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Med-Evac Pilots, Medics Recall Highlights of Work

A great deal of "thriller" atmosphere surrounds the "Chopper Squad," the name recently given to the Aviation Division of the Maryland State Police by Westinghouse Broadcasting's "Evening Magazine." Maryland's Med-Evac pilots and medical observers face danger and great responsibilities every day, and their work in the medical evacuation of patients and other police missions is a model for the nation.

Created in 1960, the "Chopper Squad's" formal relationship with

Maryland EMS began in 1969, when then TFC Gary Moore flew the MSP's first official Med-Evac mission, carrying the victim of an auto accident from Interstate 695 at Falls Road to MIEMSS Shock Trauma Center. TFC Moore is now Captain Moore, chief of a division with 53 troopers, 12 helicopters, and four 24-hour bases (at Andrews Air Force Base, Martin's Airport, Frederick Airport, and Salisbury). Since 1969 the division has flown more than 68,000 Med-Evac and police missions.

Working a Med-Evac is like being an actor—it looks very romantic to the observer, but it is actually hard, sometimes grueling work.

"You're out of your element," said TFC Bruce Tanner. "Usually you are treating someone in the most unusual circumstances."

The scene of an accident is like a nightmare: firefighters, ambulance rescue personnel, police, and others performing their duties in controlled chaos. People screaming and running around, blood, pieces of metal and glass, grotesque injuries—all are part of the environment in which a Med-Evac team may have to work.

When the patient is aboard the helicopter, the team's work has just begun. Imagine trying to take blood pressure and to check pulse and respirations in a swinging, vibrating, deafening helicopter. Consider performing a cardio-pulmonary resuscitation on a crushed patient for a 40-minute transport.

While the medical observer struggles to keep the patient alive, the pilot is worrying about different problems. Ironically, landing the helicopter can be one of the biggest problems. A Bell Jet Ranger needs only a 50-foot square in which to land, but the approaches to landing and taking off require more space for a safety margin. Without that margin, the risk increases tremendously. Usually, the pilot tries to land the Bell Jet in

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State Legislators Pass 9-1-1 Bill

Despite what seemed like insurmountable problems this year, the Maryland Legislature passed a 9-1-1 bill. Passage with the concurrences of both houses occurred during the last two minutes of the session.

The major provisions of the bill include a mandate to have 9-1-1 throughout the state within five years; a funding mechanism, based on a small surcharge to all subscribers, that will pay for first-year installation and maintenance costs; a mechanism for reimbursing counties that have already instituted the system; and a board to assist in the

planning and development of the program.

The bill which is now awaiting the Governor's signature will take effect on 1 July 1979.

Many people and organizations actively supported the 9-1-1 bill, including the Regional Planning Council and the Central Maryland Health Systems Agency, the Maryland Fireman's Association, the Heart Association, many county health departments, and MIEMSS.

Persons interested in receiving a copy of the bill should contact Bill Hathaway at MIEMSS (528-7800).
— Bill Hathaway



Photo: E. Garber

A pilot and a medical observer are assigned to each Med-Evac helicopter. Med-Evac helicopters transport only critically ill or injured patients.

Counties Provide Model ALS Coverage

In Maryland, there is a growing public awareness and demand for jurisdictions to provide advanced life support (ALS) services by paramedics. John Stafford, M.D., Director of EMS Systems Programs at MIEMSS, stresses that while the training and certification standards for paramedics are universal throughout the state, there are different operational styles that can be adopted and set into place. The operational method is greatly influenced by the availability of paramedics and the amount of funding that a jurisdiction has to purchase rescue equipment. "Whatever the style of operation, ALS coverage should attempt to respond to as much of the population as it can, nearly 100 percent of the time." He cites a study in King County, Seattle, Washington that dramatically points out that successful ALS response is provided to cardiac patients when paramedics provide definitive therapy within 10 minutes after the patient collapses. Also important for patient survival, according to the study, is the application of CPR within four minutes of patient collapse by trained lay public or ambulance personnel.

Two counties in Maryland serve as models of how ALS coverage is delivered to their respective populations. "The approaches of Anne Arundel and Charles County both have merit and should be seriously considered by other county EMS systems that are going to soon provide advanced life support capability," suggests Dr. Stafford. Both systems utilize a double dispatch of both ambulances (BLS) and ALS units from a Central Alarm facility. Both systems operate under a true first responder policy—that is, the closest piece of equipment, including fire engines or trucks, immediately responds to patients experiencing either medical or severe trauma emergencies. Both systems use relatively inexpensive ALS rescue units (station wagons). Because these units are not used to transport patients, paramedic personnel are free to respond to other

high-priority calls while the patient is being transported by a BLS unit. The advantages of this approach have been demonstrated by the Anne Arundel EMS system which began using station wagons to deliver ALS in 1976. In addition, both systems maximize the availability of a limited number of volunteer or career paramedics over large geographic areas with varying densities of population.

The Charles County EMS System services a sparsely populated, predominantly rural community. Service is provided by entirely volunteer ambulance personnel. All fire and rescue services, including nine ambulance units, are organized and operated by the Charles County Volunteer Firemen's Association and the Charles County Association of EMS. In the planning phase of ALS, it became evident that there would probably be a limited number of EMTs who would become paramedics. Therefore, it was decided to "pool" the available paramedics to staff a separate ALS unit that would range over several existing ambulance districts.

The ALS unit for Charles County is a station wagon called Medic I, which became operational in August 1978. This unit is staffed at all times by two paramedics from an existing cadre of 31 certified paramedics in Charles County. These paramedics are drawn from the nine volunteer ambulance companies and are pre-assigned to specific shifts.

The Medic I unit is dispatched from La Plata and is stationed for a trial period at Waldorf, Maryland. Although this station is not in the geographic center of the county, the majority of life-threatening calls come from this more urban area of the county. Approximately one-third of the county population can be reached by this ALS unit within a maximum of five minutes.

During the first five months of operation, Medic I has made 541 ALS responses to life-threatening situations—representing 100 percent of the calls received. There



Photo: E. Garber

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open space, but sometimes the only landing site may be a resident's back yard.

Weather is a life or death matter for the division. The pilot checks at least every two hours and always before missions. "Trend" is the word in weather, according to TFC Gary Shields. "What the weather looks like it will do is more important than what it is doing now," Shields said. "You get a gut feeling when the weather is going

MSARA Announces Awards, Officers

● The Dr. Howard M. Bubert Memorial Award for Acts of Life Saving was awarded to five Kensington Volunteer Fire Department (VFD) members, three of Glen Echo VFD members, two Rockville VFD members; and to one member from each of the following: Sandy Spring VFD, Joppa Magnolia VFD, and Wheaton Rescue Squad.

● The MSARA coordinates a Relay-Transport System with the states of Delaware, Virginia, Pennsylvania, and New York. For further information, contact Charles Perry, Chairman, 2405 Tionesta Road, Baltimore, Maryland 21227, 247-5532.

● The Francis "Pop" Summers Award for Acts of Leadership in the Field of Emergency Medical Services in the State of Maryland is presented by the MSARA each year in June at the Annual Conference of the Maryland State Firemen's Association. For further information on this award, contact Spencer Brown, Jr., Awards Committee Chairman, 18034 Bentley Road, Sandy Spring, Maryland 20860, 774-4950.

● Member Units may borrow slides and equipment for EMT training purposes. Contact Milt Zepp, 422 Poole Road, Westminster, Maryland 21157, 876-3360.

● New officers were elected at the May 12 meeting. These include: president, Frank Dealing, Forrestville VFD; first vice-president, Harry Lancaster, Chapel Oak VFD; second vice-president, Don Boreman, Branchville; secretary, Dorma Dealing, Forrestville Ladies Auxiliary; treasurer, Margaret Lynch, Kensington Ladies Auxiliary; chaplain, Pierce Damewood, Beltsville. Among board members announced was outgoing president Bob Lynch.

● The next meeting of the MSARA is scheduled for September in Prince George's County. The November meeting will include a training program.

— Robert P. Lynch, former President of the Maryland State Ambulance and Rescue Association, Inc.

to go bad."

Pilots for the division rely heavily on that "gut feeling"—a sixth sense for danger. For example, TFC Ed Hanna recalled a mission which he flew one night to Ritchie Highway at Earleigh Heights. Trooper Hanna was forced to land his aircraft on a small field ringed by wires and trees, making a nearly vertical descent, which is extremely dangerous. When he prepared to take off, he was faced with the decision whether to make the vertical ascent, which is dangerous because of the added strain it puts on the engine and subsequent problems encountered if an emergency landing is necessary, or taking off toward the back of the lot, which was an unknown quantity. Hanna decided to make the vertical ascent, because he did not feel comfortable with the alternative.

"The next day," Hanna said, "I was driving down Route 2 with my wife. We passed by the landing site and I pointed it out to her. I looked over the back of the lot, and sure enough, there were wires which would have been impossible to see at night."

While there is never such a thing as a "routine" Med-Evac,

certain missions are memorable. Trooper Hanna recalls a mission to an oil barge, where the landing platform was barely large enough to accommodate the helicopter. According to Trooper Tanner, "When I opened the door, the back end of the helicopter was hanging off the barge."

Every medical observer has patients that he cannot forget. For example, Trooper Shields, during his days as a medical observer (he is now a pilot), treated a man at Wayson's Corner. The man was sitting up on a stretcher, one small gunshot hole in his chest. "He said he was OK," Shields said, "But I said 'let's take you anyway.' Once we got started he began to get cold. By the time we reached BWI he arrested. When they opened him up at the trauma center, they found eight holes—the bullet had just bounced all around his chest."

Police missions may range from chasing down an inebriated citizen who walked into a firehouse and stole a fire engine to assisting in the capture of an escaped prisoner.

When not on flights, Med-Evac teams are at the hangars. There is a curious mixture of detail

work, light conversation, and monotony. The paperwork is heavy duty—each helicopter has a log of detailed information on engine use. Use time is broken down into six-minute intervals. Keeping the logs is a frustrated checkbook-balancer's nightmare—at the end of each day, the log must total 24 hours, with every minute of the shift accounted for.

In addition to the shift paperwork, each Aviation Division member is assigned a helicopter. Pilots are responsible for following up on maintenance, and the medical observers must check all medical supplies. One mistake could cost a life. At the first indication of a possible Med-Evac mission, detail work and light bantering stops. The troopers become serious, performing pre-flight checks methodically but rapidly.

The "ideal" Med-Evac? "A healthy mix of rapid transport and medical care—neither a swoop and scoop nor the most impossible medical treatment," said Trooper Tanner. Either type of transport is optimally handled by the Aviation Division, who consider professionalism to be their greatest asset.

— Marianna Herschel



Photo: A. Trohanis

After the Med-Evac helicopter lands at MIEMSS heliport, the patient is wheeled immediately to a waiting ambulance for a four-minute ride to the Shock Trauma Center, where a waiting trauma team will continue life-saving care.

Marine Officers Participate in Pilot ALS Course

What are the odds of someone having a fatal heart attack aboard a ship at sea? According to Preston Harrison, instructor at the Calhoun MEBA Engineering School in Baltimore, who cites statistics from the U.S. Coast Guard, 599 out of 646—or 93 percent—of the heart attacks occurring on merchant vessels in a five-year period (1972-77) were fatal.

Concerned about this percent-

neering School provides entry-level and continuing education for marine engineers for American-flag, commercial cargo and passenger ships. The school is a cooperative venture between the labor union Marine Engineers Beneficial Association and participating contracted steamship lines.) The pilot group divided in half and alternated between ship duty and ALS lectures and practicum. Already

few ships have either physicians or physician assistants on board, and the ship's medical officer (usually designated by the master), is required to have only first-aid and CPR training. Requiring CPR, in addition to first-aid training, is not sufficient, for CPR does not correct ventricular fibrillation. This occurs when individual heart muscle fibers beat irregularly instead of in unison, thereby making it impossible

son reemphasizes the need to have several officers trained in some ALS procedures on board ships if one is to guarantee good medical care to all merchant seamen. He would like to see the first-aid courses normally offered to officers upgraded to include minimum ALS training. (The first-aid course is now mainly geared toward emergency treatment of personnel injured in typical engine-room accidents.) According to Mr. Harrison, students at the Calhoun MEBA Engineering School have also indicated an interest in having ALS training permanently in the curriculum.

Several tests using satellite communications to transmit medical information from ship to on-shore hospitals have already been undertaken. Mr. Harrison cites the 1975 test at the National Maritime Research Center at Kingspoint, New York, in which the MARISAT satellite system was used to send an ECG from the LASH *Atlantico* at sea off the coast of France to North Shore University Hospital in Long Island, New York. He foresees the possibility of hospitals extending medical care to ships at sea in the future, by having ECGs transmitted from ship to shore and having physicians advise ship officers trained in ALS procedures how to treat heart attacks.

Problems in instituting these ideas on a wide scale do exist, but the Calhoun MEBA Engineering School and MIEMSS have taken a strong step toward demonstrating one possible way to decrease the number of heart attack fatalities at sea and are pursuing the possibility of establishing a link between ships at sea and the MIEMSS resources.

—Beverly Sopp

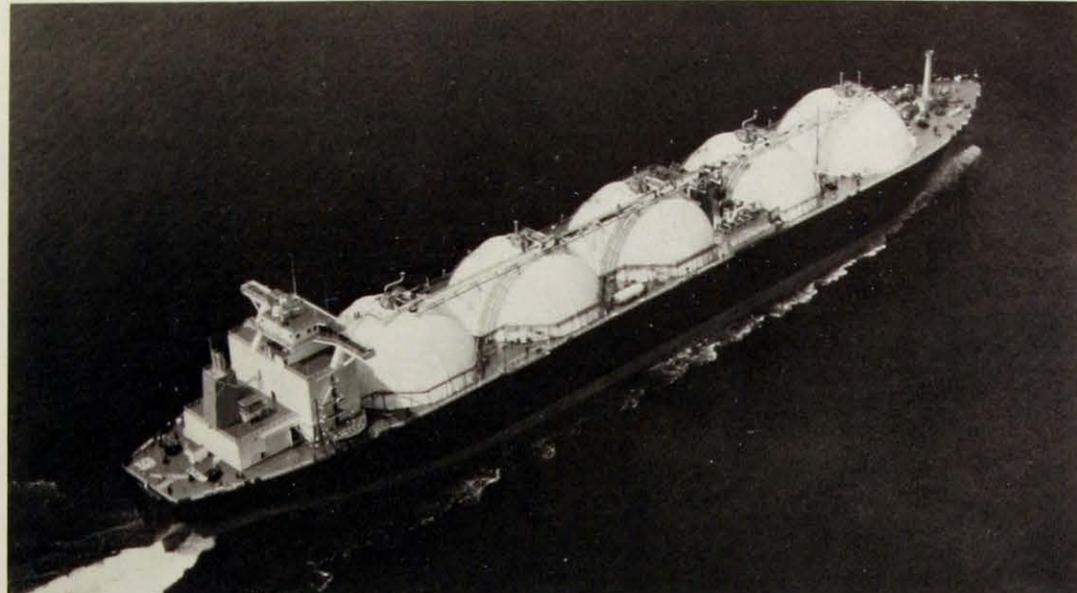


Photo: Courtesy of Calhoun MEBA Engineering School

Fifty-eight ship officers trained in ALS procedures by MIEMSS will be working on LNG vessels like the *Aquarius*.

age, which is well above the national norm of 65 percent for heart attack fatalities, the MEBA Engineering School, together with MIEMSS paramedical training officers Lou Jordan and Ron Schaefer, conducted a feasibility test last winter to determine if officers on merchant ships could be trained in advanced life support (ALS) techniques to save the lives of heart attack victims aboard ships at sea. Conclusion: If officers had approximately 30 hours of ALS training, significant numbers of heart attack victims could be saved.

The pilot group for ALS training consisted of 58 students—masters, mates, engineers, and radio officers assigned to ships of the El Paso Marine Company and the Energy Transportation Corporation, who were taking MEBA Engineering School's course for officers working on liquid natural gas (LNG) ships. (The MEBA Engi-

trained in first-aid and CPR, the students studied physical and electrical anatomy of the heart, including recognition of arrhythmias and basic intervention techniques; basic interpretation of electrocardiograms; use of ECG-defibrillator equipment to correct arrhythmias; and administration of drugs. Students were tested individually and as teams and demonstrated remarkable success, according to instructors Jordan and Schaefer.

The need for such ALS training tailored for officers in the merchant marine was emphasized by Mr. Harrison. Most of the victims of heart attacks occurring at sea, according to the U.S. Coast Guard statistics, were in the 40-70 age bracket. This fact becomes more significant when one considers that the average age of the merchant marine personnel is 48 and gradually increasing.

Mr. Harrison points out that

to pump enough oxygen-carrying blood to vital organs; CPR only delays biological death until defibrillation is performed and the individual heart muscles, momentarily shocked, start beating in normal rhythm in unison. In addition, drug or IV therapy is needed to prevent fibrillation from recurring.

Taking this into consideration as well as the fact that most ships are usually hours or days from the nearest shore hospital, Mr. Harri-



Photo: D. Register

MIEMSS paramedical training instructor Lou Jordan demonstrates the insertion of an IV line to students at the Calhoun MEBA Engineering School.



Photo: D. Register

Ron Schaefer, MIEMSS paramedical training instructor, explains how to defibrillate a patient to LNG students.

MIEMSS Clinical Nurses Adopt Peer Review System

MIEMSS clinical nurses have refined a sophisticated system of peer review, which has proven successful in two years.

The Professional Performance Review Committee (PPRC) under the leadership of Barbara Friend, R.N., Nurse Evaluation Coordinator, adapted the Slater Nursing Competencies Scale to each clinical unit of the Shock Trauma Center. Each nurse in the Center is evaluated once a year with this comprehensive, objective system.

The scale, developed at Wayne State University between 1965 and 1975, is unusual in that all nursing activities can be rated. The scale contains 73 different items covering psychosocial, individual, physical, and general care, communications and professional implications.

For each evaluation, a peer reviewer, a trained senior staff member, observes the nurse for two hours as he or she goes about duties, rating the nurse on the 73 items, specifically tailored to the nurse's tasks.

The nurse's supervisor also completes the same form, retrospectively. The peer reviewer goes over the scores and reasons for them with the nurse, and the supervisor discusses both evaluations with the nurse and counsels her.

Ms. Friend explained that peer acceptance of the system has been very good. Generally, nurses feel they benefit from such detailed, objective evaluation, and Ms. Friend says patient care has noticeably improved since implementation of the program in specific areas. The nurses are also showing evidence of ongoing self-evaluation.

Peer reviewers train for the position for two days. In addition to receiving classroom instruction on the theory of the Slater Scale, they practice rating nurses by watching a videotape of a nurse in their unit carrying out her duties. They can then check the scores they gave against standardized ones. After practicing with the video tape, they work with a preceptor in the unit to check interrater reliability, before they begin to do regular evaluations.

The four 20-minute videotapes were produced by the PPRC in cooperation with MIEMSS Instructional Media Resources.

The concept of peer review is becoming widely used in nursing, Ms. Friend said, although the use of the Slater Scale is less common at present. This particular system has been used in Detroit where it was developed and at Children's Hospital National Medical Center in Washington, D.C. But the system at MIEMSS is unique because the "cues" are adapted specifically to nursing tasks in its five units.

The PPRC hopes in the near future to have scores related to promotions and merit systems, to build in motivation for good performers. It is also studying the Slater Scale system for cost-effectiveness, peer acceptance, and quality of care.

—Dottie McCaleb

Cowley Chairs EMS Task Force

R Adams Cowley, M.D., Director of MIEMSS, was appointed by President Carter last fall to serve on the U.S. Department of Transportation's National Highway Safety Advisory Committee. He is one of 35 representatives appointed from state and local governments, as well as public and private interests involved in highway safety.

Established by the Highway Safety Act of 1966, the Committee is currently studying such issues as emergency medical services, highway data, safe utilization of commercial vehicles, motorcycles and mopeds, highway environment, state-federal relations, and vehicle diagnostics. A Task Force is assigned to each issue and will make recommendations to Secretary of Transportation Brock Adams.

Dr. Cowley was selected to chair the EMS Task Force, which is trying to improve EMS nationwide and is currently concerned with three areas: EMS education,

information, and training; EMS communications; and EMS liaison between the Departments of Transportation and of Health, Education, and Welfare.

Within these three areas, the Task Force is exploring how public awareness of EMS can be increased, training levels standardized, and basic life support assistance courses taught to the public (particularly to high school students); other issues include the nationwide implementation of 9-1-1 and the use of CB radios for accident notification. Steps have already been taken to establish liaison between the Departments of Transportation and of Health, Education, and Welfare.

Other issues Dr. Cowley would like to be considered include driving under the influence of alcohol and drugs, passive restraints, auto design and safety, and the psychology of accidents.

—Sandy Bond

Counties Exemplify Different ALS Styles

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rural southern portion.

In recent years, there has been a gradual shift from an all-volunteer rescue service toward a career-oriented rescue operation. The county now offers both types of rescue response, with the career, fire-ambulance personnel providing most of the ALS responses. Currently, there are nine ALS response units, consisting of two paramedics per station wagon squad. In 1978, 51 career and 8 volunteer paramedics responded to 2,400 potentially life-threatening emergencies — primarily cardiac cases.

Dual dispatch is activated for both basic and ALS rescue units from Fire Department Headquarters — the Central Alarm in Millersville, Maryland. The basic life response units are DOT-specified ambulances which are manned primarily by volunteer ambulance personnel.

Chief Roger Simonds currently heads the EMS division of the Anne Arundel County Fire Department. Medical and surgical advice is provided by Hilary T. O'Herlehy, M.D., and Sergio Alvarez, M.D., at

North Arundel Hospital. Beverly Robey, R.N., chief of IV therapy at the Hospital, also assists with training.

The budget for EMS, provided by county taxes, is estimated at 1.3 million for 1979. Future plans include adding ALS units in the Edgewater and Harwood areas of the county.

According to Dr. Stafford, both Charles and Anne Arundel counties have model ALS systems, each with its own advantages. In Charles County, with its all-volunteer ALS corps, the concentration of available paramedics in a single, far-ranging ALS unit ensures that there is a paramedic response to potentially life-threatening events. Contrast this experience with an ALS unit that has only 5 to 7 volunteer paramedics available for a 365-day schedule, and the advantage is obvious. Paramedic skill decay is decreased because the paramedics see more cases, with the expanded zone of response, than they would see as part of an individual, limited ambulance district.

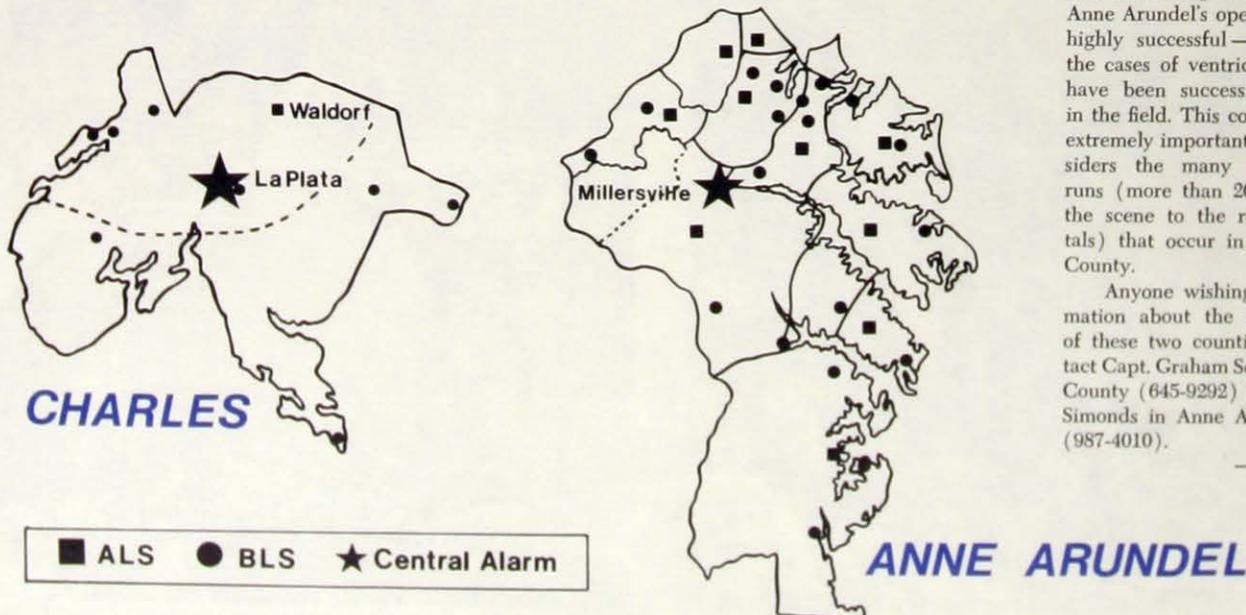
Dr. Stafford counters the argument that where equipment and

personnel are limited, some ALS response, even if it is only 25 percent of the time, is better than none at all. He points out that Charles County demonstrates that 100 percent ALS response for the majority of the population is possible and he stresses that other counties can achieve similar coverage by making changes to their rescue units' bylaws. The trade-off would be less individual autonomy and identity for the existing rescue-ambulance units in exchange for greater ALS response for their entire community.

The experience of Anne Arundel County demonstrates that both career and volunteer ambulance personnel can coexist in complementary roles within an ALS operation. "For other jurisdictions wishing to blend volunteer with career rescue services, the amalgamation can be achieved in a cost-effective manner without drastically increasing tax rates for the citizens," says Dr. Stafford. "The key element is the far-ranging, paramedic-staffed ALS unit which can respond to potentially life-threatening situations within the critical, ten-minute limit, outside the large city environment." Anne Arundel's operation has been highly successful — 28 percent of the cases of ventricular fibrillation have been successfully converted in the field. This conversion rate is extremely important when one considers the many long transport runs (more than 20 minutes from the scene to the receiving hospitals) that occur in Anne Arundel County.

Anyone wishing further information about the ALS programs of these two counties should contact Capt. Graham Sefton in Charles County (645-9292) or Chief Roger Simonds in Anne Arundel County (987-4010).

—Lynn Rutkowski



120 Med Students Take EMT Course

Approximately 80 first-year medical students at the Johns Hopkins Medical School will soon be certified EMTs. The Hopkins students are the first group of medical students in Maryland to be required to take an EMT course.

All of the 120 first-year medical students are required to take the didactic portion of the course as well as the "practical familiarization" section, which consists of demonstrations and practice of minimal practical skills. Eighty of the 120 students have also elected to take a three-hour practical session once a week that will enable them to take the test to be certified EMTs.

Lou Jordan and Ron Schaefer,

Hyperbaric Therapy Treats Carbon Monoxide Poisoning

Patients with carbon monoxide and cyanide poisonings are prime candidates for hyperbaric oxygen therapy (treatment with 100 percent oxygen under increased barometric pressure). Twenty-four hour diagnostic and therapeutic services are now available to these patients at MIEMSS.

Within the last six months, a special program for treatment of smoke inhalation patients was developed for the metropolitan Baltimore EMS Region. Due to the success of the program, it can be expanded to the rest of Maryland.

Roy Myers, M.D., staff surgeon and physician in charge of hyperbaric therapy at the MIEMSS, urges EMS field and hospital personnel to notify SYSCOM (800-492-0610, toll-free within Maryland) regarding patients with suspected carbon monoxide and cyanide poisonings. Dr. Myers, as well as chamber technicians and nurses, are on call 24 hours a day; in addition, a carbon monoxide analyzer provides stat reports of the carbon monoxide levels of patients around the clock.

Carbon monoxide and cyanide poisoning victims should be treated immediately to prevent complications years later. According to the research of Brandon and Smith published in the *British Medical Journal* in 1973, 40 percent of the patients with serious carbon monoxide poisoning suffered long-term central nervous system effects such as memory impairment and personality deterioration.

The hyperbaric chamber center at MIEMSS admits patients with carbon monoxide levels above 25 percent. Carbon monoxide gas acts as a poison by linking with hemoglobin and preventing oxygen from linking to it. Oxygen under increased barometric pressure causes carbon monoxide to be released from the hemoglobin and increases the amount of oxygen dissolved in the blood, thereby reversing the effects of the poisoning. Studies indicate that hyperbaric oxygen treatment greatly reduces the half-life of carboxyhemoglobin. For example, in normal air, the half-life of carboxyhemoglobin is 320 minutes; in 100 percent oxygen administered through a tight-fitting mask, it is 100 minutes; in 100 percent oxygen given in hyperbaric oxygen cham-

beral training specialists at MIEMSS who are the main instructors for the course, commend the medical students and those involved in making the program available. They point out that the course will "undoubtedly be beneficial for the med students—our physicians of tomorrow—and will provide better rapport between hospitals and ambulance personnel."

Hopkins' emergency medicine staff, Drs. Donald Gann, Eugene Nagel, Hubert Gurley, and Sally Truitt, working with MIEMSS Director of EMS Systems Programs, Dr. John Stafford, were instrumental in initiating the program at Hopkins.

bers at 3 atmospheres, it is 23 min.

Recent studies also indicate that cyanide poisoning can be affected by hyperbaric therapy. MIEMSS is planning to give hyperbaric treatments to cyanide poisoning patients and take representative cyanide blood levels to determine the effect of hyperbaric oxygen on cyanide blood levels. It will be working with the Johns Hopkins Applied Physics Lab in cooperation with the Baltimore City Fire Department and the Coroner's Office on a smoke-inhalation research project. The Hopkins APL study on fire death victims in Maryland currently indicates that 50 percent of the smoke-inhalation victims died of carbon monoxide levels of over 50 percent; thirty percent died of carbon monoxide levels between 20 and 50 percent. In this latter group, the cyanide level was well above the normally accepted level—in the toxic but not the lethal range. This gives support to the idea that cyanide and carbon monoxide potentiate each other.

—Beverly Sopp

First-Responder Courses Offered In Firefighter Program by MFRI

The Maryland Fire and Rescue Institute (MFRI) is offering four pilot programs in "Firefighter First-Responder" emergency care. The courses are being offered under the Crash Injury Management program funded by an \$80,000 grant from the Maryland Department of Transportation.

For the past year, the Crash Injury Management program has been training only police officers in emergency care and certifying instructors so that police academies and police departments could run their own programs. The new First-Responder program is an expanded version of the 40-hour Crash Injury Management Program for law enforcement officers. With this new curriculum, the National Highway Traffic Safety Association (NHTSA) is focusing on the training of additional target groups, including firefighters, traffic safety personnel, highway maintenance personnel, postal employees, and others who would possibly function in a "first-responder" capacity.



(Above) Dave Martin and Tom McAfee practice CPR while Dr. Deepti Razdan and Rich Goccia observe. (Below) Ken Blake with Resuscit-Baby.



Photos: D. Regester

MFRI Sponsors EMS Officers Course

The Emergency Care Division of the Maryland Fire and Rescue Institute held its first Maryland EMS Officers Seminar May 5-6 at College Park. The program was held with the cooperation and support of MIEMSS.

The seminar offered administrative and line officers in the Maryland EMS community a chance to examine the Maryland EMS System and to consider some of the problems that face company-level officers on an individual basis.

James O. Page, Executive Director of the ACT Foundation, was the Seminar's keynote speaker. Mr. Page has an extensive background in EMS, including the organization of the North Carolina EMS program (1973-76).

The seminar presented programs on such topics as disaster preparedness, administrative management, company-level training, the National EMS Movement, and the roles of MIEMSS and of the Maryland Fire and Rescue Institute in Maryland EMS.

HSAs, EMS Programs Initiate Cooperative Working Agreements

Two federal laws that were enacted several years ago continue to present some confusion regarding the federal government's attempts to change the nation's health care delivery service. The Emergency Medical Services Act of 1973 (Public Law 94-573 as amended) was designed to reduce death and disability by providing assistance and encouragement for the development of a national systematized emergency medical care delivery network. The National Health Planning and Resources Development Act of 1974 (Public Law 93-641) created Health System Agencies (HSAs) to coordinate and consolidate "institutional" health services (including obstet-

rics; pediatric, emergency medical, intensive and coronary care; and radiation therapy) in order to reduce unnecessary duplication and to control costs through planning and appropriate allocation of resources.

These two federal programs, developed from more than 130 federal health laws enacted between 1935 and 1975, differ radically in organization, structure, and funding in addition to their methods of implementing and altering health care services.

The HSA program is primarily a federal response to problems in previous governmental programs (comprehensive health planning, Hill-Burton, regional medical programs) and to the problem of escalating costs. The EMS program is primarily a medical response to a health care problem and recognizes the need for both professional and governmental (federal, state, and local) involvement in the design and operation of community and regional EMS systems.

In spite of those differences, the two agencies in Maryland are working together to improve health care. For example, the Central Maryland Health Systems Agency and MIEMSS worked to encourage support of the 9-1-1 bill by Maryland state legislators. In addition, EMS/HSA working agreements were recently initiated between each of Maryland's five Health Systems Agencies and Maryland's five regional EMS advisory councils in order to better coordinate EMS/HSA programs and to identify mutual and independent responsibilities. According to Ronald Kropp, Chief of Planning and Grants at MIEMSS, "It is anticipated that through these formalized agreements, a complimentary working relationship will be established between these two health care delivery models."

—Lynn Rutkowski

Questions for EMTs Reviewed

The following questions requiring medical direction were submitted by EMT instructors and field personnel to the Emergency Care Division of the Maryland Fire and Rescue Institute (MFRI) and to MIEMSS. They were reviewed and answered by the physicians of the Maryland Medical Management Committee. If you have any additional questions, please submit them to Bill Neal, MIEMSS Office of Testing and Certification or to John Hess, MFRI, for referral to the Medical Management Committee.

Is traction splinting indicated in cases of open fractures of the femur?

Yes. The goal of the EMT is to stabilize the fracture and not to pull protruding bone-ends back into alignment. If protruding bone-ends do happen to slip back in, this is the cost that must be paid. It is the goal of the EMT when applying a traction device to an open fracture of the femur to realign the bone-end only to prevent further injury, and to overcome muscle reaction.

When applying a traction splint to a victim's leg, should the shoe be left on the foot?

If a pulse can be found distal to the injury site, and the shoe will not hinder application of the traction device, there is no reason to remove the shoe. However, if the rescuer is unable to obtain a pulse distal to the injury site, it would be necessary to remove the shoe in order to obtain this pulse.

Is the Ferno-Washington Build-a-Board acceptable for immobilization of a victim of a vehicular accident? If so, should it be taught instead of or in addition to use of the short backboard?

The Ferno-Washington Build-a-Board is not standard ambulance equipment. All EMTs should be

instructed how to use the standard short backboard, which is readily available to them. However, if companies utilizing the Ferno-Washington Build-a-Board conduct in-company training to familiarize their personnel with this specialized equipment, their EMTs should be able to use the Ferno-Washington Build-a-Board quite competently.

Should the void filler ("red pillow") be used to stabilize the cervical region of the victim of a vehicular accident?

The standard "red pillow" is more adequately used when placed in the occipital region of the skull. The goal of the rescuer is to immobilize the patient in a neutral position without putting unnecessary pressure on the spine. If the "red pillow" fits without altering the patient's cervical alignment, it can be used. It should, however, be noted that because the "red pillow" is available with the backboard, it does not always have to be used. Perhaps an easier or safer procedure would be to stuff or fill the void with trauma pads or battle dressings after securing the head to the backboard.

Should burns be covered with wet or dry dressings?

For small area burns, nine percent or less, a moistened dressing may be used. When the burn area exceeds nine percent, the patient should be covered with a burn sheet or sterile dressing and the dressing should remain dry (due to potential problems encountered with hypothermia).

Should eviscerations be covered by wet or dry dressings?

The eviscerations should be covered with dry, non-porous dressings such as plastic wrap or aluminum foil. This dressing should then be covered loosely with trauma pads or battle-type dressings. The bulky dressings should

be loosely, but securely, attached to prevent undue pressure to the injured area.

Should the patient's head be secured in such a manner that his eyes are covered when he is attached to the short backboard?

No, bandaging in this manner is not justified, due to the fact that pupillary reaction, a diagnostic sign, is denied the rescuer when this procedure is used.

Is it acceptable to apply straps on the short backboard in such a manner that the buckles of the straps are placed directly over the bony processes of the sternum?

No. Whatever strapping procedure is utilized, the buckles of the straps should be located in an area that allows for proper padding in the prevention of discomfort to the patient. Buckles located directly over the sternum would definitely delay the initiation of CPR, if CPR were needed.

Is it acceptable to secure a patient's neck region to the board in such a manner that the mouth is covered?

No. Any device that covers the mouth will increase the potential of vomitus and aspiration of the patient.

Should the victim of a traumatic injury be transported in the "traumatic coma position" as shown on Page 165 of Grant and Murray's Emergency Care (second edition), rather than the semiprone position shown in Figure 22.1, Page 188 of the AAOS, Emergency Care and Transportation of the Sick and Injured (second edition)?

Victims of a traumatic injury should be transported in the traumatic coma position if unconscious and unable to protect their own airway. A patient being transported in this position via Med-Evac helicopter should be placed on his right side whenever possible. This position assures the medic observer maximum access to the patient for airway management. Field personnel should be aware that alteration of this position may be necessary for Med-Evac transportation. Victims able to protect their airway should be transported in the supine position on the backboard or orthopaedic stretcher with adequate protection from possible spinal injury.

When should vital signs, specifically pulse, respiration, and blood pressure, be ascertained?

Vital signs should be ascertained upon completion of the secondary survey in cases of suspected injury.

MIEMSS Explains EMT Recertification

Each EMT is responsible for maintaining his/her certification by completing a 21-hour emergency care refresher course prior to EMT expiration. EMTs should begin the recertification process early in the third or last year of their certification. Individuals who wait until the last month of certification frequently encounter problems in locating a refresher course.

The following policies apply to EMT recertification:

The EMT must be enrolled in a refresher course prior to expiration.

Each EMT must present a current EMT card or letter of permission from the MIEMSS Office of Testing and Certification in order to be admitted to a refresher course.

Permission to enroll in a refresher class after expiration of the EMT card will be granted only when the request is received by the Testing and Certification Office prior to the expiration date and presents sufficient reasons to warrant such permission.

EMTs completing the refresher class in their last year of certification will be recertified from their original expiration date so that anniversary dates remain the same.

Individuals having difficulty locating an emergency care refresher course should contact their county EMS office or their Regional Coordinator. These are listed below.

For information on the location of recertification courses, contact:

REGION I (Garrett, Allegany counties)
David Ramsey, Ravene Street, P.O. Box 34, Grantsville, Maryland 21536, 895-5934.

REGION II (Frederick, Washington counties)
Michael S. Smith, 1610 Oak Hill Avenue, Room 134, Hagerstown, Maryland 21740, 791-2366.

REGION III (Metropolitan Baltimore)
George Pelletier, Jr., MIEMSS, 22 S. Greene Street, Baltimore, Maryland 21201, 528-3930.

REGION IV (Eastern Shore)
Marc Bramble or John Barto, 7 Federal Street, P.O. Box 536, Easton, Maryland 21601, 822-1799.

REGION V (Metropolitan Washington)
Marie Warner or Ed Lucey, EMS Office, 5408 Silver Hill Road, Suite 403, Suitland, Maryland 20028, 735-5580.

ANNE ARUNDEL COUNTY
Chief Roger Simonds, Emergency Care Coordinator, Anne Arundel County Fire Department, Maryland Route #3, P.O. Box 276, Millersville, Maryland 21108, 987-0596.

BALTIMORE COUNTY
Acting Lt. James R. Westervelt, Baltimore County Fire Department, 800 North York Road, Towson, Maryland 21204, 825-7310.

MONTGOMERY COUNTY
Lt. Lawrence C. Shamer, Rescue Training Instructor, Dept. of Fire/Rescue Services, Fire/Rescue Training Academy, 10025 Darnestown Road, Rockville, Maryland 20850, 279-1834.

PRINCE GEORGE'S COUNTY
Douglas Thompson, EMT Coordinator, Prince George's County Fire Department, 4318 Rhode Island Avenue, Brentwood, Maryland 20722, 779-3850.

HOWARD COUNTY
Lt. Donald R. Howell, Bureau of Services, Howard County Fire Department, 3430 Courthouse Drive, Ellicott City, Maryland 21043, 992-2311.

BALTIMORE CITY
Captain Michael W. Jachelski, Baltimore City Fire Department, 410 West Lexington Street, Baltimore, Maryland 21202, 396-3090.

Laerdal Issues Product Alert For Resusci Bag, Suction Unit

The Laerdal Medical Corporation has issued a "potential hazard warning" for the Resusci Folding Bag (RFB-I). The RFB-I model was introduced in the United States in 1967, and in 1969 the RFB-II was introduced. Production and sales of the RFB-I have been non-existent since the RFB-II was introduced in 1969.

According to Laerdal, the potential hazard exists if the "non-breathing valve" of the RFB-I is mounted in the RFB-II (see diagram). Under certain circumstances, expiration may be partially blocked, thus compromising ventilatory efforts.

Although it is unlikely that the older RFB-I's are still in use, Laerdal recommends that anyone still using this model (RFB-I) discard the "Folding Bag" and "Lip Units."

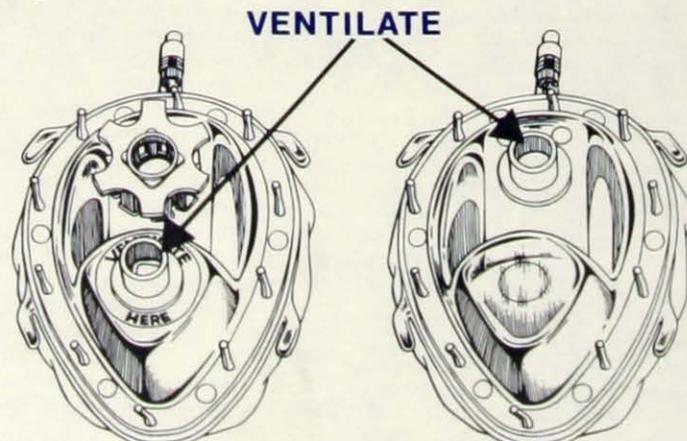
Since November 30, 1978, Laerdal has stopped making parts for the old "60" series Portable Suction Units. If you own a "60" series unit and need parts, you must send the unit to any local Laerdal dealer, who will upgrade the suction unit to meet the current specifications of the 79-00-00 model. The approxi-

mate cost for this conversion service is \$100 plus shipping.

You can identify the "60" series suction unit by the "white caps" found on the rechargeable batteries.

"Red caps" on the batteries would indicate a #79-00-00 model, or a "60" series that has been previously converted.

For further information, contact Ron Schaefer (MIEMSS Paramedical Training Specialist), 528-3930.



Md. Legislature Considers EMS-Related Bills

Below is a final status report on those bills followed by MIEMSS:

Status code:	Enac	Enacted — passed both houses, not yet signed
	Enac/S	Enacted and signed
	Enr	Enrolled — passed both houses with amendments
	Enr/S	Enrolled and signed
	Died	Either in committee, or by vote in a house

SJR 2	Died	U.S. Const. Amendmt. — D.C.
SJR 8	Enac	Psychosurgery
SJR 37	Enr	Hosp. Regs. Study Commission
SJR 38	Died	Commission on Det. of Drunk Drivers
SJR 40	Died	Mileage for state empl.
SJR 41	Died	Driver's Ed.
SJR 48	Died	MIEMSS/SBHE laws

BILL	STATUS	TITLE
HB 33	Died	Driver Education
HB 81	Died	Med. Exp. and Res./Prohib.
HB 88	Died	Child Passenger Restraints
HB 89	Died	UM Bd. of Regents — Add. Member
HB 107	Died	Fire Escape Ramps
HB 161	Enac	Motorcycle Helmet Repeal
HB 166	Died	Elevators/stretcher accessibility
HB 182	Died	Ped. Right of Way in Crosswalks
HB 185	Died	Marital defense to rape
HB 223	Died	Highway Safety Coordinating Committee
HB 243	Died	State Empl. Whistleblower Protection
HB 245	Died	Child Passenger Restraints
HB 270	Died	State owned vehicles
HB 310	Enac	Good Samaritan Law
HB 417	Died	State Empl. Whistleblower Prot.
HB 433	Died	Pub./Priv. Empl. Testimony
HB 450	Died	Altering drinking age
HB 465	Died	Driver Education
HB 475	Died	Altering Drinking Age
HB 586	Enr	Benefits for service of Nurse Practitioners
HB 606	Died	Catastrophic Health Care Programs
HB 741	Enr	Phys. Spec. and Adver.
HB 783	Died	Commission on Medical Discipline
HB 810	Died	Manslaughter by Vehicle
HB 815	Died	Hosp. and Rel. Insts. — Coll. of Data
HB 876	Died	Md. Health/Higher Ed. Facs. Auth.
HB 882	Died	Firefighters/Rescue Squads — Backgd. Invest.
HB 888	Died	State Empls./Whistleblower Prot.
HB 913	Died	Health Insurance/Surgery
HB 960	Enac	Generically Equivalent drugs
HB 995	Died	Montebello — Md. Health and Hosps. Corp.
HB 1040	Died	Prof. Recruitmt. Consults.
HB 1073	Died	Permit DHMH to revoke lic. of unused beds
HB 1074	Enac	9-1-1
HB 1089	Enac	Non-med info to third party payors
HB 1147	Died	Raising drinking age in Balto. City
HB 1156	Died	Vol. F.D. & Rescue Squads — Corp. Charters
HB 1158	Died	CRT Training
HB 1245	Died	State owned vehicles
HB 1250	Died	Equip. for motorcycle riders
HB 1281	Enr	Inspec. of hosps. and rel. insts.
HB 1396	Died	Health planning
HB 1397	Died	Comprehensive health planning
HB 1428	Died	Refusal to take Blood Alcohol test
HB 1431	Died	HSCRC/Rel. Inst.
HB 1470	Enac	JHU/Creation of state debt
HB 1471	Enac	JHUSM/Creation of state debt
HB 1489	Enr	Vol. F.D./Fred. Co.
HB 1537	Died	Health Care Exp./Leg. Resp. Relatives
HB 1569	Died	Refusal to take Blood Alcohol test
HB 1658	Enac	Signal lights, Vol. F.D., Cecil/Kent/Queen Anne
HB 1679	Enac	Fire/Rescue Council — creating
HB 1696	Died	Driver's Education
HJR 4	Died	Governance study/UMH
HJR 40	Enr	Commission to study hosp. regs.
HJR 54	Died	Trn. Emer. Veh. Ops.
HJR 69	Died	Hospice Care
HJR 81	Died	Commission to study dupl. of hosp. regs.

SENATE	STATUS	TITLE
SB 13	Died	Creation of state debt for Davidge Hall
SB 28	Enac/S	Balto. City F.D. Bond Issue
SB 33	Died	Tests for intoxication
SB 38	Died	Good Samaritan Law
SB 50	Died	Prohibition on funding abortions
SB 51	Died	Patient Med. Profile System
SB 74	Died	Lowering intox/imprmt. levels
SB 77	Enac	Driver Education
SB 105	Died	Abolish DHMH Bd. of Review
SB 149	Died	Straw Ballot — D.C. Amendment
SB 150	Enac	Budget Bill
SB 191	Died	Altering drinking age
SB 284	Died	Motor Vehicle Offense Records
SB 388	Died	Right to die with dignity
SB 398	Died	Good Samaritan Law
SB 452	Enac	Dorchester Co. Vol. F.D.
SB 453	Died	Manslaughter by vehicle
SB 502	Enac	Chem. tests for intox.
SB 543	Died	Child Passenger Restraints
SB 577	Died	State Empl. Compensation
SB 616	Died	Private use of state vehicles
SB 624	Died	Health Care Procedures — consent
SB 638	Died	HSCRC/excluding review of med. practice
SB 653	Died	Liability of owners/oprs. of emerg. veh.
SB 698	Died	9-1-1
SB 770	Died	Hosp. Lic. and inspects.
SB 780	Died	HSCRC powers
SB 802	Enac	Matching fund state debt for JHUSM
SB 898	Died	Review of UM personnel positions by SBHE
SB 930	Enac	Prof. Corps.
SB 932	Died	CRT Training
SB 966	Died	Med. Exp. and Res.
SB 1004	Died	Med. Exp. and Res.
SB 1045	Died	Creating Dept. of MSP
SB 1054	Enac	I.D. of Genl. Funds for MSP
SB 1055	Died	Health Care Malpractice Claims

At the end of the 1979 Maryland legislative session, EMS seems to have come out ahead with a successful effort to institute 9-1-1 statewide (see article on page 1).

Other legislation of interest to those involved in EMS includes passage once again of a helmet law repeal (HB 161). The bill has not yet been signed by the Governor, and MIEMSS Director R Adams Cowley, M.D., has written a letter to request a veto of that bill.

A new Good Samaritan Law (HB 310) passed, extending coverage to the fire departments and rescue squads where first-responders work.

State support for driver's education (SB 77) was extended to 1983, but will now be optional for local jurisdictions.

A joint resolution (HJR 54) proposing driver skills training for emergency vehicle operators was turned over to the Maryland Department of Transportation to carry out. As more information becomes available on this program, MIEMSS will publicize it.

Senator Rosalie Abrams' perennial attempt to bring Maryland in line with the rest of the nation

on legal impairment/intoxication levels (SB 74) once again died at the hands of the House Judiciary Committee. Various bills to raise the drinking age, aimed at decreasing the growing teenage drinking problem, died in various committees. Another bill HB 1569, which would have moderately increased the penalty for refusal to take a blood alcohol test, passed the Judiciary Committee, only to fall victim to last-minute politicking in the Senate.

Two bills of interest to MIEMSS included HB 995, which would have created a private, non-profit corporation for Montebello Hospital. The bill was allowed to die with specific responsibility given to several agencies to study solutions for Montebello. MIEMSS will be participating in that process. SJR 48 called for a study of the MIEMSS and State Board for Higher Education laws to resolve possible conflicts, but was deemed unnecessary since such study was underway. Also deemed unnecessary were two bills requesting clarification of language on availability of CRT training to paid and volunteer companies. — *Marianna Herschel*

MSFA Committee Reviews Ambulance Response Time

How long does it take your ambulance to arrive at the scene of a vehicle accident? A check into complaints that the response of ambulances is frequently too long revealed that the ambulances responded quickly without lost time. If this is the case, what is the problem?

Each of Maryland's counties determines its own system for alerting emergency response agencies. These arrangements are normally established with the Maryland State Police and/or police in local jurisdictions. In some instances, the ambulance and police are alerted simultaneously. In other counties, the police are alerted first to investigate and to decide whether an ambulance is required (this system tries to prevent ambulances from being alerted and canceled if not needed).

The Ambulance Committee of the Maryland State Firemen's Association was requested to review this problem of response time and make a recommendation. The Committee agreed it does not have the authority to establish a statewide system, but requests that each county association review the current procedure to determine if the procedure is in the best interest of the patient.

In reviewing your procedure, remember the "first precious hour." How close are you to the hospital? Some ambulances have several hospitals within a ten-minute run while others are twenty or thirty minutes away.

Is the helicopter available to you in a reasonable amount of time and how long does it take to get the patient from the scene to the hospital by helicopter?

Consider the patient and review your procedures to assure the patient of the best chance of recovering if injured in your response area.

— *Charles Scott*
Chairman, Ambulance Committee
Maryland State Firemen's Association

In Memoriam

MIEMSS deeply regrets the death of Robert E. Motley. Mr. Motley, who was honored by the National Association of EMTs when it designated the Robert E. Motley Award in 1978, worked at the National Highway Traffic Safety Administration, Department of Transportation. He was involved in EMT training, and was advisor for several training manuals, courses, and films.

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CALENDAR

NURSING WORKSHOPS

EMS Nursing Workshops. Persons interested in attending a workshop are urged to contact the Office of Nurse Coordinators for additions or changes to the following schedule and for a brochure of workshop descriptions. To register or to schedule an additional workshop in your region, contact the Office of Nurse Coordinators (528-3930) or the EMS Regional Coordinators.

JUNE

- 12-13 The Nurse as a First Responder (2nd session), Oakland
 16 Drowning, International Hotel, B.W.I. Airport. Contact: Ann Leasure, MIEMSS (528-3930)
 21-22 The Nurse as a First Responder, Prince George's Community College
 28-29 The Nurse as a First Responder (2nd session), Prince George's Community College

JULY

- 11-12 Crisis Intervention, Howard Community College
 18-19 Crisis Intervention, Howard Community College

GENERAL EMS WORKSHOPS**JUNE**

- 15-17 Field Response to Emotional Crises, Catonsville, MD. Contact: Jeffrey T. Mitchell, M.S., Director, Crisis Intervention Training, MIEMSS, 5408 Silver Hill Road, Suite 403, Suitland, MD 20028
 16 Drowning, International Hotel, B.W.I. Airport. Contact: Ann Leasure, MIEMSS (528-3930)
 19-23 International Conference on First Aid at the Scene of an Accident, Oslo, Norway. Contact: Norwegian Automobile Association, P.O. Box 494, Sentrum, N-Oslo 1, Norway
 22-24 Recognition and Management of Poisonings and Toxicological Emergencies, San Francisco, CA. Contact: Dr. Kenneth W. Lem, UCSF School of Pharmacy, San Francisco, CA 94143
 28- July 1 Comprehensive Review of Emergency Medicine, American College of Emergency Physicians, Rosemont, IL. Contact: Stanley V. Butler, Meetings Manager, 3900 Capital City Boulevard, Lansing, MI 48906

JULY

- 20-24 Trauma Systems Development Workshop, Seattle, WA. Contact: Joan E. Robbins, Project Coordinator, EMS Contract Office, 303 East Chicago Avenue, Chicago, IL 60611

AUGUST

- 21-23 Communication Dispatchers Workshop, Adult Education Center, College Park, MD. Contact: Steve Carter (454-5966)
 26-30 Trauma Systems Development Workshop, Chicago, IL. Contact: Joan E. Robbins, Project Coordinator, EMS Contract Office, 303 East Chicago Avenue, Chicago, IL 60611

EMS College Program

The Maryland Institute for Emergency Medical Services Systems is in the process of planning a four-year college program in Emergency Medical Services in conjunction with the University of Maryland. A bachelor of science degree would be awarded. Whether you would be interested in attending or not, your interest and opinion of such a program would be of great help to us in our plans. Would you please help us by answering the following questions? Please return to: MIEMSS, 22 S. Greene Street, Baltimore, MD 21201, ATTN: School.

YOUR POSITION: (circle appropriate)

1. EMT-A
2. Paramedic
3. CRT
4. Other

STATUS

1. Full Paid
2. Paid on Call
3. Volunteer

HIGHEST EDUCATION COMPLETED: (circle appropriate)

1. Less than high school
2. High School/GED
3. Some college courses
4. Associate degree (2 yrs.)
5. Associate degree "plus"
6. Bachelor's degree (4 yrs.)
7. Some graduate work
8. Graduate degree

WOULD YOU SEEK A BACCALAUREATE DEGREE IN EMERGENCY MEDICAL SERVICES AND SYSTEMS? (circle one)

1. Yes
2. No
3. Maybe

WHAT FACTORS WOULD INFLUENCE YOUR DECISION? (circle appropriate)

1. Flexible schedule
2. Available part-time and full-time
3. Ability to transfer credits
4. Location
5. Job opportunity
6. Career development
7. Other (please list):

STATE OF RESIDENCE:

IN WHAT KIND OF JOB WOULD YOU THINK A BACHELOR OF SCIENCE DEGREE IN EMS WOULD BE IMPORTANT?

COMMENTS: