

Coast Guard Hones Emergency Medical Skills

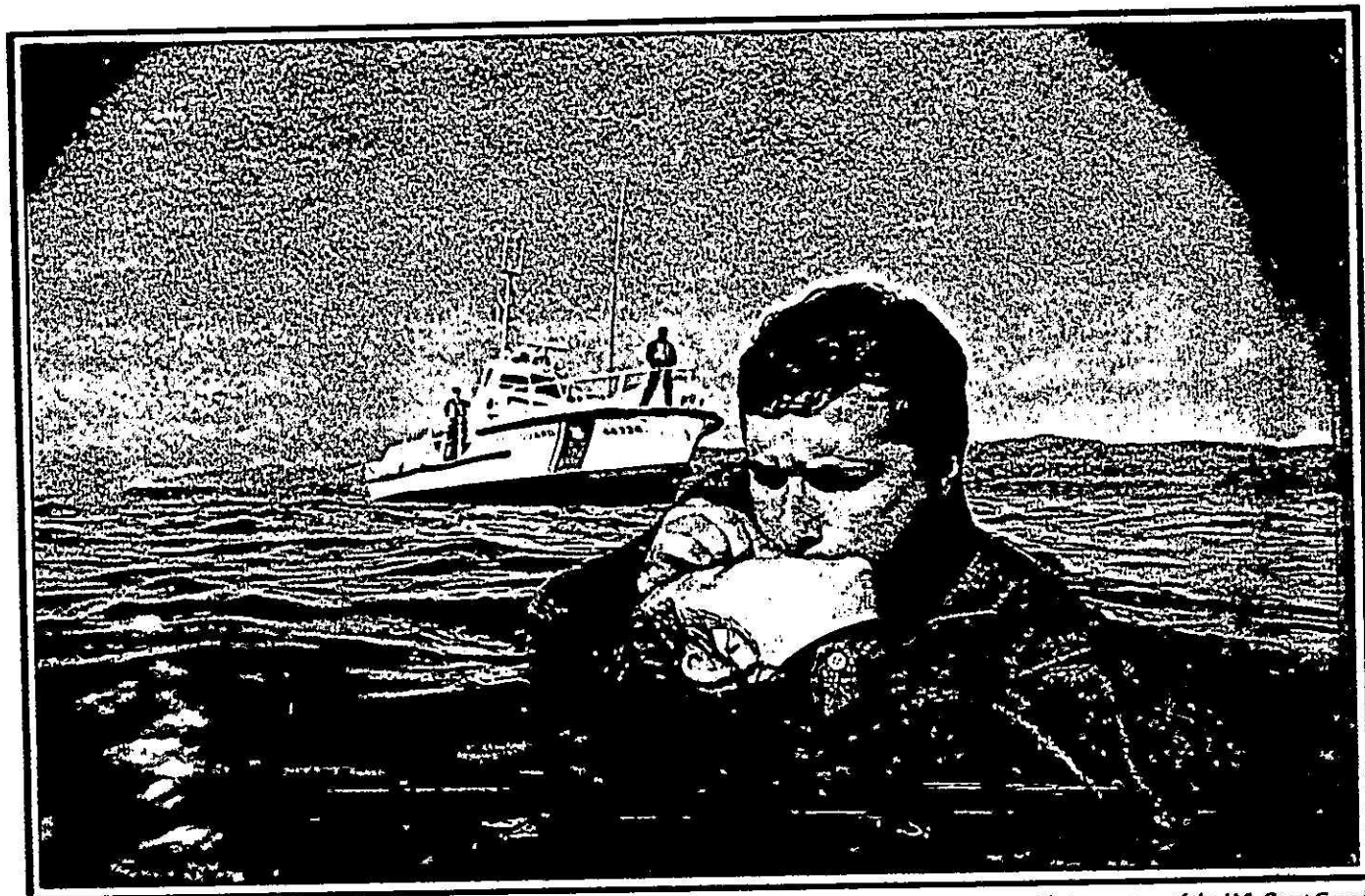


Photo courtesy of the U.S. Coast Guard.

COAST GUARDSMAN CHUCK Warren, a second-class aviation structural mechanic, flexed his knees as the 44-foot motor lifeboat took another roll. Cold ocean water rushed over the gunnel.

Fifty yards from the lifeboat waited Sherry Claytor, a volunteer victim. She disappeared several times a minute behind seven-foot swells.

"Go," shouted a physician assistant who squeezed a stopwatch.

Warren leaped over the side and swam toward Claytor who now was floating face down. Reaching the "victim," he

quickly flipped her over. Keeping her afloat with one hand and pinching her nostrils closed with the other, he gave her four quick breaths of mouth-to-mouth resuscitation. Seconds later, Warren positioned himself behind the victim with his left arm holding her above the water and his right waving toward the boat.

At the signal, First-Class Aviation Machinist Mate Lee Seward began towing Warren by using a line attached to his rescue swimmer's harness. Meanwhile, Warren wrapped his arms around Claytor, grabbed his left fist with his right hand and began compressing her chest 80 times per minute — a technique called in-water cardiopulmonary resuscitation (CPR).

By PAC·Dale Puckett

"Five yards," Seward yelled as Warren and his patient neared the boat.

After two more ventilations, Warren held the victim in position while Seward dropped a nylon line around her. Warren pushed while Seward pulled, and a second later Claytor was in the boat.

"Fifty-six seconds," said the physician assistant. "We're getting better."

After this afternoon's exercise at the Coast Guard Emergency Medical Technician (EMT) School, Petaluma, Califor-

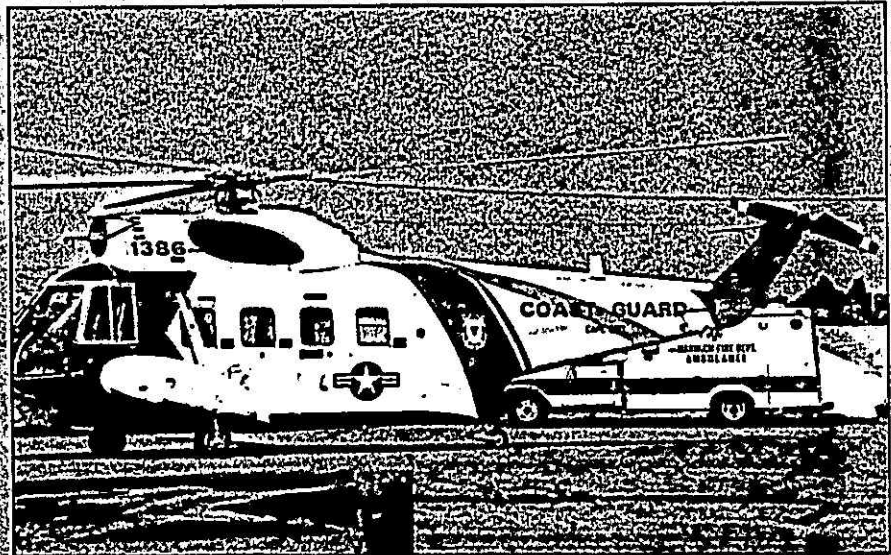
For years, the Coast Guard has been known for its lifesaving rescues at sea, but on-scene medical treatment usually was unavailable.

nia, thirty-three students, who had watched the demonstration, soon would practice the new water rescue techniques themselves in calmer waters near the Coast Guard station in Bodega Bay, California. They also would learn in-water patient evaluation and procedures for removing the injured from the water in a Stoke's litter.

The Coast Guard set up its new EMT school during 1979 on the assumption that a few minutes can save more lives. For years, the service has been known for its lifesaving rescues at sea, but on-scene medical treatment usually was unavailable unless the Coast Guard station was large enough to have a hospital corpsman assigned.

Generally, the patients received their first medical care at a shore-based hospital. As with most ambulance services on the nation's highways, the Coast Guard simply transported the injured to the nearest medical facility as fast as pos-

U.S. Coast Guard Joins Forces with Local EMS Systems



A helicopter from the USCG Air Station at Cape Cod and a Norwich Fire Department ambulance wait at a Massachusetts airfield to participate in the combined drill conducted on October 30, 1980.

ON JANUARY 2, 1980 the United States Coast Guard, First Coast Guard District, took a giant step forward in its efforts to provide excellent medical care to persons struck by illness or injury while at sea. On that date it issued a directive to its coastal facilities and the USCG Air Station at Cape Cod, Massachusetts, advising them to begin using the telecommunication facilities of the New England Medical Services Council for direct communications with hospitals and ambu-

By Joseph McNeil

lance services in their area of operation. This directive came about after a series of meetings between Mr. Bruce Alexander, Massachusetts EMS coordinator for telecommunications, and Captain Flanigan, Chief of Search and Rescue (SAR) of the First Coast Guard District, and Lieutenant Commander Ellis, Chief of the Communications Branch of First Coast Guard District. Through their efforts and the efforts of their subordinates, all of the aircraft and watercraft of the First District SAR units are now equipped with radios capable of communicating on Frequency 155.280 Mhz, thereby allowing them direct access to the CMED Centers from Portland, Maine.

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U.S. Coast Guard instructors demonstrate resuscitation techniques during a simulated disaster drill. Photo Courtesy of U.S. Coast Guard

Without the Coast Guard EMT, the patient may not live long enough to use the rest of the emergency medical system.

sible. Even the prestigious American Medical Association only recently recognized emergency medicine as a specialty field.

The new EMT school, however, has allowed the Coast Guard to integrate an emergency medical system into its search and rescue program. The system mixes trained emergency medical technicians and hospital corpsmen with reliable medical equipment and radio communication formats for medical personnel aboard search and rescue vessels and aircraft.

"The trained EMT is the most impor-

tant part of the system," said instructor Ken Beck, a first-class hospital corpsman. "Without the EMT, the patient may not live long enough to use the rest of the emergency medical system."

To ensure the necessary number of trained personnel, Coast Guard Commandant Admiral John B. Hayes has set a goal of at least one EMT crewmember on every rescue mission. That means more than 1,400 EMTs for the service's 358 SAR units. The figures translate into five EMT crewmen for every air station and lifeboat station and two EMTs aboard each Coast Guard cutter.

To the seven instructors at Petaluma, it means providing hands-on training to more than 400 students every year. To the students, it means 17 consecutive, 14-hour days of study and hard work. To the boater, it means the best possible emergency medical assistance available.

The students, if they pass, earn a Department of Transportation certificate as a basic EMT, local certification in 23 states, a special Coast Guard qualification code and the knowledge that they are truly capable of saving the life of a person in distress.

The Petaluma school now is the largest EMT school in the country and the only servicewide EMT school among the uniformed services. Its curriculum is designed specifically for Coast Guard search and rescue operations. As a result, some courses taught at Petaluma are not found at most civilian EMT schools. These include hypothermia treatment, cold-water survival, near-drowning, diving accidents and the extrication and handling of victims from boating or aircraft accidents on the water.

Training at the school is so intense at times that it can leave the stomach a bit queasy. The class on in-water drill, for example, barely escaped the cold water of Bodega Bay before they were confronted with a massive disaster, though only a simulated one:

"I'm Beverly Harris from the Coast Guard," the student said. "I'm an emergency medical technician, and I'm here to help you. Can you tell me what's wrong?" she asked while surveying the patient's condition.

"I can't move! My chest!" he said between moans. "I can't stand it!"

"Try to relax and don't try to move. I'm going to put a dressing on your chest," she said.

A minute later, after applying the bandage, Harris moved on to another victim. Fifteen minutes later a whistle sounded, ending the nightmare. Harris had treated five more patients. The

responsibility placed on the shoulders of the young crew, who are generally between 18- and 23-years-old, seems awesome.

"It really hits them on graduation day," Newcomer said. "They have earned the qualification code. When they go

During any rescue, an EMT will be the only one qualified to supply the vital information doctors will need for successful treatment.

back to the station, the rest of the crew will come to them with real questions. They will expect real answers. During the rescue they will be the only one qualified to supply the vital information doctors will need for successful treatment."

When the class returned from lunch, Seward and Hospital Corpsman Larry Young grabbed 11 students and hustled them into an unused classroom with the shades drawn. While the others reviewed rules for the exercise, Seward and Young used makeup called "mouflage" to turn a nearby parking lot into a ghastly scene of blood and gore.

Technically the scenario was simple: a plane crash. The pilot, with a major throat laceration, was dead. The copilot was suffering from a lacerated forehead and an injured eye. Other victims had flailed chests, eviscerations, heart attacks, and burns. A pregnant woman delivered prematurely. Fake blood gushed from "pumpers," simulating arterial wounds, on to another victim, staining the concrete red.

Coast Guard instructors called the exercise a "triage," a French word that describes the sorting and treatment of patients in a battle or disaster via an established system of priorities. Trained observers at this exercise carried clipboards and closely noted each student's technique.

Instructor Jerry Newcomer, a first-class radio operator, was intent on creating additional chaos by using a hose from a bright yellow fire truck. Red and

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to Providence, Rhode Island, including Boston, and Cape Cod, Massachusetts.

Before this directive took effect the designated Search and Rescue Mission Coordinator (SMC), whether a coastal station, Group Headquarters, the Air Station, or the District Operations Center in Boston, was responsible for the coordination of MEDEVAC units, local ambulance services and area hospitals. As our regional EMS systems improved, and certain hospitals became more specialized, it became apparent that the SMCs would understandably have trouble keeping up with the changes.

The Communications Committee of the New England Emergency Medical Services Council, which was chaired by Mr. Alexander, agreed to designate the CMED Centers of Portland, Boston, Cape Code, and Providence as Emergency Medical Centers (EMC) because these facilities were manned 24 hours a day and would be available for call-up at any time.

The EMCs have all available data concerning certain specialty hospitals (burn centers, trauma units, etc.) as well as a list of available ambulances. They are all trained in Mass Casualty Incidents (MCI) procedures and for the most part are tied in directly to other municipal and state agencies.

Using the new 155.280 Mhz frequency, MEDEVAC units can now speak directly to an emergency room physician or nurse by means of the automatic patching capabilities of the designated EMC. By doing so the MEDEVAC patient is assured of obtaining the best possible treatment available.

The United States Coast Guard Air Station at Cape Cod is situated on Otis Air Base and is responsible for carrying out the airborne aspect of search and rescue for the First Coast Guard District. It is equipped with fixed wing aircraft as well as short and long range rescue helicopters. The Coast Guard Dispensary at Otis provides the corpsmen for MEDEVAC flights to augment the air crews which routinely have one EMT onboard while on SAR missions.

Helicopter units from the Air Station provide immediate transportation of the seriously ill or injured person from vessels at sea to a local hospital, or upon the advice of a physician, the units may bypass the local facility and continue on to a specialty hospital.

The Air Station also provides an emergency transfer service from our local hospitals to specialty hospitals in Bos-

ton. These transfers are requested by a local physician and usually are of a life- or limb-threatening nature. As an example, one evening during the summer of 1980, a young man suffered a traumatic amputation of one leg as a result of an automobile accident. After being stabilized at the Cape Cod Hospital, a MEDEVAC helicopter picked him up and transferred him to a major trauma unit in Boston. The total time from the accident scene to the operating room in Boston was only three hours compared to at least six hours if land transportation were used.

The Cape and Islands Emergency Medical Services (CIEMS) is located at the Barnstable County Police Service Center at Barnstable, Massachusetts, and as the designated area EMC, controls an area from historic Plymouth to the Massachusetts/Rhode Island state line. In this area are numerous USCG coastal stations under the command of Group Headquarters at Woods Hole in Falmouth, Massachusetts.

Even before the advent of the EMC concept, Coast Guard units in this region were making use of CIEMS to assist in the ground transportation of MEDEVAC patients found during SAR missions. Now local Fire Department Rescue Squads, through CIEMS, are being asked to provide EMTs and paramedics with certain offshore medical emergencies, including cardiac disorders, diabetics, and severe blood loss from trauma. The old policy of "scoop and run" for these types of patients is almost a thing of the past because definitive treatment is being given while still on the waterways.

The Coast Guard station at Chatham, Massachusetts, commanded by Chief Petty Officer Branco, is very much like all the other stations commanded by Group Headquarters at Woods Hole. Chatham has a patrol responsibility both south and east from Cape Cod and uses two 44-foot patrol boats for this purpose. The Waters in this area are heavily traveled by both commercial fishermen and recreational boating. During the summer months the personnel of Chatham Station handle many calls for aid. If a distress call indicates the possible need for Advanced Life Support (ALS), Chief Branco requests assistance from either the Chatham or Harwich Fire Department Rescue Squads, simultaneously the EMC of CIEMS is put on alert to receive communication from the patrol boat. By using this method, several life-threatening situations have been transformed into stories with happy endings.

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The personnel at the Chatham station are very willing to interact with their civilian rescue counterparts. This was visibly demonstrated during October of 1980 when its people participated in a joint exercise with the Harwich Fire Department and a SAR Helicopter from Air Station Cape Cod. The purpose of the exercise was to test the feasibility of enlarging the mutual aid commitment between the Coast Guard and the civilian fire departments and rescue squads.

During the drill, members of the Harwich Fire Department in cooperation with the Coast Guard units recovered victims of a simulated boat fire. This drill also gave fire department paramedics their first chance to treat a victim of simulated, cardiac disorder while airborne. Communications for the drill were handled by the CIEMS EMC whose autopatch component made it possible for the Coast Guard units, operating on 155.280, to communicate directly with the fire department rescue units.

As an offshoot of the drill the Coast Guard made an inquiry to CIEMS for further testing the UHF communications from their helicopters direct to the EMC. During the months of November and December, 1980, Mr. Philip Fessenden, Assistant Director of Communications at the Barnstable Police Service Center, and I made several test flights aboard an HH3F, twin engine, jet helicopter. Using a unique design of CWO Kibner, Avionics Section at Air Station Cape Cod, we were able to successfully send EKG telemetry to our area hospitals from a maximum distance of 70 miles. The amazing part of this test is the fact that we were using a small, hand-held, two watt, UHF, portable radio connected to the rear UHF antenna of the aircraft. As a result of these tests, it is hoped that the Coast Guard will issue an informational directive detailing necessary alterations to its Avionics people, thereby providing a much needed primary link between the paramedic in the air and the EMC.

Through the increasing use of the EMC concept by the units of the First Coast Guard District, area residents, visitors and anyone making his livelihood on the sea will be served better than ever before. □

Joseph McNeil is a firefighter/paramedic with the Harwich, Massachusetts Fire Department and a dispatcher with the Cape and Islands EMS Barnstable County Police Service Center in Barnstable, Massachusetts.

blue lights flashed. A siren pierced the air. More than 150 gallons of water per minute poured onto the plane, parking lot and everything and everyone in the way. Behind Newcomer, a casualty, who was pinned beneath the plane's propeller, moaned loudly as a student ran to his side. "Since we cram a one semester course into two-and-a-half weeks, we put the students into a pressure situation which they haven't experienced since bootcamp," Warren explained. "We show them that they can

and father of the EMT program, joined forces with a pair of prominent doctors to gather data that would measure the effectiveness of in-water CPR.

Dr. Martin J. Nemiroff, assistant professor at the University of Michigan's Department of Internal Medicine, has revived 17 "near drowning" victims. Nico F. March, a researcher with the University of San Diego, has built a \$30,000 immersible mannequin that measures sternal deflection rates for proper CPR and provides other physio-

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handle a situation they might have been unsure of before.

"This success carries over into tasks that are not associated with emergency medicine. It makes them fight for a product or a project they believe in. It really makes you feel great to see that we have supplied positive motivation to life in general."

According to Newcomer, the short training period actually may help students retain the information. "They do not have time to sit back and analyze what we're saying, so they must take it as gospel," he said. "Because of this, they remember what we teach and not what they thought we were teaching."

One major benefit of the school for the boating public is the development of a standardized format for transmitting medical information. Newcomer headed that project. "We worked with instructors at the radio school in Petaluma to design a format that is compatible with both the needs of the radio operator and the doctor who will use the information," he said. "We teach the format to every EMT so that, in the future, doctors will get exactly the same information from the Coast Guard in exactly the same order, no matter where they are located. This factor will aid diagnosis tremendously."

Boaters may reap other benefits from the basic medical research conducted by instructors. Recently, Commander Alan Steinman, Chief of Operational Medicine at Coast Guard Headquarters

logical data. Both of these specialists joined Dr. Steinman to study and gather data about the in-water CPR technique before it could be either endorsed or taught to the general public.

"The aquatic emergency rescue techniques which are being pioneered will allow rapid response by trained personnel that will often make the difference between successful rescue and first-aid or certain death," Dr. Nemiroff said.

While training here continues, Dr. Steinman works to supply every Coast Guard search and rescue unit with a state-of-the-art EMT kit that includes oxygen powered resuscitation and suction equipment, splints, dressings, bandages, stethoscope and other emergency gear.

The Coast Guard's EMT school is already paying for itself with human lives that may not otherwise have been saved. Dozens of documented rescue cases throughout the country credit the new EMTs with preventing deaths from boating accidents.

Whether teaching new water rescue techniques for cold water or forcing students to face the blood and tragedy of a major disaster, the final goal of Dr. Steinman and the EMT school is stated simply: "To provide adequate emergency medical care on every Coast Guard mission requiring patient or survivor rescue and transport."

Meeting this goal instills new meaning into the Coast Guard's recruiting slogan. —"The Lifesavers." □