 1954.



BUMED Archives

Above, Commander Julius Amberson, MC (in bush hat), head of the Preventive Medicine and Sanitation Unit responsible for refugee health, inspects a water pump at a Haiphong camp.



Inset, Lieutenant (jg) Thomas Dooley supervises a water purification tank at a Vietnamese refugee camp near Haiphong during Operation Passage to Freedom.

“they off-loaded the body in a casket with the French flag draped over it,” Navy nurse Anna Corcoran recalled. “That was very, very emotional to watch. Of course, at that time, we didn’t know how many of our own would be going home that way from Vietnam. We couldn’t have imagined back in 1954 that 10 years later we would be involved just like the French were.”

America’s long Vietnam nightmare indeed began that fateful year—1954. Shortly after *Haven’s* participation in Operation Repatriation, the Navy was again called upon to spearhead a humanitarian operation. Under the terms of the 1954 Geneva Accords, which ended the war between France and the Communist Viet Minh, the people of Vietnam could decide where they wished to settle. Few in the south chose to go north, but with the collapse of French rule, hundreds of thousands of refugees streamed south to escape the Communists. The U.S. Navy provided the transportation.

Passage to Freedom had a major medical component headed by Commander Julius Amberson. The medical unit consisted of three medical officers, one Medical Service Corps officer, and four corpsmen. Among the doctors was Lieutenant (jg) Thomas A. Dooley, who later became famous for his books and speeches about Passage to Freedom and his subsequent medical missions in Southeast Asia. Navy physicians and hospital corpsmen were charged with providing medical care for the refugees, many of whom were already debilitated by their ordeal. Disease was widespread and shocking. Malaria, trachoma, smallpox, typhoid, worm infestation, fungi of all sorts, yaws, tuberculosis, dysentery, beriberi, rickets, conjunctivitis, pneumonia, measles, and impetigo were commonplace. Dr. Amberson later recalled what his team members found when they arrived at one of the refugee camps. “As we entered Haiphong, we found every available vacant lot, parks, schools, and vacated buildings packed with refugees. We estimated there were about 200,000 at that time. They were living in the most squalid conditions—no sanitary conveniences. The human excreta combined with the presence of enormous numbers of flies were the making of epidemic diseases among these unfortunates.”



A Vietnamese refugee on board attack transport *Bayfield* (APA 33) receives treatment for an infection during her transit from North to South Vietnam in Passage to Freedom.

As the refugees were brought to Haiphong—the port from which they would embark for South Vietnam—the Navy set up temporary camps for them, complete with tents, potable water, food, and medical care. Preventive medicine teams worked diligently to control the rodent and insect population, spray for malarial mosquitoes, and purify the water. Men, women, and children were vaccinated, deloused, and treated for their illnesses.

When the refugees boarded transports and LSTs for the journey south, Navy medical personnel accompanied them, dressing their wounds, handling fractures and fevers, and delivering an average of four babies per trip. By the time the mission was completed, Navy ships evacuated more than 293,000 civilian refugees and 17,800 military troops to South Vietnam. ↴



BUMED Archives

Captain Archie Kuntze congratulates Ann Darby Reynolds following the award of a Purple Heart. Reynolds sustained injuries in the Brink Hotel bombing. She and her fellow nurses were the only Navy nurses to receive this award during the Vietnam War.

STATION HOSPITAL SAIGON

Despite what was supposed to be a temporary partition of Vietnam with eventual elections, Communist guerrillas, supported by North Vietnam, began a systematic policy of harassment, assassination, and sabotage in South Vietnam. As the Eisenhower and Kennedy administrations moved to prop up the regime of Ngo Dinh Diem, American military and civilian personnel headed to South Vietnam as advisors. Navy medical personnel soon followed in the advisors' footsteps. The American Embassy dispensary initially provided care for the relatively small number of Navy and Marine personnel assigned to the Navy section of the Military Assistance and Advisory Group (MAAG). But by 1959, MAAG was designated as "American Dispensary" and staffed by Army, Navy, and Air Force medical and dental personnel.

After Headquarters Support Activity, Saigon was established in 1962 in response to the military buildup, the need for a military hospital and medical services in the capital became more apparent. After much deliberation, the senior medical officer chose a former hotel as the future site for Station Hospital Saigon. The long-neglected building required lots of work, but by October 1963, the 100-bed inpatient facility was ready, and by winter, increasing numbers of Navy physicians, dentists, nurses, and hospital corpsmen began arriving in Saigon. Although dependents and embassy personnel still in-country used the hospital for outpatient care, the patients were primarily military. Navy medical personnel could stabilize and treat most casualties and perform minor surgery, but the more serious cases were medevaced to other military treatment facilities in Japan or in the continental United States.

In addition to combat casualties, the increased terrorist activity in Saigon itself brought home the importance of a hospital in or near the capital. Despite the American low profile, Viet Cong terrorists were active, exploding bombs not only in the

Central Market but in bars and theaters frequented by American personnel.

The five-story, concrete building, located on Tran Hung Dao, downtown Saigon's busiest street, was the Navy's only hospital—from the day it opened—to receive American combat casualties directly from the field. And it especially filled the need for an inpatient facility in the southern portion of South Vietnam, a demand precipitated by the fighting in the Mekong River Delta area. The only other existing American hospital at the time was the 100-bed field hospital in Nha Trang, 200 miles north of Saigon, a distance that required flying patients from the delta.

Right behind the main hospital building and attached to it by a series of stairways was another five-story structure. This annex provided an excellent isolation facility. A one-story stucco building was quickly constructed in the courtyard to house a central supply, emergency room, and operating room.

A concrete wall topped by wire grenade screens surrounded the entire complex. Terrorist activity was a constant threat making security a full-time job. In addition to the protective screen, U.S. military police armed with shotguns and Vietnamese soldiers and police patrolled the compound around the clock.

The senior physician was assisted by nine medical officers, including two general surgeons, an internist, a psychiatrist, four or five general practitioners, seven Navy nurses, and eight Thai nurses. The staff also had two Medical Service Corps officers, 76 trained hospital corpsmen, and 40 Vietnamese employees, who were clerical assistants, drivers, and janitors.



A view of the apartment house that would become Station Hospital Saigon.

Eyewitness to a Coup

In 1964, the Navy assigned Lieutenant Commander Bobbi Hovis, one of the first Navy nurses to volunteer for service in Vietnam, to Saigon. With her commanding officer and fellow nurses, Hovis helped set up Station Hospital Saigon. As she settled into the daily routine of providing medical care to U.S. military personnel, the security situation in South Vietnam's capital changed dramatically.

It was November 1st, 1963. My senior corpsman, whose name was Paul [“Burnie”] Burns, came back from lunch that day and said, “There’s all kinds of barbed wire strung across the street. There are gun emplacements set up with .50 caliber machine guns and they’re all pointed right up the street at us.”

I walked out in the middle of the street and couldn’t believe what I saw. I was looking right into the barrels of two .50 caliber machine guns set up in sandbag emplacements. Well, it wasn’t very long before the shooting started.

Bullets were flying in every direction and civilians were trying to take cover in the streets. I saw one man shot. A bullet went through the back window of his car, through his chest, and out the windshield. Two men ran out from a store and dragged him out of the car. I don’t know if this man lived or died.

A chief and I were standing on a fifth-floor balcony watching the bombing runs on the palace when suddenly a bullet hit right in front of us on the balcony wall, powdering the stucco. The bullet then ricocheted up from the balcony where it first hit, bounced off the overhead, and fell to the deck. Three inches higher and I would have been hit in my lower chest or abdomen. We both jumped back into the room and took cover under a table.

We barely got back to the quarters when the firing began really in earnest. The quarters were in downtown Saigon and very, very close to Diem’s palace. Somebody had set up a 105mm howitzer out near the Gia Dinh Bridge and they were firing that howitzer right into the palace. Many of the shells were going astray and hitting all around our BOQ and the roofs right near us. This went on for 18 hours. It got so hot and heavy that I said to the girls, “In case we have to evacuate these quarters, we’d better have a little overnight kit packed, another uniform, and some



Courtesy Bobbi Hovis

Lieutenant Commander Bobbi Hovis stands beside an Army ambulance at Station Hospital Saigon. Hovis had served as a flight nurse during the Korean War.

toilet articles.” So we each packed a bag. No sooner had we done so when the firing became even heavier and we took cover.

Eventually, the heavy firing died down and we heard the clank, clank, clank of tank treads. I counted 27 tanks mustering right below our quarters. Several hundred fully armed troops accompanied the tanks. We didn’t know who these troops were or what faction they belonged to.

Suddenly the tanks began to fire right down the middle of the street. When those cannons fired within the confines of the city, you can’t imagine the sound that reverberated off asphalt and brick streets and cement and stucco buildings. It was absolutely deafening. Between the thick cordite and smoke and the deafening blasts and concussion, we all had headaches.

By now it was November 2nd. About 0400, the tanks and troops started to move out toward the palace. Just at sunrise white flags appeared over the palace. We heard on the radio that the Diem government had surrendered.

Life never returned to normal while I was in Vietnam. An undercurrent of unrest was always present from one faction or another. Dissident generals continued to work behind the scenes, planning to stage another coup to overthrow the newly installed Minh government. ↴

The hospital treated dependents of American personnel until they were evacuated in February 1965. Vietnamese patients were admitted for emergency care. Once stabilized, they were transferred to local hospitals.

Shortly after the hospital's opening, a helo pad was built on a soccer field about a five-minute ambulance ride away. Helicopter pilots carrying the wounded or sick were able to communicate by radio with the hospital, and ambulances and attendants waited at the helo pad ready to transfer patients with minimal delay. At other times, patients arrived at Tan Son Nhut Airport by fixed-wing aircraft and were transferred to the hospital by helicopter.

For a time, terrorist bombs resulted in mass casualties more than actual combat. On Christmas Eve 1964, a Viet Cong agent parked a bomb-laden car in the underground garage of the Brink BOQ. It detonated less than an hour later killing and wounding many. Four Navy nurses were among the injured, and they became the only Navy nurses to be awarded the Purple Heart during the Vietnam War. Lieutenant Darby Reynolds remembered the event: "I was looking out of my room through the French glass doors and had my face pressed up against the glass. All of a sudden, the bomb went off. The door blew in and the glass shattered and fell right down on top of me. I thought, 'Oh, boy. Hospital OR call. Here we go!' I remember a couple of fellas coming in and saying, 'You've got to get out of here. The building's on fire.'"

Although injured herself, Lieutenant Reynolds managed to report to the hospital. "Then we just went to work and took care of all the patients and got them settled. I waited till the end after everybody was taken care of and then they sutured my leg. I remember one man in the next suite of rooms at the Brink. He was buried for several hours. They found him around midnight and brought him into the OR to try to save him, but he died on the table right across from me while they were working on my leg."

Such attacks became more frequent in Saigon. In order to keep beds open in anticipation of mass casualties, the hospital's commanding officer, Captain Russ Fisichella, MC, instituted a rapid evacuation

system. Patients able to travel were transferred to the Army hospital in Nha Trang. The 8th Field Hospital employed a 30-day holding policy, and two air evacuation flights per week were used to transfer patients to the hospital at Clark Air Force Base in the Philippines. "We attempted to keep the hospital at no more than 50 percent occupancy in anticipation of possible mass casualties," Fisichella recollected.

Diseases accounted for a good deal of the hospital's day-to-day work. Malaria was endemic and everyone had to take Chloroquine-Primaquine prophylaxis. Infectious hepatitis was not uncommon, and all personnel received immune globulin prior to or upon reporting in Vietnam. By far the most prevalent and annoying disease was amoebiasis, an intestinal disorder that responded well to a combination of Diodoquin and Oxytetracycline.

When Fisichella left Vietnam in March 1965, the bombing campaign against North Vietnam was about to begin. The war was on the verge of escalating. More than forty years later Fisichella vividly recalled his mission and that of his fellow Navy medical personnel. "We were professionals doing a professional job, and everybody had a specific job to do. We were all expected to be ambassadors. At the time I was there, it wasn't an American war. We were advisors. It became an American war after that."

In the summer of 1964, an incident in the Gulf of Tonkin had already turned the festering conflict in Southeast Asia into a full-blown war. On 2 August, destroyer *Maddox* (DD 731) was on what was termed a "routine patrol" in international waters when three North Vietnamese torpedo boats commenced a high-speed torpedo run on the destroyer. The series of events that followed resulted in the Gulf of Tonkin Resolution passed by Congress on 7 August 1964. This resolution gave the President the power "to take all necessary measures to repel any armed attack against the forces of the United States and to prevent further aggression." Escalation of the war in Vietnam was now assured. ↴

“Torpedo in the Water!”

Lieutenant Samuel Halpern, MC, USNR, serving as the medical officer of Destroyer Division 192 on board Maddox (DD 731) in August 1964, witnessed the events that triggered the Tonkin Gulf Resolution enabling President Johnson to fight the Vietnam War.

The day of the first attack [2 August 1964], I was lying in my bunk when we went to general quarters. We began picking up speed. The captain came on the 1MC [intercom] and said we were being approached by North Vietnamese PT boats and that they intended to engage us. If they closed to 10,000 yards, we would fire warning shots. If they got closer, there would probably be an engagement.

I went to my GQ [general quarters] station in the wardroom, and Chief Aguilar and I set up the hospital as best we could. We threw some mattresses on the floor for casualties, and secured all the supplies and equipment we could in case we took a hit. The *Maddox* had the watertight integrity of a sieve. She was just an old rust bucket. Nevertheless, we were ready.

When we let go with the 5-inch 38 warning shots, I thought that was it. We were really speeding up and I could tell we were bringing other boilers on line. The generators were whining like mad and we were doing between 25 and 28 knots.

All of a sudden I heard, “Torpedo in the water! Torpedo in the water!” The 1MC was wide open. I thought, “This ain’t real!” I didn’t know anything about combat at sea. Aguilar kept yelling for me to get up and grab the big I-beams in the overhead and get off the deck. I didn’t understand why he wanted me to do that. He looked like an idiot grabbing those beams and lifting himself up on his tiptoes. I found out later why he did this. If you’re standing and the ship takes an explosion under you, it will break both your legs as the ship suddenly lifts up. I finally did what he said.

Our 5-inch mounts were just wide open—Boom! Boom! Boom! Boom! And then I heard Crack! Crack! Crack! That was the sound of the 3-inch mounts. Our 5-inch guns had a range of about 10,000 yards, the 3-inch guns about 6,000 yards. That meant that if we were opening with the 3-inch mounts, our attackers had to be within 6,000 yards of us and were going to be on us real quick. We were throwing everything in the world at them.

And then I heard, “Torpedo in the water! Torpedo in the water!” again followed by “Torpedo is past us!”

They were maneuvering the ship and the torpedoes were missing us.

I don’t know how long the fight went on—not very long—and then it broke off. The planes from the *Ticonderoga* then came in and hit the three PT boats. At the time I was told we had sunk one, one was dead in the water, and the other limped off.

We had taken hits with some .50 caliber machine gun fire. One of them hit the after mount. Chief Keith Bain, the after mount director, was in there, and a bullet bounced all around him in that confined little space but missed him. Anyway, we got out without any casualties but for some ruptured eardrums from the concussion of our own guns. The men who were on the main deck didn’t put cotton—or whatever we used back then—into their ears in time. If you are on deck and someone fires a 3-inch shell, it is absolutely painful. Your eardrums are splitting because it’s a high-pitched crack. If a 5-inch shell is a muffled baritone, a 3-inch shell is a tenor. Everybody I examined that day who had a headache or an earache had blood behind the eardrum—in both ears.

We left the Gulf of Tonkin and rendezvoused with Task Force 77. Then we were ordered back into the gulf, this time accompanied by the USS *Turner Joy* [DD 951].

The night attack occurred on the 4th of August. Time went on and then we started picking up speed and zigzagging. It wasn’t very long after that night attack that we went to general quarters and the captain said we were being attacked. I heard a 5-inch mount go off. I thought, “Okay, this is it.” Then, all of a sudden, I heard, “Torpedo in the water! Torpedo in the water!” And that began the wildest damn time you have ever seen in your life.

We were zigzagging all over hell and every now and then we would open up with a one- or two-shot volley. I could also hear the thud of the *Turner Joy* out there. This went on for a while—the zigzagging and “Torpedo in the water! Torpedo’s missed us!”

We had set “Zebra” throughout the ship which meant we were locked down. We had all the boilers on the line in the fire rooms and it got up to 140 degrees. Then the [heat] casualties started coming into the wardroom, and I did exactly what I was supposed to do. I jammed IV fluids into them, wet them down, and got them back into the fire rooms as quickly as I could. Of course, they came back after



NH 97897

Lieutenant Commander Dempster Jackson next to the bullet hole in *Maddox* (DD 731).

about 10 minutes. The second time they would be sicker, and I'd do the same procedure again and send them back. I hated to do it. The only time I decided not to send them back was when I thought they wouldn't survive the next time down in the fire rooms. If I thought they'd die, I'd keep them.

People were lying all over the ward-room floor, and I was stepping over them. Some had collapsed veins yet I tried to jam 18-gauge needles into collapsed veins. It was amazing! It really helps to have something to do in combat, and I was so damned busy. I'd hear the shouting, "Torpedo in the water!" But I didn't give a damn. I had something to do. There wasn't anything I could do about the torpedo, but I could do something about the guys lying on the floor. And that's what I did. Those kids didn't realize that they did more for me than I did for them.

Eventually, the skipper came on the 1MC and said he thought the sound the sonar man was picking up was the sound of our rudder as we moved through the water, and we were breaking off action. [While



NH 97903

In this 1953 photograph, U.S. destroyer *Maddox* steams astern of carrier *Philippine Sea* (CV 47).

it certainly seemed real to Lieutenant Halpern and others in the crew, most historians now agree that the North Vietnamese did not attack *Maddox* and *Turner Joy* on the night of 4 August 1964.] ↴



Courtesy Bob Ingraham

Navy physician Lieutenant Claude DeShazo, MC, examines a patient during a MEDCAP (Medical Civil Action Program). This program was another attempt to win the “hearts and minds” of the Vietnamese people.

HEARTS AND MINDS

If the Communist insurgency was to be kept at bay and finally defeated, “winning the hearts and minds” of the South Vietnamese people increasingly became the goal of U.S. aid.

Because medical care of any kind was a luxury few Vietnamese in the impoverished countryside could afford, medical aid programs became a high priority. A series of programs, which were co-sponsored by the Department of State, the U.S. Agency for International Development, and the Department of Defense, staffed teams who became part of the Military Provincial Health Assistance Program, or MILPHAP. The Department of Defense was to provide military personnel to staff these teams that would practice medicine in South Vietnamese civilian hospitals alongside their Vietnamese counterparts.

By early 1969, the Navy fielded seven MILPHAP teams to operate in Quang Tri/Quang Tri Province, Hoi An/Quang Nam Province, Tam Ky/Quang Tin Province, Bro Loc/Lam Dong Province, Chau Doc/An Giang Province and Cao Lanh/Kien Phong Province, Soc Trang/Ba Xuyen Province, and Rach Gia/Kien Giang Province. Each team consisted of three general physicians, one Medical Service Corps officer, and 12 enlisted personnel.

Navy nurse Lieutenant Commander Bernadette McKay remembered duty at the Vietnamese hospital in Rach Gia: “From 500 to 600 patients were seen every month in the emergency room. This room was also an admission room, minor surgery clinic, cast room, blood drawings room, and triage

center during mass casualties. Two tables were normally used for changing dressings, examining patients, and applying casts. The number was increased to five during emergencies. Duty in the ER was a combination of battle aid station, pediatrics clinic, and typical hospital emergency room in a large city. In several mass casualty situations, 35 to 140 patients were examined and treated in this area.

“Mortar and bullet wounds, burns from bomb blasts, lacerations, and abscesses were the most frequent types of injury seen. When many patients were waiting to be treated, the entire crews of the



BUMED Archives

Navy physician Lieutenant Raymond Osborn examines a critically injured truck accident victim at Hoa Khanh Children's Hospital. One mission in the early days of American involvement in Vietnam was teaching the Vietnamese the practice of Western medicine.

operating room and emergency room, plus the administrative personnel, centered their initial activities there. Patients were bathed, their x-rays evaluated, and their further disposition made—all in this one room.”

The experiences of the MILPHAP teams were as diverse as the geographical locations in which they operated. Even though all teams served in a war zone, some teams encountered frequent rocket and mortar attacks while others practiced medicine in relative quiet. Few American medical personnel spoke Vietnamese. The hasty training for their mission did not include extensive Vietnamese language instruction.

One surgeon, Dr. William Gondring, summed up what became an all too familiar theme in Vietnam: “We Americans came and took over the surgical care in that hospital. But we didn’t take it over to integrate, to teach, to communicate, to learn from, to have a dialogue with. We took it over to provide an American military system.”

The Navy and the other services also began what were called “civic action” or “people-to-people” programs whose primary aim was to enable the Vietnamese to help themselves. Special naval construction battalion (Seabee) teams taught villagers to build bridges, dig wells, and construct buildings. These programs embraced English and technical training classes and on-the-job instruction, and they also provided medical and dental assistance.

The Medical Civil Action Program (MEDCAP), one of the first civic action programs implemented, was co-developed by the U.S. Embassy, Saigon and MACV (Military Assistance Command, Vietnam). It was intended to provide emergency care for civilian casualties and refugees in combat areas, offer sick call and limited dispensary care in populated areas not yet secure, and give professional medical assistance in secure areas and local hospitals. The long-term success of the MEDCAP mission, however, was questionable. The increase in the war’s intensity in 1967 and the burgeoning number of civilian casualties hampered the program’s effectiveness. Moreover, what little medical care U.S. personnel



Courtesy Bob Inghram

Dr. DeShazo listens to a patient’s heart sounds.

could provide was often a one-shot deal in an environment without a basic medical infrastructure. Patients who required continuing care or medication often could not receive it. And, more significantly, the Viet Cong exacted a heavy toll on those villages aided by the Americans. Commander James Ryskamp, head of Surgical Team Alpha stationed aboard the U.S. amphibious assault ships *Okinawa* (LPH 3) and *Iwo Jima* (LPH 2), assessed the situation: “The villagers were stuck. We’d come through and treat them nicely, and then the VC would return and kick their butts because the villagers had been friendly to us. They were caught in the middle and just couldn’t win.” Nevertheless, the MEDCAP concept was a noble one. As a 1967 Marine Corps handbook pointed out, civic action was “applying the Golden Rule in the cause of freedom.” ↓



A Navy dentist on a MEDCAP teaches youngsters how to brush.



A Navy dental technician at work as part of a MEDCAP.



BUJMED Archives

Medical personnel at a battalion aid station provide emergency care to an incoming casualty.

THE MEDICAL BATTALIONS

With escalation of the war, the first U.S. combat troops arrived in Vietnam in March 1965 to defend the Danang airfield. These were the Marines of the 3rd Marine Division. Soon Marines were also deployed to Chu Lai, about 50 miles south of Danang, to protect the airstrip. They were also sent to Phu Bai, about 40 miles north near the city of Hue, to defend another airfield in that area.

It was not long before the Marines shifted from defense to offense, actively patrolling the countryside and searching for the enemy. With a force of 3,500 troops now on the ground and escalation of the war seeming to be a foregone conclusion, medical assistance became a high priority. The 3rd Medical Battalion would provide that support.

The 3rd Medical Battalion had a collecting and clearing company for each of the infantry regiments and one company at the division headquarters. The collecting and clearing company was intended to be mobile so it could move within the infantry regiment to which it was attached. Because the war in Vietnam was essentially a “frontless” conflict with little movement, the collecting and clearing companies were in fixed locations. These companies traditionally were not designed as definitive treatment facilities, but they were the only companies then available for assignment to Danang, Chu Lai, and Phu Bai where airfields needed protection.

Charlie Medical Company personnel found their initial months in Danang rigorous and the living conditions poor. Most perceived the situation as a camping trip gone sour. The used tents were old, worn out, and decayed in the heat and the rain. Because the supply system had not yet caught up, obtaining materials to improve the facilities was a constant problem. Nevertheless, personnel became quite innovative in seeking solutions. They re-pitched the tents over wooden frames and plywood decks. As soon as corrugated tin and screening became

available, they constructed wooden dwellings to replace the canvas shelters.

“We ate out of mess kits,” recalled Commander Almon Wilson, Charlie Med’s first commanding officer. “We did our own laundry. The shower consisted of a 55-gallon drum with a small pipe with a valve on it in the bottom. Water ran into a large fruit juice can with holes punched in the bottom to give the effect of spray. We did not have hot water for nearly a year.” Despite their limitations at the outset, within a few short months these collecting and clearing companies had become real hospitals. Charlie Company organized at Danang, Bravo at Chu Lai, and Alpha at Phu Bai. Before long Delta Company was also operational. Commander Almon Wilson recalled the newness of the experience: “We were going through the typical learning curve of young surgeons in a war. It has to be said that when each war comes along, a new population of surgeons has to learn war surgery. Fortunately or unfortunately—however you wish to put it—in the civilian sector few injuries are true counterparts of combat injuries. That may sound funny but it’s true.”

Charlie Med, situated on a flat, sandy area bordering on rice paddies, was fairly typical of how these combat hospitals eventually looked once up and running. Beyond the rice paddies was the ocean. A helicopter pad for receiving casualties lay in the center of the compound. The medical staff occupied screened, wooden-framed structures with corrugated metal roofs called “hooches.”

Operating rooms consisted of two plywood boxes side by side inside a canvas tent. The tents were surrounded by sandbags. Between the two operating rooms, a larger tent enclosed a plywood box. This bigger tent served as a recovery room and an intensive care unit (ICU). Several open-air wards were hardbacked.

Anesthesiologist William Mahaffey called to mind that the staff made do with just the basics: “We got a respirator halfway through my tour. Today’s



Hospital corpsmen aboard the amphibious assault ship *Tripoli* (LPH 10) hustle to retrieve incoming wounded.

anesthesiologists think they can't do an anesthetic without a respirator. Back then we had one respirator we had to spread out evenly for four operating rooms and possible use in ICU."

The policy developed for treating casualties at the medical companies followed certain procedures. After admission, a patient received treatment. If he could recover from disease or wounds within 120 days and return to duty, he was kept in theater. If additional care was required, he was shipped back to the U.S.

As troop buildups continued and the war became more violent and widespread throughout South Vietnam, Navy medical personnel had ample business. The types and severity of the injuries were those typically inflicted by the weapons of war—mines, high-velocity small arms, artillery, grenades, mortars, rockets, and booby traps. In time, the medical battalions were very well staffed and equipped to handle the large influx of casualties. Well-trained surgeons, anesthesiologists, orthopedists, and oral surgeons, many hailing from some of the finest U.S. medical schools and hospitals, were able to perform definitive surgery. Mine-inflicted injuries sometimes required vascular repairs, and



A wounded Marine receives medical attention on *Tripoli's* deck. After being stabilized, patients went to the ship's sick bay and then were transported to a hospital ship or shore facility for more definitive treatment.

skilled surgeons saved many limbs from amputation. The surgeons returning to civilian life put that expertise to good use.

Dr. Mahaffey remembered that Charlie Med of the 3rd Medical Battalion saw mostly "massive soft tissue injury and those which had utterly destroyed femurs, tibias, fibulas, and ankles—things that I had never seen in a civilian setting." His hospital also treated many malaria patients and those suffering from disabling diarrhea and dysentery.

Not all casualties could be repaired with scalpels and sutures. As in all wars, the stress of combat—with all its horrific by-products—took a toll on the human psyche. In Vietnam, men broke down, became contentious, or grew increasingly depressed. Units sometimes spent weeks in the bush living, fighting, and enduring an inhospitable environment. These surroundings took the form of heat, humidity, insects, snakes, leeches, booby traps, and an invisible but deadly enemy. For the men defending isolated hilltops and outposts, enemy shelling deprived men of sleep, leaving them exhausted, disoriented, and unable to function.

Everyday confrontation with fear, violence, trauma, the loss of friends, and their own mortality

sometimes left even the best fighters worn out and burned out. Given such unsettling conditions, all men were susceptible to these symptoms, but those with previously undetected mental illness could also become threats to themselves and their comrades. Attending to this kind of disturbed and disabling mental casualty was the job of Navy psychologists and psychiatrists. Never in adequate supply, these mental health specialists practiced in medical battalions and aboard the two hospital ships. Their approach to dealing with psychiatric casualties was to treat them as close as possible to the scene of action and then quickly return them to their units.

Most of the psychiatric patients who arrived at the medical companies or hospital ships were Marines who demonstrated extreme stress related to combat. Those who could not immediately be sent back to their units after some rest were retained in small 10- to 12-bed units. The antipsychotic drug of choice was Thorazine, which had a sedative effect on most patients. If patients were very stressed, psychotic, disorganized, or extremely fatigued and not able to function, psychiatrists administered enough Thorazine to make them sleep for two or three days. At timely intervals, corpsmen would wake the patients, help them to the latrine, give them food and fluids, and then allow them to go back to sleep. After a day or two of this regimen most patients improved drastically and were able to return to their units. Others, aided by medication, food, and support in a safe quiet place, recovered

As an anesthesiologist, Lieutenant William Mahaffey, center, was almost always a member of the operating team at Charlie Med.

fairly quickly. Such treatment significantly reduced the need for medical evacuation.

Psychiatrists or psychologists screened new patients by comparing referring information submitted by the general medical officer with the patient's own evaluation of his perceived complaint. After discussing the problem with the patient, the doctor determined whether he was ready to return to his unit, or if he had a problem severe enough to require him to be hospitalized or evacuated. Lieutenant Commander Stephen Edmondson, a psychiatrist assigned to the 3rd Medical Battalion, stated that in many cases, after medication and rest, most patients who were hospitalized for even a short period were able to get back on their feet and function again. They were assigned to do chores around the medical battalion to keep them busy and to help them rebuild their confidence. If their behavior appeared normal, they returned to their units within a few days.

Occasionally, mental health specialists found a patient who was clearly dangerous to himself or his comrades. These men were evacuated to the hospital



Courtesy William Mahaffey

Resuscitation of the Nearly Dead

One innovative medical technique pioneered in the Vietnam War was the rapid resuscitation of patients who had suffered massive trauma. Soon after medevac helicopters delivered wounded troops to a medical battalion hospital, skilled trauma teams moved into action. These teams employed a basic but extremely effective resuscitation system for those men nearly bled out from massive wounds, with no vital signs and zero blood pressure. Former Delta Med surgeon Lieutenant Commander James Finnegan recalls the resuscitation sequence.

If I were the triage surgeon and we received a big batch of casualties, the first step we'd take was to sort them. We had 12 litters and we'd want the worst casualty in litter number 1, the second worst on 2, etc. The 12th may have been a guy who had been shot in the belly, but his vital signs were stable and he was fine. He would have to be explored but he was stable and could wait. This other guy who had no vital signs was bleeding like a stuck pig, and we either resuscitated him or he'd die.

We could do all this in a second. It got to the point where we could look at each casualty and put him there and him down there. That's how fast it went. The first team went to the first litter. This is where the criticality was at its height. The chaplain, the orthopedic surgeon, and the corpsmen began cutting off every stitch of clothing. In seconds, the patient was completely naked. In a few seconds more, both groins were opened with a scalpel and both saphenous veins were cannulated with IV tubing. Forget needles. We put the tubing right into the veins. Two pumps—boom!

Within minutes of that kid coming through the door, we were literally pumping stuff into him to restore his blood volume. We never cross-matched a unit of blood the whole time I was there. We used type-specific blood. That would horrify people nowadays. A trial lawyer would have a field day if you ever



Physicians of the 3rd Medical Battalion gather during a lull in the shelling at Khe Sanh. Left to right, Lieutenants Joseph Wolfe, James Finnegan, Edward Feldman, and Donald Magilligan.

Courtesy Edward Feldman

even mentioned that today. We never cross-matched anybody because we knew what the blood type was based on his dog tag. If he were type A: "Bring me 20 units of Type A." In a matter of minutes, this kid was getting blood and fluids through two huge bore IV cannulas [a tube for insertion into a duct, cavity, or blood vessel]. He had already been intubated instantly by one of our anesthesia people. If there was no heartbeat, the chest was opened very quickly. So the resuscitative effort was slick, quick, skilled, and effective.

I've been asked, "Did anybody ever fall between the cracks?" And I can honestly say, "No." I never knew of anybody dying because we couldn't get to him once that casualty got to us. You would think that with volume casualties that a [low mortality situation] wasn't possible. But I never saw that happen. We took care of everybody. ↴

in Danang for further treatment or sent home. “Our goal,” recalled Dr. Edmondson, “was to make sure the patients were able to think straight, cooperate with other people, carry out orders, and tolerate that very high degree of stress that combat situations included.”

The doctors always looked for the telltale signs of schizophrenia, other forms of psychosis, and depression so severe that the individual could not concentrate on his work. The patient might be prone to making a mistake that could cause death for himself or others.

In a war zone, it was not unusual for men to suffer severe depression when routinely faced with death and loss among their comrades. But death and loss aside, living in the field for long periods under combat conditions tended to leave warriors totally burned out. This type of depression often did not respond quickly to treatment—which made evacuation necessary.

Treating anxiety was another priority. In the combat environment, almost everyone experienced anxiety; it became a danger if the condition led to virtual paralysis in critical situations. Dr. Edmondson remembered a corpsman who had been involved in the siege of Khe Sanh. “He had rushed out to get some casualties onto an aircraft that had just touched down on the runway. Aircraft that landed at Khe Sanh rarely stopped completely but kept rolling to keep the NVA [North Vietnamese Army] from targeting them with mortars. The corpsman had just loaded a patient into the plane when a mortar landed about a foot and a half in front of him but it failed to explode. He froze, expecting the shell to detonate at any moment. When his fellow corpsmen saw what had happened, they grabbed him and threw him aboard the very next plane that came in. The man went to Phu Bai—not only to get out of harm’s way—but to be evaluated. He was badly shaken but was all right.”

On a daily basis, every mental health care professional who practiced in Vietnam saw the acute version of what later became known as PTSD (Post Traumatic Stress Disorder). Although they were encouraged to use the then common terms “combat fatigue” or “combat stress syndrome” to define this



BUMED Archives

Lieutenant James Thomas performs emergency surgery in a bunker during the siege of Khe Sanh.

condition, the symptoms were the same. As Dr. Edmondson observed: “If they could seal it over enough to go back to duty and continue functioning, they did so. Many of these patients swallowed hard, shut it out, and went back to duty. The chronic symptoms would begin to emerge later on. While they were in combat, they never had a chance to work on it and work it through. But later they would have this horrible wringing-out condition hitting them over and over again for years and years. If everyone who had experienced this typically acute disorder had been evacuated, we would not have had an army over there. It was part of the price of doing business in a war.” ↓



Corpsman Willie Barnes, right, of Marine Aircraft Group 36 comforts a wounded Vietnamese patient during a medevac operation.

NAVAL SUPPORT ACTIVITY HOSPITAL, DANANG

As the war escalated throughout South Vietnam, Station Hospital Saigon proved inadequate to handle the influx of casualties. In October 1965, the Navy created Naval Support Activity (NSA), Danang to support the Navy and Marines operating in the northern provinces of South Vietnam (I Corps). The new station hospital (NSAH) soon became the largest land-based medical facility in Vietnam. The advanced emergency hospital center had the usual general and orthopedic surgeons, but it also provided specialties not found in the medical battalion hospitals, such as neurosurgery, dermatology, urology, plastic surgery, ophthalmology, and ENT (ear, nose, and throat) treatment.

Three months after construction began in July 1965, Viet Cong sappers attacked the site with satchel charges and mortars, destroying much of

the compound. Despite this devastating setback, the hospital opened for business in mid-January 1966 with 120 beds. By the end of 1966, 6,680 patients had been treated. During the peak of American involvement in the war two years later, the bed capacity increased to 700 with 24,273 admissions. The facility also included a dental department, preventive medicine unit, blood bank, frozen blood bank, and a detachment of the Naval Medical Research Unit (NAMRU) 2, then headquartered in Taipei, Taiwan.

Naval Support Activity Hospital, Danang admitted three categories of patients, based on the number of expected recovery days. Those patients whose hospitalization was expected to be 30 days or less remained until they recovered, and then returned to their units. The hospital treated the more seriously injured but transferred them to



Naval Support Activity Hospital, Danang under construction in 1966.

naval hospitals in the Philippines, Japan, or Guam if their hospitalization was expected to be 120 days or less. If their condition required hospitalization beyond 120 days, the patients went to medical facilities in the United States. NSAH Danang provided care until patients were able to withstand air travel. Air Force casualty units provided the airlift to Clark Air Force Base Hospital, the naval hospital at Subic Bay in the Philippines, and also to Japan, Guam, and the States. Clark Air Force Base Hospital offered short-term medical care for patients on their way to other treatment facilities.

The hospital occupied the sandy strip on the east side of the Han River opposite Danang, between the Han River and the South China Sea. Its buildings included several Quonset huts connected by cement walkways, some of which were covered by wooden roofs. The casualty receiving area, consisting of one Quonset hut and an open area with a cement floor and tin roof, was adjacent to a small landing strip. The Pre-op building and X-ray hut adjoined the receiving area. Adjacent to Pre-op and X-ray were the lower OR Quonset huts that contained two operating rooms, the Central Supply half hut, and the upper OR hut that also contained two operating rooms. The two OR Quonset huts and Central Supply were in the shape of an “H.”

Nearly two years after NSAH opened, the staff numbered between 25 and 30, 15 of whom performed administrative duties. The hospital continued to expand, offering additional specialties such as oral and plastic surgery. A plethora of head injuries caused by land mines and booby traps kept the hospital’s one neurosurgeon very busy.



Lieutenant Commander Joan Brouillette and Lieutenant Larry Bergman wheel a patient into one of NSAH Danang’s operating rooms.

BUJMED Archives

“*Off Limits* greeted you in red at the door to the main Receiving 1 Quonset,” remembered Hospital Corpsman Third Class James Chaffee assigned to the hospital. “Inside, the place was all business. On either side of the hut near the rounded ceiling, pipes extended the length of the room suspending bottles of Ringer’s lactate [a clear liquid containing sodium chloride, potassium chloride, and calcium chloride dissolved in boiled purified water] ready for use. Pairs of sawhorses that lined both sides below the pipes pulled out to support stretchers bearing casualties as they arrived. Jelcos [catheter for administering intravenous fluids] and other equipment filled bins along the walls, and there was a cardiac board that doubled as a pinochle table. Along the front wall, near the door, hung the Unit 1 bags [combat medical bags], flak jackets, and helmets. The wall was lined with suction machines for chest tubes. The floor was concrete, stained brownish red, a drain in the center. The room was incredibly cold, and a sickly green light from bare overhead fluorescent tubes bathed the grayish interior.”

Battle activity always affected hospital operations. When the Communist Tet offensive was at

its peak in February and March 1968, casualties streamed in. This was also the case whenever a large U.S. operation took place in I Corps. Increased operational tempo also affected other major U.S. hospitals in the area—Charlie Med in west Danang and a hospital ship that might be in Danang harbor at the time or cruising just off the coast.

Casualties usually arrived by helicopter at NSAH's large helo pad. More than a dozen injured was considered a large number, even though the facility could handle a surge of 20 with available staff and its three or four operating rooms. However, if the number of patients arriving exceeded 120 with more on the way, triage was necessary. "I had to decide who went to surgery first," recalled Captain Harry Dinsmore, Chief of Surgery. "This was a very unpleasant duty as triage officers had to decide who was to be allowed to die because they were not savable."

A large influx of casualties might require additional assistance from other facilities. That help was often a telephone or radio call away at Charlie Med or one of the two hospital ships.

Once the decision was made to operate, however, NSAH's highly trained surgical staff swung into action. As surgeon Lieutenant Gerald Moss stated, the quality of medicine practiced there seemed a quantum leap over the treatment available during the Korean War. "Every time an endotracheal tube was inserted, it was done so by a trained anesthesiologist. Every time a head was operated on, it was done by a trained neurosurgeon. Whenever a belly was opened, it was done so by a trained general surgeon. Every artery was operated on by someone who knew how to operate on arteries. Every bone was taken care of by a trained orthopedic surgeon. I'm sure that had never happened before in history. And frequently all these doctors were operating on one patient simultaneously. There may have been a chest injury, a head injury, a belly injury, and a leg injury. The whole team operated in unison. It was quite inspiring."

Putting mutilated Marines and soldiers back together was how NSAH achieved its fame. Harry Dinsmore remembered doing "so many surgeries that it is hard to recall specific ones. I tried to save

some tremendous liver injuries, that is, those people that would have died within a half hour. And some of them died because you can't put a completely shattered liver back together. Because we had excess amounts of blood, we could work on them for a couple of hours and try to salvage them—try to repair torn hepatic veins and such wounds where blood was just pouring out. There were many of those kind of casualties and multiple amputees from land mines. Some had both legs gone, an arm gone, or maybe both arms gone. And there were some who had been blinded—all terrible injuries."

In addition, the hospital treated many ARVN (Army of the Republic of Vietnam) soldiers. During lulls in battle, when casualties were light, the staff also took Vietnamese civilian patients, operating on cleft lips and palates and performing other elective surgeries.

As occupied as they were with surgical cases, NSAH's staff also confronted deadly diseases endemic in a tropical locale—lung worm, cerebral malaria, dysentery, leptospirosis, scrub typhus, and hepatitis. A single corpsman on night duty often had to handle a ward with 60 or more patients. HM3 Chaffee called to mind "making the temperature rounds at 0200 with a ward full of malaria patients, giving them the standard drill when their fevers were excessive: Sit under a cold shower and drink a recycled IV bottle full of cold water after swallowing five aspirin. Sometimes short on bedside manner, the wards provided a real bed, hot chow, showers and flushing toilets, and excellent medical care. To the grunt Marines—the majority of our patients—they were paradise."

By the time it was turned over to the Army in 1970, NSAH had earned a reputation for being one of the finest emergency hospitals in Southeast Asia. HM3 Chaffee remembered his service at the hospital: "The spirit of the place was dedicated and proud. We would have been hard-pressed to provide better service to our wounded." ♪

Dr. Dinsmore's Souvenir

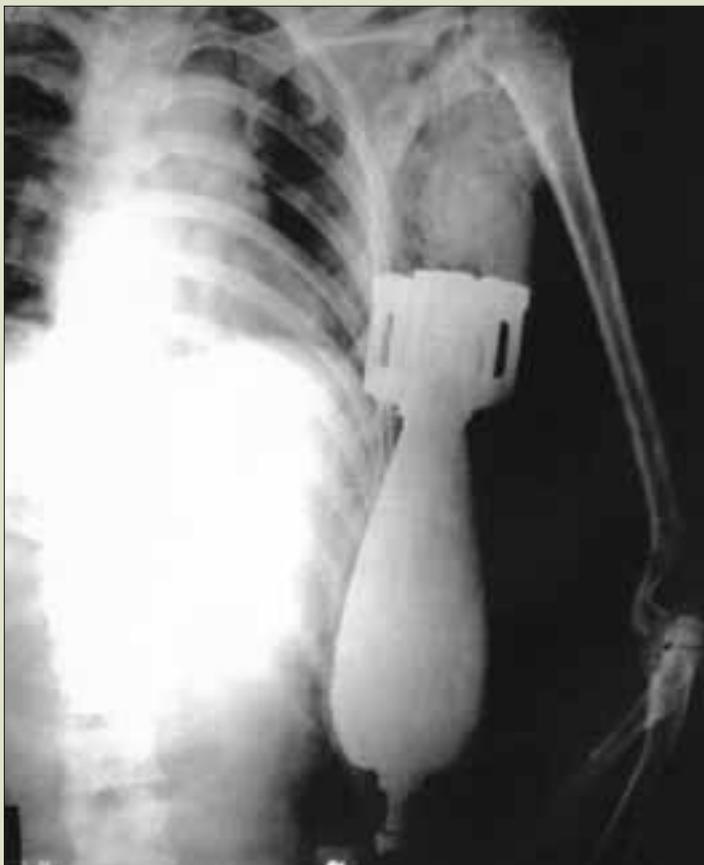
One of the most graphic photographs from the Vietnam War is an X-ray showing a mortar shell lodged beside the victim's chest wall. An enemy 60-mm mortar round hit the patient, a South Vietnamese soldier, as he rode atop an armored personnel carrier. The undetonated projectile plunged beneath his skin before coming to rest below the left armpit. Within minutes, the man's comrades rushed him—still conscious but terrified—to the nearby U.S. Naval Support Activity Hospital, Danang. Navy surgeon Harry Dinsmore described what happened next.

It was the evening of 1 October 1966. I was just finishing my evening meal when the officer of the day walked in with an X-ray in his hand. I vividly recall thinking my colleagues were playing a trick on me as we sometimes did to each other to break the boredom. I was assured it was no trick.

An ARVN [Army of the Republic of Vietnam] soldier, Nguyen Van Luong, age 22, was conscious and had no wounds other than the entrance wound in the anterior aspect of his left shoulder—and the obvious 60mm mortar round beneath the skin of his left anterior chest wall. His heavy denim army shirt was pulled into the wound and, as it later turned out, was badly entangled in the mortar round's tail fins. Most of the shirt had been cut away by the time he arrived. It was immediately obvious what had to be done.

I was chief of surgery and the senior surgical officer present. Although three to four other general surgeons were on my staff, with the gravity of this situation, I felt that I could not ask or order anyone else to do the surgery.

We called the Navy Ordnance Depot and told them our problem. A demolition expert arrived about 20 minutes later. When shown the patient, Engineman First Class John Lyons just shook his head in disbelief. The round, he stated, contained between one and two pounds of TNT. After measuring the firing pin on the X-ray, he pointed out that it was already partially depressed. The round could go off at any time—even without being handled!



The X-ray of a live Viet Cong mortar shell lodged in a soldier of the South Vietnamese Army is one of the most dramatic medical images of the Vietnam War.

BUMED Archives

In the meantime, several corpsmen and others were starting to position sandbags around the operating table in the OR at one end of a Quonset hut. However, their activity was stopped for two reasons. One, the round was of such a size that it could not be held in place with an instrument during surgery; it had to be handheld. There was no way this could be done from behind sandbags. The second reason was the more determining one. Lyons told us that sandbags would do no good. If the round went off, the whole Quonset hut would be gone!

The patient was taken to the operating room by stretcher, and I never saw such careful, tiptoeing stretcher carriers. They placed him on the operating table, stretcher and all. He was sedated, given a



BUMED Archives

Nguyen Loung several days after his historic surgery. Subsequent skin grafts to repair the massive wound enabled Nguyen to return to full duty.

general anesthetic by our anesthesiologist, intubated, and then attached to the Bird machine, an automatic respirator. The anesthesiologist then left. I had decided that no one should be there who didn't have to be. Only Lyons and I would stay. Lyons would take the round and disarm it after removal.

I chose not to do a skin prep. Lyons urged that there be no movement of the round within the tissue—no twisting or lateral motion. He felt the round should not be moved at all until it was lifted straight from the chest wall. To accomplish that end, I planned to make an elliptical incision completely around and away from the mortar shell. I proceeded with the surgery.

When the round had been completely encircled, I lifted it with the overlying soft tissues directly away from the chest wall, thinking every second that my world was going to end—the shell was just a foot from my face.

Just then, a major problem became evident. As the shell came away from the chest wall, I felt something restraining it. The patient's blood-soaked shirt, which was also firmly trapped within the entrance wound, was badly entangled in the mortar round's tail fins. With Mayo scissors, the heaviest we had, I spent an additional harrowing 10 minutes cutting through multiple folds of heavy, wet cloth to get it free. I handed the shell, with the surrounding tissues, to



BUMED Archives

General William Westmoreland presents Captain Harry Dinsmore with the Navy Cross.

Lyons and then hurried over to open the door for him. He took the round to a nearby sand dune where he defused it and emptied the TNT. He later returned it to me as a keepsake. The entire procedure had taken about a half hour.

For his heroic surgery, the service awarded Captain Harry Dinsmore the Navy Cross. The Navy recognized four other physicians with awards for removing live ordnance from their patients during the Vietnam War. ↴

Frozen Blood on Trial

AT NAVAL SUPPORT ACTIVITY HOSPITAL, Danang and other medical facilities in Vietnam, treatment of large numbers of critically wounded patients required huge volumes of fresh blood. Providing those facilities with sufficient supplies of that precious commodity became a major issue.

During the conflict, half the whole blood supply shipped to the war zone had a shelf life of 21 days. This supply quickly passed the date it could be used and was discarded. To make up the shortfall of fresh blood, the Navy Medical Department regularly sent new supplies by air. Recognizing it had to find a more reliable source, however, the department decided to use frozen blood.

Freezing red blood cells effectively stopped the 21-day clock. Once a person donated a unit of whole blood, technicians placed it in a centrifuge, which separated the blood's components—platelets, plasma, and red cell concentrate. The technicians then treated the red cells with glycerol, a cryopreservative. Freezing blood cells without glycerolizing them would cause ice to form on the cell walls, rendering the cells useless.

Once glycerolized, the red cell concentrate was stored and frozen in containers in mechanical freezers at -80 degrees centigrade. When needed, technicians thawed the container of red cells for about 25 minutes in a water bath and then washed the red cells to remove the glycerol. Afterward, the unit was spun in the centrifuge at high velocity to recover the red cells, which were now ready for transfusing. The once-frozen blood was virtually indistinguishable from its freshly drawn counterpart and was equally effective.

The science of freezing and storing blood was not yet a decade old when the United States committed forces to Vietnam. In 1956, the Protein Foundation of Cambridge, Massachusetts, began a frozen blood research project at Naval Hospital Chelsea, which soon became the Navy's center for that path-breaking work.

In 1965, the Navy established the Naval Blood Research Laboratory (NBRL) at Chelsea, and its scientists soon refined the techniques for preserving and storing blood. One year later, the NBRL shipped its first unit of frozen blood to Vietnam. The new hospital at Danang—with its more than adequate supply of surgical patients—offered a perfect venue to test the frozen blood bank concept.



BUMED Archives

Lieutenant Commander Edna McCormick and Hospital Corpsman Chief H. E. Williams use a cytoglomerator to reconstitute frozen blood aboard *Repose* (AH 16).

The Red Cross and other agencies collected blood nationwide and screened it to ensure that it was negative for several common antigens, substances that stimulate an immune response and the production of antibodies. The blood was universally compatible and not likely to produce clinically significant antibodies. It was the ideal universal donor blood.

Once the frozen red cells arrived at NSAH Danang, technicians transferred the blood to one of two sandbagged vans with "Frozen Blood Bank" painted on the sides. One van contained a freezer maintained at -80 degrees centigrade; the other van housed a lab to make blood measurements and record data.

As at Chelsea, when Navy surgeons needed blood, technicians thawed, washed, and then made it available in about 25 minutes for transfusion. Because patients with severe injuries required huge amounts of fluid and blood, the typical patient ended up with a combination of both frozen red cells and a number of units of liquid preserved blood.

A study determined that surgeons and anesthesiologists preferred using the frozen red cells when they were available because they were a known quantity. As surgeon Gerald Moss recalled, "They were pristine cells—no plasma, no white cells, no antibodies. And the blood grouping was unquestionably correct." Was the study successful? "Our job was to show whether or not [frozen blood] was feasible, safe, and effective to use in a war zone. And the answer was yes." ∩

A Navy Nurse's Recollections

In 1966, while serving as a staff nurse at Naval Hospital, Portsmouth, Virginia, following five years as an Air Force nurse specializing in operating room care, Marie Joan Brouillette volunteered for duty in Vietnam. She soon joined the staff of the Naval Support Activity Hospital, Danang.

The normal routine at the hospital was like this: When the choppers landed, the stretcher bearers ran out, deplaned the patients, and placed their stretchers on two sawhorses. Each bay had a team assigned and immediately began to remove ammunition, boots and clothes, and then begin an IV line on each side of the patient's neck. A patient admission chart was initiated and blood was sent to the lab for readings. After the triage officer assessed a patient's needs, he was placed on a gurney and taken to X-ray.

It was not unusual for this type of patient to be on an operating room table within 15 minutes after being removed from the chopper. In that time, he had received a total evaluation from the triage surgeon, had blood work done, had received a blood transfusion, had gotten complete X-rays, and the appropriate surgical team or teams had been notified. The OR and anesthesia teams were ready to begin their work. When a patient had injuries to his head, chest, or abdomen and/or needed a limb or two taken care of, all three specialty teams would work simultaneously.

The Tet offensive [starting in January 1968] was the first time we received so many casualties over an extended period of time, and many more days and nights stressed our capabilities as the fighting apparently increased. I have never seen such teamwork before or since my tour in Vietnam. Everyone assigned to NSAH Danang was an equal part of the team with the same goal.

We weren't on the clock as long as patient care needs were there. A team went 24, 36, or 48 hours if needed. We used common sense and allowed staff—who could go no longer—some time to rest. Somehow we managed. No one ever complained.

During the time I was in Vietnam, we processed more than 8,000 patients in the ORs and completed over 12,000 procedures on these same patients. For example, one patient might have needed a limb amputated, his belly opened to have bowel surgery, and a craniotomy for a head injury. These three

procedures would be done by a general surgeon assisted by an OR tech, an orthopedic surgeon, and a neurosurgeon—all working at the same time. This method—simultaneous treatment—had two advantages. First, the patient was under anesthesia for much less time which helped in his recovery. Secondly, the patient tied up the OR for about one hour versus the usual four hours if the three teams had worked sequentially.

I remember one patient above all the others. This much wounded Marine was the worst I had ever seen. His brains were coming out of his head. He had one leg blown off at the hip. The other was blown off mid-thigh. His belly was wide open. One arm was off at the shoulder joint and the other was off at the elbow. His eyeballs were lying on his cheek. His jaw was missing. And he kept saying, "I'm not dead! Please help me!"

He was one of the ones we prepared very quickly to get him to the operating room. Even up until the time he was put under anesthesia, he kept saying, "Please save me! Please save me!"

We got him off the operating table but he didn't last very long afterwards. We were unable to save him. That patient got to both the triage surgeon and myself. We both went back to our quarters and that was it. I just couldn't take anything for the next 18 hours. We had to build up our defenses again before we could go back. It's amazing, first of all, that someone prior to him didn't get through my defenses. To this day, it's still very emotional for me.

When I think back on Vietnam, that was the most rewarding year of my life, professionally. I think I made a difference with a lot of patients—and being able to speed up the process so we could save more. I didn't get emotionally involved with any of the patients. Each was a casualty we had to save. And that was it. I wasn't thinking of the person, his family, or anything else. You can't do that and remain sane. ♪



Hospital ship *Sanctuary* (AH 17) at sea.

MERCY SHIPS

Hospital ships were nothing new to the Navy. Just a century before the Vietnam War, *Red Rover*, a captured Confederate sidewheeler, had provided what was then state-of-the-art medical care to wounded Union troops. During the Pacific campaign of World War II, the Navy's growing fleet of hospital ships stood off the invasion beaches of Tarawa, Saipan, Guam, Iwo Jima, Okinawa, and a host of other battlefields, treating and evacuating the sick and wounded. Fifteen of these vessels were on line by war's end, the last six being of the *Haven* class—*Haven* (AH 12), *Consolation* (AH 15), *Tranquillity* (AH 14), *Benevolence* (AH 13), *Sanctuary* (AH 17), and *Repose* (AH-16). These ships of mercy had all been converted from C-4 freighter hulls.

The Korean War brought *Benevolence*, *Haven*, *Consolation*, and *Repose* out of mothballs to be modernized and re-equipped with the latest medical equipment available. Before she could deploy to Korea, *Benevolence* was lost in a collision with another vessel in San Francisco Bay. Her three surviving sisters were identical. Each 520-foot-long hull displaced 11,400 tons. With their single screw, 9,000-shaft horsepower, geared turbine drives, the ships had a top speed of 18 knots. These vessels had eight decks, three below the water line. All machinery spaces were located aft, leaving the entire forward portion of the vessels available for hospital spaces. This arrangement allowed the hospital to be one unit, not built around the uptake spaces and machinery trunks as in conventional ships. All treatment rooms and wards could be accessed by wide, continuous corridors.

To minimize movement from pitch and roll, the surgical suite, clinics, and treatment rooms were located amidships. The surgical suite accommodated two major operating rooms, a fracture operating room, an anesthesia room, a surgical supply room, a clinical laboratory, and a dispensary. The dental clinic had its own fully equipped laboratory and X-ray and darkroom facilities. The radiology department

contained a record and appointment office, examination room, and X-ray machines. Other hospital facilities included a physiotherapy department, a dermatology clinic, and additional laboratories.

All but *Haven* had again been mothballed by the mid-1950s. In 1954, following the Viet Minh victory at Dien Bien Phu, the namesake of the class returned to Asia to evacuate French soldiers from Vietnam. It was the last duty *Haven* performed in her short 10-year career. When the United States committed troops to Vietnam in 1965, hospital ships were no longer part of the fleet.



Haven as she appeared about the time she evacuated the French army survivors of Dien Bien Phu.

As the American presence in Vietnam grew, so did the number of casualties. Navy planners soon recognized that hospital ships could augment the medical companies and the soon-to-be established hospital at Naval Support Activity, Danang. Because of Vietnam's narrow geography accessible to helicopters and a long coastline suited to hospital ships,



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Medevac helicopter's eye view of *Repose*.

medevaced patients could be aboard and on the operating table within half an hour.

Repose was the first to come out of mothballs. At the San Francisco Naval Shipyard at Hunter's Point, she began an extensive overhaul in June 1965. Her Korean War-era helicopter landing deck was strengthened to support the newer, larger helicopters, but it wasn't until 1969 that yard workers enlarged the helo deck to handle the largest helicopters then operational in Vietnam.

The overhaul also reconfigured parts of the ship to improve efficiency in handling incoming patients. The focal point for admissions was located in triage, which in turn was located in the most accessible area of patient care nearest the helo deck. An inclining ramp connected these two strategic areas—entrance to the triage area and the helo deck—which enabled

rapid access to and from these two locations. Triage was equipped for rapid evaluation and resuscitation of acutely ill and wounded patients.

Besides adding the latest in medical equipment, the upgrade also included a portable heart-lung machine and an echoencephalograph. Both ships were fully air conditioned. "We had all the facilities you would find in a hospital today," oral surgeon Bill Terry recollected in 2005. "In addition, we had something very new. We had a frozen blood bank onboard. I think it was the first time a frozen blood bank had been put aboard a ship, and it turned out to be a great lifesaver for many of our patients."

The two remaining *Haven*-class sisters, *Repose* and *Sanctuary*, had similar or identical layouts and accommodations. The three decks above the waterline contained the wards, all provided with portholes. Each ward had access to the weather decks, allowing freedom of movement for the patients. All wards, with the exception of the intensive care unit, had bunk-style, two-tiered beds, with three-tiered beds on the so-called self-care units. Although both ships had the expanded capacity for 750 beds, the staff learned that 560 patients could be managed comfortably.

Because of their large displacements, *Repose* and *Sanctuary* meant relatively smooth sailing for patients and stable platforms for surgeons to operate. With their fuel tanks full, these vessels could travel at a top speed of 17 knots and cruise 12,000 miles.

The paint scheme was also new. Each gleaming white hull sported three red crosses spaced forward, amidships, and aft. Absent was the fore and aft green hull stripe from World War II and Korean War years. Four red crosses were painted on the single funnels of *Repose* and *Sanctuary*. The white hulls and red crosses were not cosmetic changes but necessary under the terms of the Geneva Convention, which regulated the status of hospital ships as noncombatants. These international agreements, of which the United States was a signatory, also meant that both *Repose* and *Sanctuary* would operate totally illuminated at all times and carry no armament, even when sailing in hostile waters.

When she was recommissioned on 16 October 1965, *Repose* was a fully equipped, modern floating



BUMED Archives

Corpsmen transport incoming casualties to triage aboard *Sanctuary*.

hospital with a medical staff of 54 officers, 29 nurses, and 543 enlisted personnel. Nevertheless, before her crew could assume their duties off the Vietnamese coast, a few defects needed to be worked out.

Lieutenant Commander Arthur McFee, who was slated to run the intensive care unit on *Repose*, recalled his concerns: “Its engines were never reliable. Until we went to Yokosuka in July 1966 for a month and rebuilt them, they intermittently failed. It had taken us about five days to get to Hawaii. We were scheduled for two days in Honolulu but ended up staying two weeks.”

Once repairs were made, *Repose* arrived off Chu Lai on 16 February and began taking on patients. Her beat was I Corps, and until she left Vietnam for good in March 1970, the ship supported military operations and took patients from such places as Danang, Dong

Ha, Khe Sanh, Chu Lai, Phu Bai, and Quang Tri. During her three-year deployment, the medical personnel on *Repose* treated more than 9,000 battle casualties and admitted approximately 24,000 patients for inpatient care. Bill Terry, the ship’s oral surgeon, remembered: “Of our patients who arrived aboard alive, we had less than a 1 percent death rate. And that’s almost unheard of. I think those are the best statistics for war casualties that had been achieved up to then.

“During the time I was aboard, we had 4,927 patients, and roughly 2,000 of those were severely injured combat casualties. We performed over 2,000 surgical procedures; 1,600 were classified as ‘major.’ We administered 3,067 pints of blood during emergency lifesaving procedures.”

Lieutenant Mary Lee Sulkowski called to mind how her hospital ship provided patients with a welcome



Navy nurse Lieutenant (jg) Kathleen Glover holds a young patient aboard hospital ship *Repose*. Lulls in battlefield activity allowed hospital ship staff to treat many Vietnamese civilians.

respite from combat. “When the patients first came aboard the *Repose*, it was a relief for them to get out of the war zone and to be in a clean white hospital. Not only was the outside of the ship white, but we had white bed linens, nurses in white starched uniforms, air conditioning, ice cream—all the perks of getting aboard a hospital ship, let alone the medical care. Their faces said it all.”

Unlike *Repose*, which was updated for the Korean War, *Sanctuary* had been idle since the end of World War II. Her refit was therefore far more radical. Workers at the Avondale Shipyards in Louisiana added a helo deck, and as with *Repose*, she received widened ramps to permit rapid movement from the helo deck below. Four operating rooms, a dialysis machine, an ultrasound diagnostic machine, a hyperbaric chamber useful for treating gangrene and tetanus, three X-ray units, and a blood bank were included in the renovations. Modern autoclaves for sterilization were also installed. The vessel’s 20 wards were updated with the latest equipment. On 15 November 1966, *Sanctuary* was recommissioned at New Orleans.

Four months later, after more extensive fitting out at Hunter’s Point, *Sanctuary*, too, headed for Vietnam. On 10 April 1967, she took aboard her first casualties. By the end of the month, the ship had admitted a total of 717 patients, with 319 combat casualties, 72 noncombat injuries, and 326 with disease. The staff also treated 682 outpatients. Only two of her patients died.

Yet statistics tell only part of the *Sanctuary* story. Nurse Miki Iwata remembered the conditions of the injured patients she was called upon to treat in the ship’s intensive care unit. “We had patients with multiple injuries—head injuries, orthopedic surgical problems—all in one. There were cranial injuries, broken arms, gunshot wounds, and belly wounds. They might have big holes in their backs or their buttocks or both. These wounds had to be packed, cleaned, and dressed. It was labor-intensive and took a lot of people to care for one patient.”

By April 1968, after a year in Vietnamese waters, *Sanctuary* had admitted 5,354 patients and treated another 9,187 on an outpatient basis. Helicopters, bringing patients from the battlefield, transferring them to and from other medical facilities, or carrying passengers to and from the ship, had made more than 2,500 landings on the deck of *Sanctuary*.

Occasionally granted brief rest and recreation out of the area, *Sanctuary* was the only Navy hospital ship left in Vietnam after 16 March 1970. On 23 April 1971, she departed Danang for the last time and headed home.

It was the intent from the very beginning that *Sanctuary* and *Repose* were not to be employed as “ambulance ships,” as was the case during World War II. The main function of those vessels was to stabilize and then transport casualties to more advanced care at base and mobile hospitals in the Pacific. Although ferrying patients back to Naval Hospital Yokosuka in Japan became routine for both *Repose* and *Sanctuary* during the Vietnam War, surgery and the definitive treatment of disease returned thousands of Marines, Soldiers, and Sailors to their units at the front. ↴



A nurse attends casualties on the deck of *Sanctuary* moored in Danang harbor.



BUMED Archives

Equipped for action, Hospital Corpsman First Class Craig Jimerfield is ready for a patrol. The corpsman served as a medical advisor to the Mobile Riverine Force in Dong Tam.

“WHEN YOU LOSE YOUR CORPSMAN”

Very special to the Marines he served, a Vietnam-era corpsman was the man the Marines protected because they knew his job was to take care of them. “Doc” had the skills to save their lives if they were hit.

But the corpsman had to earn that respect; he had to be tough to stay with the troops. It was not enough merely to reach the objective. Once at his destination the corpsman’s job really began. He had to carry a heavier load than his Marines did, handle stress, and monitor the daily condition of his men. And when the call “Corpsman up!” rang out, he had to remain cool under fire and override the adrenalin pump to get to his man and treat him.

If experience is the best measure of performance, retired Marine Michael Holladay is a good judge. He owes his life to a Navy corpsman. On 27 March 1968, then-Second Lieutenant Holladay and his company had just set up camp for the night. They were on a mission to locate and destroy a North Vietnamese Army hospital hidden along the Ho Chi Minh Trail. Suddenly Holladay heard the pop of an NVA mortar round leaving its tube. It was already too late. The shell landed not far from where he was standing. He recalled: “The brunt of it hit on the left side, shredded the flak jacket, and broke my left arm. Pieces of shrapnel entered just below the flak jacket on the left side and busted up my left hip. The force caused me to hit the ground in such a way that the impact ended up breaking off the lower part of my right hip, and filled the right leg with some shrapnel.

“I also took a couple of pieces just above the flak jacket on the left side and in the neck. And that was my main concern because once I came to, I felt like I was drowning. A fragment had just barely grazed the major vessels in my neck, and I was losing blood fairly dramatically”

When Holladay regained consciousness, Hospital Corpsman Third Class Ray Felle was at his side doing what corpsmen are trained to do—arresting the bleeding, treating for shock, and stabilizing broken

bones. Soon he had his wounded commanding officer aboard a helicopter and on his way to a hospital ship—Holladay’s second stop on his way to a full recovery.

Marine Sergeant Richard Zink offers another testimonial. Zink and his company were on patrol when a reinforced regiment of NVA regulars overwhelmed them. AK-47 rifle fire hit Zink’s hip and knee. Most of his buddies were killed or wounded. Zink remembered: “The corpsmen had to run about 125 meters to get to us, and every time they tried, they got knocked down. Six of them lost their lives. That night when the sun went down, those who could manage crawled the whole distance. The corpsman who got to me used up his battle dressings and then what was left of my skivvy shirt. When that was gone, he used his own shirt to stop the bleeding. Those guys who got to us had to carry out the dead and wounded; there were no Marines left to do the job.

“They were all magnificent. When it hit the fan, they were there. No one could have put anything better on this earth than Navy corpsmen. I’ve always felt—and I’ve told my men time and again—that when you lose your corpsman, you’ve lost everything.”

Hospital corpsmen served not only with Marine units but everywhere else the Navy operated in Vietnam. And, as a group, they made their mark. As early as 1954, hospital corpsmen were in Vietnam as participants in Operation Passage to Freedom. Just nine years later, they were on the staff of Station Hospital Saigon. In 1965, when the U.S. committed more troops to Vietnam, corpsmen accompanied the Marines when they landed on the beach in Danang.

As the conflict escalated, corpsmen supported both Navy and Marine Corps units. They manned medical departments aboard aircraft carriers, cruisers, destroyers, oilers, amphibious vessels, the battleship *New Jersey* (BB 62), and also with the riverine force—the so-called Brown Water Navy—in the Mekong Delta. In addition, they served in large numbers aboard hospital ships *Repose* and *Sanctuary*.

Field Medical Service School

FOLLOWING BOOT CAMP and hospital corps school, some fledgling corpsmen received orders to naval hospitals where they normally served as ward corpsmen. The Navy assigned others to the fleet as ship's company on board vessels with medical departments. The service assigned still others—much to their shock and dismay—to the Marine Corps. They found themselves assigned to the Fleet Marine Force, facing additional training at the Field Medical Service School (FMSS) at Camp Lejeune, North Carolina, or at Camp Pendleton, California. For young men who had once envisioned their military service in a stateside hospital or on board a nice clean ship with a comfortable bunk and legendary Navy chow, the new reality meant preparing for duty as an infantryman. They were trading Navy white uniforms for Marine green.

The Navy designed the Field Medical Service School for one purpose—to turn a Sailor into a corpsman ready to support Marines in combat. During a vigorous and grueling few weeks, these men went through what might be described as a “mini Marine boot camp” of physical conditioning, rudimentary weapons training, and learning advanced life-saving techniques.

More often than not, the program's weapons training portion was cursory and solely for familiarization. Hospital Corpsman First Class William Gerrard recalled his introduction to the .45-caliber automatic pistol. “We got to go out and shoot the .45-caliber pistol on the range—two clips—10 to 14 bullets.”

Hospital Corpsman Third Class Roger Ware's time on the range was limited to shooting “a couple of clips of an M14 and maybe 50 rounds of the .45-caliber. We weren't really at FMSS to qualify as experts. There just wasn't enough time to do that.” Later, as the Marine Corps made the transition from the M14 rifle to the new M16, corpsmen trainees learned to clean and maintain that weapon. Even though the Geneva Convention rules permitted hospital corpsmen to carry side-arms for their protection and that of their patients, more than a few found a “battlefield pickup” assault rifle essential.

The Southeast Asian theater of war required corpsmen trainees to learn some very basic practical skills. Hospital Corpsman Third Class James Maddox remembered veteran corpsmen instructors teaching them how to “stay down and apply pressure to the wound. At a model Viet Cong village, we learned how and where booby traps had been set and what punji sticks were.”



The Unit 1 medical bag was standard issue for hospital corpsmen during the Vietnam War.

Collection of HMCM(FMP) Mark Haccala, USN

As important as this military training was, the Field Medical Service School concentrated on a corpsman's actual job: keeping Marines alive in combat. The hospital corps school had provided them with good basic first-aid training. Now the Field Medical Service School honed those skills. They learned what Navy corpsmen had been taught for years—stop the bleeding, clear the airway, protect the wound, and treat and prevent shock. Other courses included assessing wounds, applying battle dressings, stabilizing sucking chest wounds, treating abdominal injuries and traumatic amputations, stabilizing a fractured jaw, maintaining an airway, splinting broken limbs, and learning field sanitation.

HM3 Ware recalled learning “how to do a tracheotomy, how to start IVs, how to apply different bandages, and how to use litters and ponchos to carry people. We also learned to take care of burns, give fluids, and treat heat casualties.” Loading and unloading simulated patients aboard helicopters rounded out the training. With only 27 days of FMSS training under their belts, many of the neophytes received one last pep talk.

“I remember sitting up in the bleachers getting ready to graduate,” recalled HM3 Maddox, “and one instructor said, ‘Look, some of you won't be coming back.’ I know that kind of put a lump in my throat. But it's just like anybody going out driving his car on the freeway and facing the odds of being killed in a wreck. You think, ‘Not me!’” ↴



BUMED Archives

Hospitalman Dennis Howe treats a wounded Marine during the Battle of Hue.

Ashore, they were assigned to Station Hospital Saigon beginning in 1963 and later sent to the Naval Support Activity Hospital, Danang. Corpsmen provided medical support to the Marines as members of air wings, reconnaissance teams, artillery fire bases, and with the 1st and 3rd Medical battalions of the 1st and 3rd Marine divisions. They also accompanied Navy SEAL teams on their secret missions.

It might be argued that corpsmen made their greatest contributions in supporting individual Marine rifle companies not only by providing rudimentary medical care but by being “first responders” to disease and traumatic injury. Throughout U.S. involvement in Vietnam, approximately 5,000 hospital corpsmen and 300 dental technicians served in-theater. The statistics testify to their familiarity

with combat. More than 4,500 were awarded the Purple Heart, 290 received the Bronze Star, 127 were given the Silver Star, 29 were bestowed the Navy Cross, and 4 earned the Medal of Honor (2 posthumously). The Vietnam Wall in Washington, DC, memorializes the names of 683 hospital corpsmen and 2 dental technicians who died in that war.

Almost without exception, each corpsman arrived in Vietnam as an individual, that is, a replacement, and not part of a military unit. In fact, assignment to a unit might take place right at the airport in Danang or certainly within a day or two. Unit needs dictated those decisions. And once a new arrival was assigned his battalion and regiment, finding his unit’s location and getting transport to that site were his responsibilities.

When they began living the everyday life of field

corpsmen, they encountered the worst the Southeast Asian environment could offer—malaria, foot immersion, snakebite, leeches, heat exhaustion and stroke, and jungle rot (usually a fungal foot infection).

Platoon leader Michael Holladay truly appreciated what his corpsman had to face. “We spent so much time in the bush that our clothing stayed wet damn near all the time. Because we went through tiger grass, which had a razor edge on it, the crotch of our utilities [the Marine fighting and field uniform] was cut out all the time. A lot of us also got to where we just didn’t wear socks because it was a waste of time; they were always wet. As a result, we had a lot of foot problems and a good deal of jungle rot. Many of us also had groin infections and boils. The corpsman spent much of his time trying to deal with some of the health issues that came up with men who were constantly living in a muddy, wet environment.”

Corpsmen were theoretically equipped to deal with these challenges, but many accomplished their missions in the high-heat, high-humidity jungle by shedding much of their gear. Hospital corpsman William Barber recollected his experience: “After a while I got rid of my flak jacket. I didn’t even wear a helmet. It was just too hot. I never changed clothes when I was out in the field. When we were traveling on foot in 100-degree temperatures up and down mountains, we wanted to carry the least amount of equipment we could. I didn’t need to carry ammo, grenades, or an M16 because during a firefight, all that equipment became available. So that’s why I only carried a .45 pistol. My original wardrobe consisted of a green sweatshirt that—from wear and the wet—rotted off me, a pair of dungarees, carriage belt, boots, and a soft cover. I also carried a Unit 1, which to me was ceremonial. I couldn’t carry drugs/medicines in it for long durations due to the weather, and I was constantly out of powders or ointments.”*

Corpsmen often found that their biggest problem was trying to force their men to practice rudimentary sanitation and take care of themselves. Barber noted that his second most common concern was heat exhaustion: “A Marine would go all day loaded down with extra gear and not drink his water. When they were exhausted, the gunny sergeant

would get up behind them and just keep kicking them to make them move. That was typical. ‘You’re a Marine. You can do it.’ They were young like I was and just didn’t know how to take care of themselves or, because of the Marine image, never complained. A guy would cut himself and just blow it off. ‘I’m 18. I’m invincible.’ The next thing you knew his finger had swollen up twice its size.”

As with corpsmen in previous wars, “doc” found himself playing other roles. He was also mother, father, and psychiatrist. Lieutenant General Ernest Cheatham, former commanding officer of 2d Battalion, 5th Marines, observed the special bond between corpsmen and the Marines they served so faithfully: “The doc—small ‘d’—was always with us and was just another Marine. He was the one who carried the medical bag. There’s always been a real fondness and a real close bond going both ways. A lot of corpsmen are very proud that they served with the Marines. And the Marines always tried to treat the corpsmen as best they could because they knew their lives depended on them.” †

**Note: Despite the Geneva Accord which stipulated that a hospital corpsman could be armed only with a defensive weapon—a pistol—to protect himself and his patient, as in other wars, this custom went by the boards. As his predecessors learned during World War II, a red cross on a helmet was akin to a bull’s-eye. During the Vietnam War, both North Vietnamese regulars and the Viet Cong frequently targeted corpsmen and radiomen. By eliminating one or both of these essential components, they degraded a unit’s ability to function. As a result, many corpsmen went beyond the standard .45 automatic pistol and armed themselves with rifles, shotguns, and other weapons.*

The Unit 1 medical bag contained a wire splint, aspirin (1 bottle), Tetracaine ophthalmic, Povidone iodine, atropine, 4-by-6 battle dressings, triangular bandages, camouflage roller gauze, cravat bandages, gauze field dressing, adhesive tape, Band-Aids, thermometer, rubber airways for children and adults, bandage scissors, tourniquet, mechanical pencil, and casualty tags. Morphine syrettes were added when going into combat.

The Unit 1 could also accommodate a surgical kit, which contained forceps, small scissors, bullet probe, needles and suture, scalpel handle, and No. 5 scalpel blades.

Despite being an issued item, the Unit 1, with its distinctive shape, was shunned by combat-experienced corpsmen who quickly learned that wearing the bag attracted unwanted enemy attention. Instead they carried medical supplies and equipment in gas mask bags, ammunition bandoliers, and other containers.

Medal of Honor

Donald Ballard joined the Navy in 1965 to finish his education and begin a career. Eventually he wanted to be a Navy dentist. But as with so many of his contemporaries, fate had another plan for him. After a short stint as a ward corpsman, the Navy assigned him to the Marines, and in November 1967 he deployed to Vietnam as an individual replacement.

On 16 May 1968, as Hospital Corpsman Third Class Donald Ballard and his Marine comrades were loading six wounded men onto ponchos for evacuation, a North Vietnamese soldier tossed a hand grenade into their midst. Ballard recalled what happened next.

What are you going to do with it? You don't have too many choices. It was inappropriate but acceptable to throw a dead body on it—something to absorb the blast. But I didn't have any volunteers and nobody wanted to play dead. Another choice was to get rid of it. The third choice was to try to hide yourself or run from it—and that was not going to work.

My patients—who were lying there—couldn't do any of the above. They were wounded. I had been treating them and they were out of the war and ready to go home. Therefore, I was the only one who could do anything to deal with this new crisis.

It was more of a reaction than a conscious decision. I didn't want to commit suicide. I had a wife and two kids. I had a life and I loved myself as much as I did the Marines. But again, I didn't see a whole lot of options at the time. I had to do something because the patients couldn't. I thought I could absorb the blast and save their lives. I believed it was going to kill us all if something wasn't done.

I had seen the grenade come in and roll down the hill toward us. It looked like a C-ration can with a handle in it. It wasn't smoking or anything—it just lay there. I had a flak jacket on that was supposedly bulletproof. I figured that would probably help a little bit. I wore that jacket all the time except when I was in the shower. I even slept in it. I guess I was thinking that my body would take most of the blast and save the others.

I lunged forward and pulled the grenade underneath my chest and waited. It seemed like an eternity. When you've got time to think about what you're doing, you relax. And then a second instinct kicked in and that was to throw it away. I was lying beside one

of my patients, and as I rolled up off the grenade, I turned over onto him and in one motion I slung it down the hill as I rolled. I wanted to get it as far away as I could. Of course, my second worry after I threw it was, "Damn! I hope I didn't throw it on my own guys!"

The citation says that when the grenade failed to go off, I quickly continued my efforts taking care of the Marines. It doesn't say anything about me getting rid of it. It's not the kind of object you leave lying around. And I can tell you for a fact that a grenade went off in the area where I threw it. I can't tell you whether or not that was the same one, but the Marines who were with me said it was.

I was glad that everybody survived it and doubly glad that I threw it in a place where there weren't any of our Marines. I didn't even think that anybody saw what really happened. It didn't appear to me worthy of a general flying in and saying, "You're a hero." ↴



BUMED Archives

**Medal of Honor recipient
Hospital Corpsman Third
Class Donald Ballard.**



BUJMED Archives

Comrades carry a battle casualty of the 1st Battalion, 4th Marines to a waiting medevac helicopter.

MEDEVAC

The helicopter stands as one of the lasting symbols associated with the Vietnam War. By the time U.S. combat troops arrived in South Vietnam in 1965, this unique aircraft was hardly a novelty. Igor Sikorsky had experimented with the helicopter in the late 1930s and perfected it by the mid-1940s. Because of its efficiency and ability to land virtually anywhere, the helicopter marked a new era in medical evacuation. In the beginning of 1944, an Army Air Forces lieutenant, piloting an early Sikorsky YR-4, performed the first helicopter medevac in Burma. But it was not until Korea that the “whirlybird” exhibited real potential.

More than 10 years before U.S. involvement in Vietnam, helicopters had shown their utility in Korea, transporting casualties from the battlefield to aid stations, field hospitals, and hospital ships. The most recognizable of the Korean War helicopters, the Bell HTL series, was a three-seat aircraft distinguishable by its Plexiglas bubble canopy, a fabric-covered wooden main rotor, open lattice tailboom, and landing skids. As the war progressed, larger, more efficient helicopters capable of handling up to four casualties were brought on line.

By the time of the Korean War armistice in 1953, choppers could routinely snatch the wounded from the battlefield and land them at medical battalion hospitals, mobile army surgical hospitals (MASHs), or aboard the three available Navy hospital ships. This evacuation system could move a casualty from the battlefield to definitive care within 60 minutes, the “magic hour” that often meant life or death.

Although helicopters had been used extensively during the Korean War, the chopper came into its own in Vietnam. In a country of few roads, little infrastructure, and a topography of jungle, highlands, and delta, helicopters were required to provide troop transport and airlift supplies. The omnipresent UH-1 “Hueys” were effectively employed to airlift Marines, Soldiers, or ARVN troops. The Hueys doubled as ambulances, evacuating the wounded

from where they had been injured to medical company hospitals, NSAH Danang, or to hospital ships. Not many casualties in Vietnam moved very far by ground. Much of the time the Marines operated in terrain not friendly to motor transport, so casualties moved by air as much as possible.

If Korea had represented the birth pangs of helicopter medevac, the Vietnam experience honed the system. Technology had certainly advanced by the early 1960s. The Bell “Bubble” with litters affixed to its landing skids was a relic even before the end of the Korean War. In 1965, when Marine combat troops came ashore in Vietnam, Marine squadrons were flying CH-34s. By 1968, CH-46 Sea Knights, CH-47 Chinooks, and the ubiquitous UH-1 Hueys were flying troop and resupply missions. Unlike the Army, which had designated helicopter ambulances (“dust-offs”), the Marines provided medevac on an as-needed basis. During the early phase of Marine operations in Vietnam, Lieutenant Commander George Harris, commanding officer of Bravo Medical Company of the 1st Medical Battalion, recalled that his unit “never had any dedicated helicopters, that is, helos used only for medical evacuation. They were available on a catch-as-catch-can basis unlike the Army which had whole companies of helicopter ambulances. The Marine theory was that an airplane is an airplane is an airplane, and a helicopter is a helicopter is a helicopter. The belief was that they couldn’t afford to sideline a helicopter to move casualties so we didn’t have dedicated ‘dust-off’ helicopters, or ‘slicks,’ as we called them.”

If a casualty required transportation to one of the hospital ships, a phone call to the local Marine aircraft group would usually bring a helicopter to the hospital helo pad in short order, if one was available. As Harris and his colleagues learned, an “urgent” ambulance call might well go unheeded if the group’s helicopters were all out on a mission.

By 1968, Marine helicopter squadrons, which were located in the I Corps area in northern South



BUMED Archives

Hospital Corpsman Third Class Ira Leavitt administers dextrose solution to a casualty aboard a medevac helicopter. The rapid infusion of fluids is necessary for counteracting shock.

Vietnam at Quang Tri, Phu Bai, and Danang, were flying daily medevac missions on a rotating basis. The designated air crew usually consisted of the pilot, copilot, crew chief, hospital corpsman, and, if the CH-46 were the aircraft, two gunners for suppressing enemy ground fire.

Duty as a medevac corpsman was strictly voluntary and no specific training was required. Hospital Corpsman Third Class Roger Ware had previously been assigned to Fox and Hotel companies, 2d Battalion, 5th Marines. Once back from the field and assigned to a battalion aid station, he frequently volunteered for medevac flights. "If they needed a corpsman, I'd go. I'd ride out in a helo somewhere in the field and wouldn't know where I was. I wouldn't be hooked into the flight helmet. I'd just be a body inside that helo. We'd land in an LZ [landing zone], a field, or rice paddy. They'd then bring a guy up, throw him on the helo, and we'd take off."

Night missions were particularly worrisome. "When a helo began going down into an LZ at night, we flew with no lights on, and just hoped to goodness there were no trees below us. When I was inside those helos, all I had on was my flak jacket and my gear. The gunners had reinforced armor vests and some extra protection around the machine guns. But if I stood in those doorways, I had no extra protection."

With the casualty safely aboard, Ware would immediately get to work. Even though the man had already been initially treated by the corpsman on the ground, Ware assessed the patient for injuries. He might then begin CPR, start an IV, or apply additional battle dressings to keep the man alive until the helo landed at the 1st Medical Battalion hospital. "When the helos landed, I'd get out and see the bullet holes."

What made the Vietnam War very different from previous conflicts was the number and frequency of medevac missions. Almost the instant a casualty occurred in the field, someone called for a "chopper." Former Navy surgeon James Finnegan held those helicopter crews in the highest regard. "How many times did these guys have to fly into hot fire zones! They had to slow down to land—becoming total targets. They'd go in under fire and pick up casualties. When they

succeeded, they delivered to us 18-, 19-, 20-year-old Marines with massive injuries. They would arrive at Delta Med in Dong Ha in seven minutes! They were barely alive—but still alive. The new experience was actually seeing these people sooner."

And that was the medevac helicopter's true significance. It was a flying ambulance that delivered the wounded to the operating room in minutes. The survival rates speak for themselves. The Soldier or Marine who arrived alive at a medical facility within an hour of injury had a 98 percent chance of survival. Today's trauma centers, which rely on medevac helicopters to deliver grievously injured patients well within that magic hour, owe their existence to procedures developed during the Vietnam War. In addition to medical teams' involvement—both on the ground and in the air—with successful helicopter evacuation, Navy medical personnel were represented elsewhere in Vietnam, serving on board the battleship *New Jersey*, on cruisers, destroyers, and aircraft carriers. Beginning in August 1964, carrier-based aircraft began the long air campaign against North Vietnam, hitting enemy roads, rail yards, bridges, and anti-aircraft missile sites. These carriers also were providing air support to ground forces fighting south of the DMZ.

The continuing presence of Navy ships in North Vietnamese waters occasionally generated casualties when enemy shore batteries scored hits on American destroyers and other vessels patrolling offshore. But, for the most part, those manning sick bays treated colds, sore throats, minor injuries, sprains, fractures, and the occasional appendectomy. Yet, as in any war, the situation could change in an instant. In October 1966 and July 1967, fire erupted on board carriers *Oriskany* (CVA 34) and *Forrestal* (CVA 59), killing and wounding many personnel. On *Forrestal* alone, 134 Sailors lost their lives and many more were badly injured. Medical personnel aboard both vessels responded to these tragedies, rendering care until the casualties could be medevaced. ↴

Prisoners of War

FOR THE MEN WHO fought the air war from carrier-based aircraft, the risks were many. Catapulted from the flight deck, they headed for their designated target—a rail yard, port facility, bridge, or power plant in North Vietnam. Each man knew the routine was never routine. Jet turbines, fuel lines, canopies, and control surfaces were incompatible with flak, bullets, and exploding surface-to-air missiles, or SAMs.

During the Vietnam War, 771 American military personnel became prisoners of war, most of them aviators. In 1973, 658 were returned to U.S. military control; 113 died in captivity. Although these numbers were a fraction of the 130,201 American POWs captured during World II and the 7,140 held in Korea, the prisoners of the Viet Cong and North Vietnamese suffered a singularly cruel experience. Many were injured by hostile fire prior to leaving their aircraft. The harsh ejection, often at low altitude, broke bones, dislocated joints, compressed or fractured vertebrae, and caused blunt force injuries. Once on the ground,

enraged Vietnamese civilians dispensed mob justice before military personnel arrived on the scene and took control.

Then the POWs had to confront many years of captivity. Isolation, disease, and inadequate food and medical attention were the norm. Ejection injuries went untreated as were those afflictions incurred during what can only be described as a premeditated torture strategy. What the Spanish Inquisition had once practiced in the 1500s paled in comparison to what the North Vietnamese devised in the 1960s. Recalcitrant POWs suffered the so-called rope trick, ankle stocks, wrist cuffs, and ratchet cuffs designed to cut off circulation by degree. They also endured electric shock, sleep deprivation, solitary confinement, and beatings—brutal treatment that exacerbated existing injuries or provoked new ones. The POWs who finally were freed in 1973 already knew they would have many issues to work through—both physical and psychological.



The first group of POWs awaits release at Hanoi's Gia Lam Airport, February 1973.

USN 1155654

Prior to Vietnam, no long-term study had ever been conducted on repatriated prisoners of war, with respect to the cause and forecast of disease or psychological problems. Unlike their neglected predecessors, the repatriated Vietnam POWs would find themselves treated as precious cargo by Captain Robert Mitchell, father of the Repatriated Prisoner of War Program, and his colleagues headquartered in Pensacola, Florida. In January 1974, Mitchell and his associates began examining the repatriated prisoners and documenting what had happened to them both physically and psychologically as a result of their captivity.

This unique medical team found that many of the former prisoners had done surprisingly well. The malnourishment they had expected to see was not as severe as they expected because the North Vietnamese had begun feeding them better during their last year of captivity. However, they did observe much evidence that these men had received no medical treatment or simply bad medical treatment. Their psychological health was, for the most part, good, even though their physicians had expected they would return in bad psychological condition.

Four years after the end of the war, Captain Joseph Ricciardi, an orthopedic surgeon, began seeing Mitchell's referrals, former POWs who were at that time part of the Repatriated Prisoner of War Program. Most were aviators who had suffered high-speed ejection injuries following shootdowns over North Vietnam. He was shaken by his observations. "I trained in a county hospital and saw every sort of vile damage that one human could inflict on another. But it took all my New York–New Jersey smarts and toughness to sit down and not cry when these patients would matter-of-factly describe how their bones were broken and dislocated on ejection. They told me how they were repeatedly tortured by having their arms pulled out of sockets to get information, and how they were routinely beaten and mistreated."

With each patient, Dr. Ricciardi listed every injury he could find and then x-rayed and annually examined every injured part of the man's body. Many of the POWs had had ejection injuries to their knees, their upper extremities, or both. A number of the men had dislocated shoulders.

What he learned was that orthopedic injuries that had gone untreated anywhere from one to seven



Lieutenant Commander Wendell R. Alcorn greets his nephews on his arrival via helicopter at Bethesda Naval Hospital, 15 February 1973.

USN 1155100

years had led to early arthritis. Many of the former POWs had returned with less than normal function in their arms, legs, and spines. Carpel tunnel syndrome and ulnar nerve injuries were also common.

X-rays revealed that their joints wore out faster than the control group's joints. This research had a surprising result. Because the POWs had been malnourished during such a long period, their heart disease rate was much lower than the control group. It was not until they had been back about ten years and had been eating well and getting into a more indulgent lifestyle that their heart disease rate started to catch up to the rest of the population.

Dr. Ricciardi operated on a number of these patients, primarily for the nerve problems—taking the pressure off nerves, carpel tunnel releases, ulnar nerve transpositions—and for shoulder rotator cuff repairs. "I saw a range of injuries in one POW I never could have imagined could be sustained by one individual. I sat down with this man for the better part of two hours and catalogued all his injuries.

"I saw any number of people with six, seven, and eight diagnoses—specific parts of their bodies that were fractured, dislocated, damaged, or otherwise injured. It was just incredible! I will probably never see that kind of abuse again in my practice." ∩



USN 1162928

Refugees disembark from attack aircraft carrier *Hancock* (CVA 41) at Subic Bay Naval Station in the Philippines during Operation Frequent Wind, the emergency evacuation of civilians from Saigon, April 1975. They are proceeding to large harbor tugs for transport to the refugee camp on Grande Island.

EPILOGUE

Even before Saigon fell on the last day of April 1975, ending the Vietnam War, the final stage of America's exit, Operation Frequent Wind—the large-scale helicopter evacuation from Saigon of American staff and selected South Vietnamese personnel and their families—had already begun. As Marine helicopters flew out to sea to land their passengers aboard carriers and amphibious assault ships lying offshore, waves of Vietnamese military helicopters packed with refugees followed in their wake, seeking any vessel that might offer a landing deck.

Frequent Wind had unexpectedly turned into a large-scale rescue of Vietnamese fleeing their homeland. “Our first indication they were coming was to see the blips on the radar and then to actually see the helicopters. All of a sudden we looked around and saw 1, then 2, then 8, then 12, 15, and 25. Pretty soon, they were all swarming out,” recalled Hugh Doyle, former chief engineer of *Kirk* (DE 1087), one of 50 ships of Task Force 76. Former corpsman Randy Hudson of the carrier *Hancock* (CVA 19) marveled that midair collisions didn't occur. “They were coming from all over and from every direction, and so frequently that the sky was dark from jet exhaust.”

Who can forget the images of chaos that followed as South Vietnamese pilots set their aircraft down on already crowded flight decks. Empty of fuel, some landed in the sea and, looking like dying birds, beat their rotors to fragments. As men, women, and children swarmed from aircraft, Navy crewmen stripped the helos of usable equipment and then shoved the now-empty choppers over the side to make room for more.

What was to be done as thousands of displaced Vietnamese unexpectedly became wards of the U.S. Navy? After initial screening for weapons and other contraband, medical personnel took over. On board *Hancock*, corpsmen armed with hand pumps sprayed the refugees with insecticide powder to eliminate the threat of lice and scabies.



U.S. Navy photo

Crewmen of the Seventh Fleet command ship *Blue Ridge* (LCC 19) carry refugee children to safety.

“We called them refugees,” said former Hospital Corpsman Second Class Randy Hudson, “but they weren't in wretched condition. They were from Saigon, a big city. If you compared them to us, they were mostly middle class. None of them were in rags.” As Hudson and his shipmates also noted, few required any medical treatment at all. The medical department on *Hancock* delivered a baby and conducted a single appendectomy.

Many thousands of seaborne refugees then appeared in everything that would float—ships, landing craft, fishing boats, and barges. “There were thousands and thousands of small boats. It made my radar scope look pure white,” remembered Paul Jacobs, former commanding officer of destroyer escort *Kirk*. “It began to look like Dunkirk.”

Refugees in this second wave were in more desperate condition. Many had been at sea for several days and suffered from hunger, dehydration, seasickness, and eye infections. A half-dozen pregnant women were transferred to *Kirk* and closely monitored by the ship's two corpsmen in a makeshift maternity ward.



Courtesy Craig Complano

USS *Kirk* (DE 1087) Sailors push a South Vietnamese UH-1H Huey over the side. With the fall of Saigon, hundreds of South Vietnamese helicopters headed out to sea, attempting to land on any U.S. Navy flight deck they could find. The sheer number of escaping Hueys packed with refugees forced crewmen to jettison the aircraft to make room for more. If time allowed, they first removed batteries, radios, and other gear before consigning these expensive aircraft to the deep.

Suddenly the task force commander diverted *Kirk* to Con Son Island to help escort remnants of the South Vietnamese Navy—32 ships—to Subic Bay. These vessels, too, swarmed with fleeing Vietnamese, all of whom required food and medical attention. During that five-day voyage to the Philippines, Hospital Corpsman Chief Stephen Burwinkel, senior corpsman on *Kirk*, aided by several corpsmen from other vessels, went from ship to ship conducting daily sick call. These medical personnel tended to thousands of refugees during this crossing of the South China Sea. Their dedication and tireless efforts were truly remarkable.

Refugees who landed in Subic Bay the first days of May 1975 did not remain long. Within days, they reboarded transports, some chartered and some

belonging to the Navy's Military Sealift Command, and steamed for Guam. In a hastily assembled tent camp, the first of several the United States would provide for the Vietnamese, Navy medical personnel again offered their services until the refugees were moved to other camps in California, Arkansas, Florida, and Pennsylvania—way stations on their journey to permanent settlement in the U.S.

Twenty-one years earlier, the United States had assumed the duty of transporting defeated French soldiers and then hundreds of thousands of Vietnamese refugees out of harm's way. Who then could have imagined that the U.S. Navy would again be called upon to help fleeing Vietnamese refugees make the transition to a new life. The story of Navy medicine in Vietnam had indeed come full circle. ↴



The Author

Jan K. Herman is Historian of the Navy Medical Department and author of *Battle Station Sick Bay: Navy Medicine in World War II*, *Frozen in Memory: U.S. Navy Medicine in the Korean War*, and *Navy Medicine in Vietnam: Oral Histories from Dien Bien Phu to the Fall of Saigon*. He earned a BA and MA from the University of New Hampshire where he was a Ford Foundation Teaching Fellow. Mr. Herman also served in the U.S. Air Force from 1968 to 1972 before joining the Department of State as a public information officer and writer. He also served as staff assistant to the

Assistant Secretary of State for Public Affairs and the Department Spokesman.

As curator of the old Naval Observatory, the Medical Department's headquarters, he organized and led a team that photographed the Moon using the 19th-century daguerreian process, thereby duplicating the first successful experiment in astronomical photography made in 1851.

In the summer of 1992, he represented the Navy Medical Department as guest lecturer for Project Marco Polo, the joint Navy–National Geographic Society expedition to Egypt, the Mediterranean, and Greece. He has also lectured before audiences at the Albert Einstein Planetarium of the National Air and Space Museum, the National Academy of Sciences, the Smithsonian Institution Resident Associate Program, the Explorers Club, and the Historical Society of Washington. In 2002, he was appointed to the adjunct faculty of the International Lincoln Center for American Studies of Louisiana State University, Shreveport.

Mr. Herman has just completed a six-part video series, *Navy Medicine at War*, a component of the Navy Medical Department's oral history program. He has spent more than twenty years with that project interviewing veterans of Navy medicine and chronicling their stories in articles, books, and videos.

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The author interviewed the following personnel as part of the oral history project: Lieutenant Commander Bobbi Hovis, NC, USN; Captain Russell Fisichella, MC, USN; Lieutenant A. Darby Reynolds, NC, USN; Lieutenant Samuel Halpern, MC, USNR; Lieutenant William Gondring, MC, USNR; Commander James Ryskamp, MC, USN; Lieutenant Commander William Mahaffey, MC, USNR; Lieutenant Commander Stephen Edmondson, MC, USN; Lieutenant James Finnegan, MC, USNR; Hospital Corpsman Third Class James Chaffee, USNR; Captain Harry Dinsmore, MC, USN; Lieutenant Gerald Moss, MC, USNR; Lieutenant Commander Marie Joan Brouillette, NC, USN; Commander Bill

Terry, DC, USN; Lieutenant Commander Arthur McFee, MC, USNR; Lieutenant Mary Lee Sulkowski, NC, USN; Second Lieutenant Michael Holladay, USMC; Hospital Corpsman Third Class Raymond Felle, USNR; Hospitalman William Barber, USNR; Lieutenant Colonel Ernest Cheatham, USMC; Hospital Corpsman Third Class Donald Ballard, USNR; Hospital Corpsman Second Class William Gerrard, USNR; Hospital Corpsman Third Class Roger Ware, USNR; Hospital Corpsman Third Class James Maddox, USNR; Lieutenant George Harris, MSC, USN; Captain Robert Mitchell, MC, USN; Lieutenant Commander Joseph Ricciardi, MC, USN; Hospital Corpsman Second Class Randy Hudson, USNR; Commander Paul Jacobs, USN; Chief Hospital Corpsman Stephen Burwinkel, USN. All interviews are in the Oral History Collection of the Bureau of Medicine and Surgery Archives, Washington, DC.

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Wounded Being Hoisted to Helo by John Steel. Acrylic on illustration board, 1966. Navy Art Collection.





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