

Maryland EMMS NEWS



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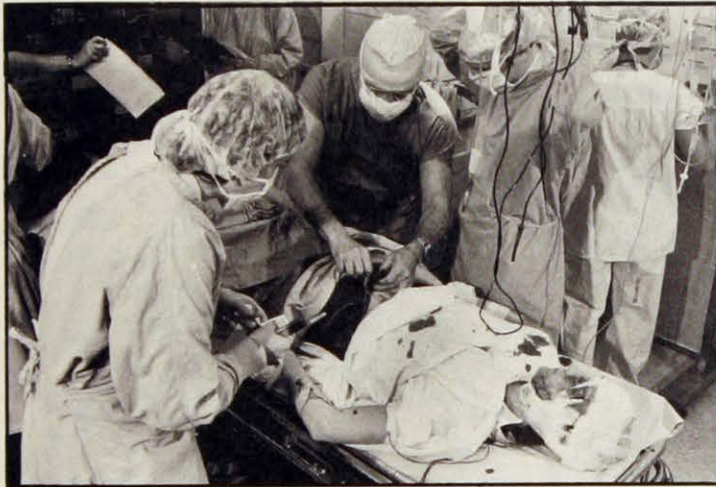


Photo: Dick Register

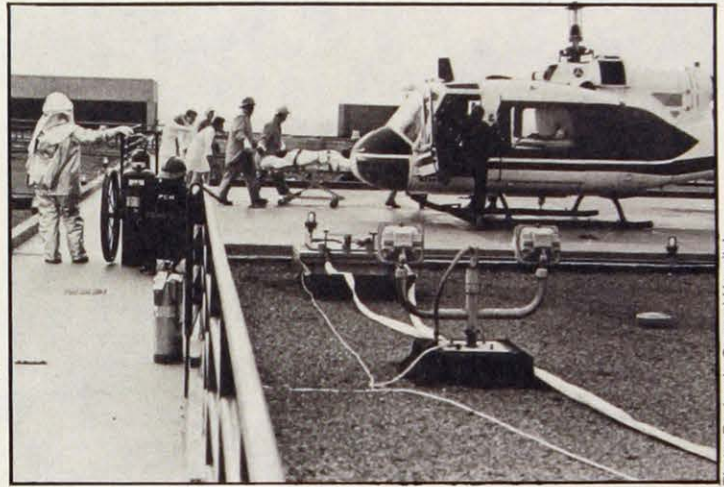


Photo: Peninsula General Hospital



Photo: Prince George's General Hospital

Areawide Trauma Centers Mark Anniversaries

During the past year, three Areawide Trauma Centers celebrated second anniversaries. Suburban Hospital in Bethesda, Maryland was designated by MIEMSS as the first Areawide Trauma Center in Maryland on September 14, 1977, and was quickly followed by Prince Georges General Hospital and Medical Center in Cheverly in November 1977 and Peninsula General Hospital Medical Center in Salisbury in February 1978.

The story of Areawide Trauma Centers, however, goes back much farther in time. MIEMSS Director, Dr. R Adams Cowley had a concept of developing a statewide network of trauma centers to ensure that all critically ill patients in Maryland receive the most appropriate care in the shortest possible time.

MIEMSS developed the Echelons of Trauma Care, a document outlining very stringent requirements a hospital must meet to be designated as an Areawide or University-level Trauma Center. These requirements include staffing, facilities, equipment, and uniform treatment protocols. They also address cost containment by preventing duplication of services through the designation of each trauma center to serve a particular catchment area. This also ensures that sufficient patients will be received to maintain staff competence. These standards are based upon the national guidelines designed by the American College of Surgeons, but far exceed them. Anticipating these requirements and using the Shock Trauma Unit as a model, the Areawide Trauma Centers had begun to plan and implement a trauma service long before their official designation.

Suburban Hospital

In Montgomery County a driver loses control and crashes into the back of another vehicle. The second car bursts into flames. Montgomery County paramedics arrive and quickly assess the victims. The driver of the first car has suffered critical injuries while the second driver is severely burned. A Maryland State Police Med-Evac helicopter is dispatched; communications are established with the Areawide Trauma Center at Suburban Hospital; MAST Trousers are applied; IVs are started; injuries are stabilized. The trauma patient is taken to the Areawide Trauma Center at Suburban Hospital, while the burn patient is loaded on a helicopter for the quick trip to a specialty referral center for burns and his less seriously injured friends are taken by ambulance to the nearest hospital. The areawide trauma center, specialty referral center, and hospital emergency department are alerted before the patients arrive and are ready to provide the appropriate care.



At the areawide trauma center at Suburban Hospital, a patient is readied for X-rays.

According to Dr. Richard Myers, Chief of Trauma Surgery at Suburban Hospital's Areawide Trauma Center, the above scenario is an illustration of Montgomery County's "systems approach" to EMS. "Our Trauma Center is both a part of Maryland's Trauma Center network and a crucial segment of the EMS program within Montgomery County."

This strong sense of interdependence between pre-hospital providers, a hallmark of EMS in Maryland, is particularly apparent in Montgomery County where, as Dr. Myers points out, "our Trauma Service and the County Advanced Life Support System were initiated at the same time and have grown up together."

The care trauma patients receive at Suburban today is the result of over seven years of planning and development. The crucial element in any trauma service is its physicians, and in the early 70s Dr. Myers and his colleagues began to recruit highly skilled physicians and surgeons in all specialties. Because of Suburban's location in a medically oriented community (Bethesda is the home of the National Institutes of Health and of the Bethesda Naval Hospital), they were able to draw from a large pool of highly qualified doctors.

As Dr. Myers notes: "This approach provides for the maximum utilization of highly trained physicians." The group of trauma surgeons thus developed remains small to enable each surgeon to further develop his skill through experience. With allied health personnel trained and support service on line, Suburban initiated its Trauma Service in May 1974.

During the following years, ongoing training honed the skills of the trauma team; meanwhile Dr. Myers and others visited trauma units throughout the coun-

try to assist their planning of a trauma facility to address optimal patient care and community needs. By September 1977, the Trauma Service at Suburban Hospital had demonstrated to MIEMSS the quality of their programs. Uniform treatment protocols, over three years success in treating the critically injured, commitments of physicians, staff, and support services—all met the rigid requirements of Maryland's Echelons of Trauma Care, and Suburban Hospital was designated the state's first Areawide Trauma Center.

Staff development now includes educational programs for

physicians, nurses, and allied health personnel, as well as the addition of trauma residents from area "training" hospitals to the trauma team. The extensive planning which went into the design of the facilities came to fruition with the opening of the new trauma admitting area in Spring 1979. This lead-lined room adjacent to the emergency room, features overhead radiologic equipment and is fully equipped to handle two trauma resuscitations simultaneously. In 1980 Suburban was authorized to receive helicopter transports of trauma patients from Montgomery County.

As part of the statewide trauma center network, Suburban frequently receives patients from other areas of the state when other trauma centers, including MIEMSS, are saturated. Conversely, when Suburban is unable to handle additional trauma patients, these patients are transported to the next nearest open trauma center—generally MIEMSS, MEDSTAR in D.C., or Prince Georges General.

Since its inception in 1974, Suburban has seen a steady increase in the number of trauma patients seen annually, with 238 trauma admissions in fiscal year 1979. Over 85 percent of these admissions are victims of highway-related accidents. An additional 10 percent represent victims of assault (including gunshot wounds and stabbings while the remainder include recreational, industrial, and home accidents). The majority of trauma patients arrive

(Continued on page 2)

Five New Areawide Centers Join Trauma Echelons System

Within the past year, five hospitals have joined the Maryland Echelons of Trauma System, bringing the total number of Areawide Trauma Centers participating in the system to eight.

Last November, Baltimore City, Johns Hopkins, Sinai, and University of Maryland hospitals were designated the Areawide Trauma Centers for Baltimore City, while in January, Washington County Hospital in Hagerstown was named the Center to serve primarily Washington County. The five percent most severely injured trauma patients throughout the State will continue to be transported to MIEMSS or to one of the other specialty referral centers.

Like its predecessors (Suburban, Prince Georges General, and Peninsula General hospitals—see article above), the most recently designated Areawide Trauma Centers had to meet the same rigid standards in staffing, equipment, facilities, and protocols and

agree to be evaluated bi-annually. On the basis of these standards and of existing referral patterns, the newest five hospitals were designated a part of the statewide multi-level system of trauma facilities.

Success of Areawide Trauma Centers depends not only on their clinical staff's expertise but on the ability of the ambulance crew to correctly assess patients and on the ability of the hospital medical staff to trust the judgment of the ambulance crew. Many EMS personnel, including the paramedics in Baltimore City and the nurses in all Areawide Trauma Centers, receive special training to handle trauma patients.

MIEMSS is continuing to evaluate the newest five Areawide Trauma Centers and to work on solutions to problems. When completed, the Echelons of Trauma System will also include an Areawide Trauma Center for the Allegany-Garrett area.

—Beverly Sopp

Areawide Trauma Centers

(Continued from page 1)

at Suburban by Medic Unit and those requiring Specialty Referral Center care are quickly stabilized and transferred to the center able to provide the most refined treatment available for the specific traumatic injury.

Prince Georges General Hospital and Medical Center

The key factor in providing quality care for trauma patients, according to Dr. Joseph Colella, is people. As Dr. Colella, Director of Critical Care Services and the Areawide Trauma Center, at Prince Georges General Hospital and Medical Center, points out: "The primary factor in a Center's capacity to treat trauma successfully is a skilled and experienced medical team, trained in standardized treatment protocols, and ready to take aggressive action to save lives." Dr. Colella's contention is supported by the history of the trauma center concept when highly skilled army surgeons saved thousands of lives in the relatively primitive MASH units of Korea.

Consistent with this emphasis on quality personnel, PGGH, in July 1979, became the first Areawide Trauma Center to employ traumatologists dedicated to their trauma service. These three physicians (Drs. Nikilish Agarwal, K. Shaikh, and Vincent Casibang) are board-certified surgeons who have had additional Fellowship training at MIEMSS prior to joining the staff at PGGH. They add considerable depth to the already strong trauma program provided by physicians in the private sector, serving as team leaders in the admitting area and following patients through to discharge.

As is the case with Suburban, Prince Georges General has a long history of trauma care. Located at the intersection of three major highways and less than five miles inside the Capital Beltway (495) in the densely populated suburbs of Washington, Prince Georges has traditionally been the receiving hospital for a large percentage of the county's trauma patients. By Fall 1974 PGGH formalized its approach to treating these patients by adopting a "Shock-Trauma Emergency Plan" based on MIEMSS protocols. Under the direction of Dr. Colella and Dr. Jerome Sandler, Chief of Surgery, the trauma service continued to develop and in November 1977 was designated by MIEMSS as Maryland's second Areawide Trauma Center.

Following its outstanding success in treating the critically injured of Prince Georges County, the hospital subsequently was designated as the Areawide Trauma Center for Calvert, Charles, and St. Mary's counties, as well as Prince George's County, in February 1979. Patients from these areas are now transported to the Center via Maryland State Police helicopter.

The hospital's own ambulance (on loan from the Accocek Volunteer Fire Company) meets the helicopter at the landing pad.

A nurse and a respiratory therapist with intubation training, maintain the patient's airway and begin initial assessment during the brief trip to the Emergency Department doors. There they are met by a highly trained trauma team ready to take aggressive action to save a life.

After resuscitation and stabilization in the emergency room receiving area, trauma patients (approximately 70 percent) most often proceed to the operating room for surgical procedures to repair their injuries or to the Critical Care Center for further stabilization and medical care. The 16-bed Critical Care Center at PGGH and its neighboring step-down unit, are considered among the finest facilities of their kind in the State.

Innovative treatment protocols at PGGH include the use of barbituates to lower intracranial pressure in the treatment of closed head injuries; according to Dr. Colella, this treatment has shown positive results in terms of returning many patients with closed head injuries to normal function. Another innovation in critical care treatment at PGGH is the purchase and active utilization of a high-frequency positive pressure "jet" ventilator for management of selected cases of pulmonary baro-trauma.

The number of trauma patients at PGGH has steadily increased. With 273 trauma admissions in 1979, it is second only to MIEMSS in the number of trauma cases treated at a facility in Maryland. While the percentage of highway-related accident victims (automobile, pedestrian, and motorcycle) treated at PGGH is consistent with statewide figures (59 percent at PGGH and 61 percent at MIEMSS), the percentage of assault victims is 32 percent (more than double the 15 percent seen at MIEMSS). Two-thirds of these patients arrived by PG County's Mobile Intensive Care Units or by ambulance, while the remaining third arrived via helicopter, often from more distant sites.

The Areawide Trauma Center at Prince Georges General is currently in the midst of extensive renovation. Upon completion of this remodeling, a new trauma receiving area will be opened separate from but adjacent to the emergency room. This admitting area will be fully equipped with the necessary diagnostic and monitoring equipment and prepared for surgical intervention if necessary. Plans also call for the relocation of the helipad to an area adjacent to the admitting area to eliminate the necessity of ambulance transport.

While Dr. Colella looks forward to the completion of these renovations with enthusiasm, he emphasizes that they are secondary to the "people" component of a trauma service. He notes: "Our mortality rate of 11 percent of admitted patients is consistent with state and national averages, and stands on its own merits. While these new renovations will facilitate our institution's efficiency, it is important to remember that hospital buildings don't save lives; highly trained people save lives."



A Maryland State Police Med-Evac helicopter transports a patient to the areawide trauma center at Prince George's General Hospital.



A trauma patient is wheeled to the Admitting Area at Peninsula General Hospital.

Peninsula General Hospital Medical Center

The Peninsula General Hospital Medical Center in Salisbury became the third Areawide Trauma Center in February 1978, functioning under the Maryland guidelines of the "Echelons of Trauma Care" system. The Center serves approximately 40 percent of the EMS Region IV population or approximately 108,700 permanent residents generally in a three-county, predominately rural area. However, this area also includes the urban center of Salisbury and Ocean City whose tourists swell the population density during the summer months (an average of over 50,000 cars a day enter Ocean City on any summer weekend). In addition to Maryland residents, PGHMC also extends its services into lower Delaware and the Eastern Shore of Virginia.

Under the direction of John Bulkeley, M.D., Medical Director for EMS Region IV, and Robert Adkins, M.D., Medical Director for EMS at PGHMC, the Region IV areawide trauma center has become the hub of emergency medical activities for the Eastern Shore.

The hospital's Emergency Department provides 24-hour physician consultation to nine Advanced Life Support ambulance companies on the lower shore. Through its continuing education programs, EMT/A case review sessions, and general EMS-related programs, PGHMC also

offers support to non-ALS ambulance companies responding to the Center.

Peninsula General receives direct helicopter admissions via the Maryland State Police helicopter located at the Salisbury Airport facility. Patients are transported to the hospital helipad located atop the Center where they are met by the hospital's trauma team and rushed to the Center's Emergency Department. Last year, Helicopter #4 transported 163 patients to the Hospital Center and Med-Evac'ed a total of 50 patients from PGHMC to specialty referral centers located in Baltimore.

The Hospital's Emergency Department treated a total of 41,835 patients during 1979. Critical patients admitted through the Emergency Department totalled 5,649, with 62 multiple trauma patients being treated during this same period.

The Region's first CRT Training Program was developed at PGHMC and completed in December 1976. Since that time, three additional CRT programs have been implemented, bringing the current number of certified CRTs to 41 for the lower Eastern Shore.

Presently, 14 Maryland ambulance companies are regularly responding directly into PGHMC, with an additional five companies intermittently responding from neighboring Maryland counties and from Delaware and Virginia.

The Region IV EMS Nurse Coordinator's office is located within the Hospital facility and is utilized as a coordinating center for much of the ALS training activities in the lower region.

In addition to supporting training programs for ambulance personnel, PGHMC has demonstrated an interest in training programs for physicians, nurses, and clinicians relevant to EMS Continuing Education—that is, nursing workshops, Advanced Cardiac Life Support, MIEMSS nursing programs, and physician workshops.

PGHMC also provides professional staff support to assist the Maryland State Police Aviation Division in skills maintenance and continuing education for its crew members.

—Marie Warner and Marc Bramble

Eye Centers Designated At Georgetown & Hopkins

The newest specialty center in Maryland's EMS system is for the treatment of eye trauma. The result of a collaboration between the Georgetown University Center for Sight and the Wilmer Eye Institute of the Johns Hopkins Hospital, the Maryland Eye Trauma System is a prototype for a national network of such centers that are part of state EMS systems.

The round-the-clock service is aimed at providing care for



Delicate eye operations are performed at the Eye Centers at Georgetown and Johns Hopkins hospitals. (Right) Eye surgeons operate on a patient at Georgetown University Center for Sight.

penetrating or blunt injuries and for chemical or radiation burns suffered in household, occupational, industrial, or sports accidents. Approximately 200,000 penetrating eye injuries occur each year in the United States.

According to system coordinators Lawrence W. Hirst, M.D. (Hopkins) and Leonard M. Parver, M.D. (Georgetown), the

Area Centers Hold Trauma Days in Fall

This fall the areawide trauma centers around the state will begin a new "Trauma Day" program.

Each center will conduct a yearly program focusing on trauma care in its area. The purpose is to provide educational programs in trauma to emergency care providers in the area and to build public awareness of the trauma program in Maryland. Each trauma center will be host for the program, and activities will be planned around local and regional needs.

Activities include:

- Update workshops for EMTs/CRTs in trauma treatment procedures
- Skills and systems orientation for nursing personnel
- Grand rounds on trauma case management for physicians
- EMS systems orientation for all EMS personnel (will include communications, field protocols, and helicopter operations)
- Graduation exercises for EMTs and honors presentation for citizens and/or professional medical personnel

The first two centers that are considering the idea of presenting a Trauma Day program are Peninsula General Hospital in Salisbury and Suburban Hospital in Bethesda. It is anticipated that the first program will be presented in September or October.

-Bill Hathaway

eye trauma centers will provide care primarily for persons requiring specialized treatment. Data on the incidence of eye trauma, long-term effects on vision, and evaluation of treatment protocols will be gathered and shared between the institutions for research purposes.

Public education on prevention will be a major focus of the system. Dr. Hirst suggests that preventive measures such as wearing safety sports glasses and



Photo: Bill Auth, Georgetown University

seatbelts, and care in the use of caustic substances could prevent many serious eye injuries.

New microsurgical techniques have added new dimensions to the treatment of severely injured eyes, Dr. Parver pointed out. Eyes which previously would have been lost using conventional treatment may now be salvageable.

Eye trauma patients will be managed in the Maryland EMS system in a manner similar to that for hand trauma patients, with ambulance the primary mode of transportation. The Georgetown University Eye Trauma Unit will serve Maryland EMS Regions V, I, and II (Metropolitan Washington, Appalachia, and Mid-Maryland, respectively). For inquiries or assistance in the transfer of patients to Georgetown's Eye Trauma Unit, call 202-625-EYES. The Johns Hopkins Eye Trauma Unit will serve areas III and IV (Metropolitan Baltimore and Eastern Shore, respectively). The Hopkins Eye Trauma number is 301-955-8400.

-Marianna Spicer

Baltimore Authors Publish Book Titled 'Shocktrauma'

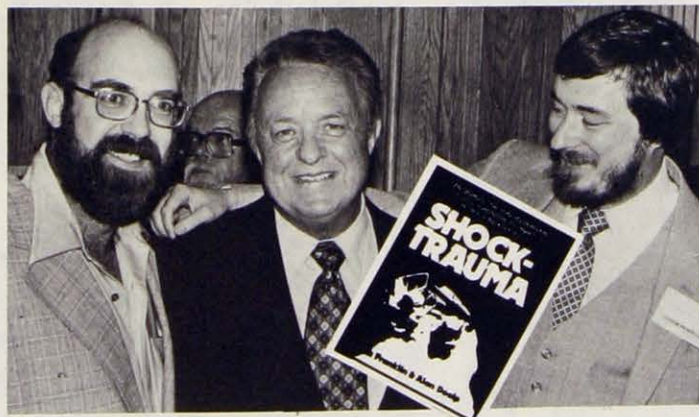


Photo: Andy Trohans

SHOCKTRAUMA by Baltimore authors Jon Franklin and Alan Doelp is now available in bookstores. Published by St Martin's Press, the book details the dramatic story of MIEMSS Trauma Center. The authors interweave the staff's step-by-step fight to save specific patients' lives with the history and growth of MIEMSS. Pulitzer-prize-winning science writer Franklin and Doelp, both Evening Sun reporters, spent five years researching and writing the book. (Above) Authors Jon Franklin and Alan Doelp and MIEMSS founder-director R. Adams Cosley, M.D. (center) acknowledge the congratulations of family, friends, and staff who attended a party announcing the book's publication.

Smoke Inhalation Victims Receive OHP Treatment at MIEMSS

Most fire victims have never been touched by flames; they die because they have been overcome by smoke. Since 1971 the Johns Hopkins University Applied Physics Laboratory and the Medical Examiner's Office have been investigating the cause of fire deaths with a special emphasis on smoke inhalation.

They have found that carbon monoxide (CO) alone was the cause of death in 50 percent of the cases. In another 30 percent, a combination of CO and other factors, such as pre-existing heart disease, high blood-alcohol levels, or burns, were responsible. While synthetic materials are frequently involved in fires and produce irritating or toxic gases, they have been the primary articles burning in only about 5 percent of the fires investigated during the study and have rarely been responsible for death. However, the universal presence of CO, frequently in very high and toxic concentrations in fire atmospheres, is well established.

In order to help reduce fire tragedies, the National Bureau of Standards, which supported the Hopkins Fire Casualty Study, awarded MIEMSS an \$88,000 grant this March, to determine the best treatment for CO poisonings. Victims considered to be seriously exposed to the toxic products of fires will be transported to the Hyperbaric Chamber at the MIEMSS Adult Shock Trauma Center for high-pressure oxygen therapy (OHP). Alternative treatment using 100 percent oxygen masks will also be available. The patient's response to the therapy will be evaluated, and follow-up data will be collected to determine whether long-term injury has resulted from smoke exposure.

Carbon monoxide poisoning results in significant injury because it inhibits the body's ability to transport, deliver, and utilize oxygen. CO competes directly with oxygen for binding sites on the hemoglobin molecule. Acute and chronic effects of CO poisoning are seen in several organs, primarily the brain and heart.

OHP has been recommended as the optimal treatment of CO

poisoning since the half-life of blood carboxyhemoglobin (HbCO) can be reduced by a factor of 8 in relationship to air and a factor of 4 in relationship to oxygen mask therapy. If a patient breathes 100 percent oxygen at 3 ATA (3 atmospheres of absolute pressure or the equivalent pressure of 66 feet of sea water per square inch of body surface), the half-life of caroxyhemoglobin is 23 minutes. At normal atmospheric pressure, the half-life of HbCO in air is 4 hours or 240 minutes; in 100 percent oxygen it is roughly 80 minutes.

With OHP, the brain will be deprived of oxygen for a shorter period of time. Also, in keeping with the new concept of CO as a direct tissue toxin, the duration of

Chamber Update

Two recompression chambers in the Baltimore-D.C. area will not be available for treatment of patients during the next months. The recompression chambers at the U.S. Navy Diving School in Washington, D.C., are no longer used for treatment since the Navy Diving School moved to Panama City, Florida in May. The treatment chamber at the Naval Medical Research Institute in Bethesda, Maryland is tentatively scheduled for a temporary shutdown for maintenance work between August and November.

Persons seeking consultation or treatment of diving-related accidents can contact the Hyperbaric Chamber staff at MIEMSS. During working hours, call Roy Meyers, M.D., the primary medical consultant for hyperbaric medicine. Consultation on a 24-hour basis is provided by the on-call supervisors, Ron Hovey or Charlie Cross.

The Hyperbaric Chamber staff can be reached by calling SYSCOM: 1-800-492-0610 (toll-free in Maryland); 528-7813 (in Baltimore); 1-301-528-7813 (outside of Maryland).

exposure to CO will be reduced. Careful neurological and psychometric testing before and after OHP therapy will determine the effectiveness of OHP in reducing CO damage to the central nervous system. Patients in the study with HbCO levels of over 25 percent or with mental disturbances, irrespective of HbCO levels, will be correlated with the psychometric testing and clinical evaluation. It has already become apparent that fire rescue victims may have severe mental disturbances with negligible blood HbCO levels at the time of admission to the Trauma Center. Dramatic improvements with OHP have been seen in these cases. It is believed that this occurs because HBO therapy removes CO from tissues where it is causing toxic effects.

MIEMSS will also evaluate hand-held breath-sampling kits for measuring CO levels. Data will be correlated with blood HbCO levels to assess the validity of these devices for triaging the severity of smoke inhalation injury in the field.

-Lynn Rutkowski

MIEMSS Studies Motorcycle Accidents

Since the repeal of the helmet law in July 1979, MIEMSS has been conducting a study of severely injured motorcyclists admitted to its Adult Trauma Center.

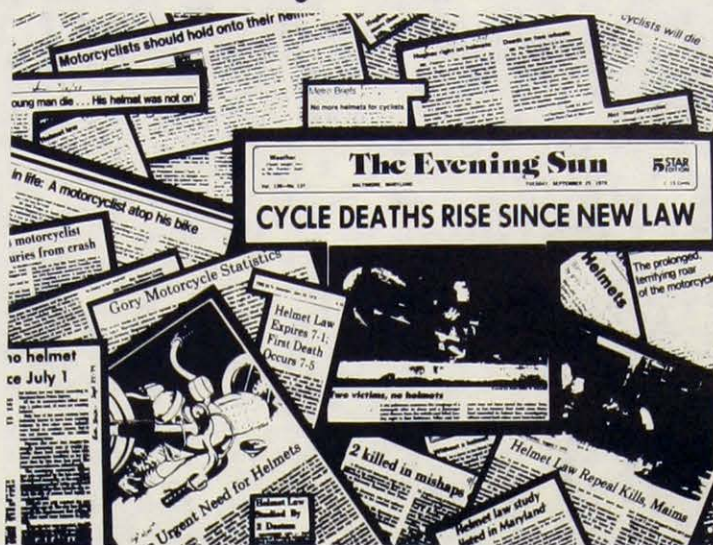
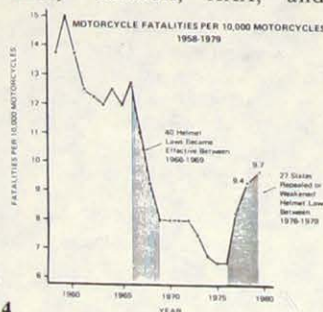
As indicated in the preliminary results of the study, the most striking and important difference between helmeted and helmetless motorcyclists is the number of head injuries suffered by helmetless motorcyclists and the subsequent death and disability resulting from those head injuries. (See table for summary of data from July 1 to December 31, 1979.)

While chairman of a Department of Defense Technical Group, Joseph Sperrazza, now at MIEMSS, co-sponsored research on the effectiveness of helmets in reducing physical damage to the head. This research found that a helmet could reduce peak pressure from impact in the brain by a factor of 10. Additional marked decrease in pressure was possible if the helmet was lined with a softer shock-absorbing material. Such dramatic decreases in peak positive pressure also are accompanied by similar decreases in the magnitude of countercoup pressures (countercoup pressures result when the force of impact is transmitted to the opposite side of the skull). This may lead to the formation of hematomas.

Reports issued by the U.S. DOT's National Highway Traffic Safety Administration have shown that 70 percent of motorcycle crashes result in impact to the victim's head. Data collected nationwide have established that motorcycle riders not wearing helmets have 2-3 times as many moderate-to-severe head injuries and 3-9 times as many fatal head injuries as riders wearing helmets. Also, claims that helmets unsafely restrict vision and hearing or contribute to neck injuries have been scientifically refuted.

With the Maryland helmet law repeal last July came the predicted decrease in helmet usage — from almost 100 percent to about 67 percent. Since that time the Chief Medical Examiner's Office has found that 80 percent of the fatally injured motorcyclists in the state were not wearing helmets at the time of their accidents. This represents a 12 percent increase in fatalities over the previous five-year average. Effects of helmet law repeals nationwide are shown in the graph below. There was a 46 percent jump in total motorcycle deaths from 1976 to 1979.

Many concerned groups in the state—including the Epilepsy Foundation, Department of Transportation, Medical Examiner's Office, Maryland Safety Council, AAA, and



MIEMSS—support the reinstatement of the helmet law.

Although several bills reinstating the helmet law were introduced before the General Assembly during the past session, it was agreed that no decision would be made until a strong data set was available on the effect of helmets in preventing death and disability in motorcyclists involved in accidents.

The apparent strong opposition in the Maryland General Assembly to the helmet law is based on the constitutional right of individuals to choose whether or not they will wear a helmet. Supporters of the bills point out that, in light of the overwhelming evidence for the effectiveness of helmets and helmet usage laws, this opposition hardly seems justified. Added to their arguments is the economic impact of motorcycle accidents on the state in terms of hospital costs, the incredible cost of long-term disability, and a decrease in productivity of injured motorcyclists that must be borne by insurance companies and Maryland taxpayers.

In order to better assess the impact of the helmet law repeal, Alasdair Conn, M.D., and Walker Robinson, M.D., of MIEMSS, with the assistance of a \$7,000 federal grant, will expand the current MIEMSS study to include motorcycle accidents statewide.

—Lynn Rutkowski

Legislature Studies EMS Issues

This year the Maryland General Assembly considered several legislative issues of interest to persons involved in emergency medical services.

Efforts to improve highway safety were quite strong. A consortium of concerned groups, including MIEMSS, the State Police, Department of Transportation, the Epilepsy Foundation, and others, banded together to convince lawmakers to put helmets back on motorcyclists. Although the evidence gathered to date supports helmet usage, it was generally agreed that no decision would be made until a strong data set had been collected. The statewide motorcycle study by Alasdair Conn, M.D., Medical Director of MIEMSS Field Programs, and Walker Robinson, M.D., neurosurgeon at MIEMSS, will be useful next year for this purpose. (See article above.)

The drinking and driving issue was again a point of major discussion. Although the legal limits for impairment and intoxication were not lowered to be in line with the rest of the nation (.15% and .10% respectively, to .10% and .08%) and the drinking age was not increased (18 to 19 years), several laws were approved which should have an impact on highway safety. Delegate Owens, Chairman of the Judiciary Committee, successfully pushed through a bill (HB

Nat'l EMT Registry

Although certification by the National Registry for Emergency Medical Technicians (a national accrediting agency) is not required in Maryland, many Emergency Medical Technicians have expressed an interest in becoming certified. Maryland EMTs interested in obtaining National Registry certification do not have to take a practical exam if they have successfully passed the Maryland final practical exam within the past two years. However, Maryland EMTs are required to pass the Registry's written exam and to pay the necessary fees. For further information, write Emergency Training Associates, 3 Dorothy Avenue, Baltimore, Maryland 21221 or call (301) 682-4920.

1678) which will allow suspending the driving licenses of teenagers who are caught drinking illegally. Senators Kelly, Garrety, Abrams, and others sponsored a law (SB 716) which will guarantee rehabilitative measures for offenders of drunk driving. Senator Abrams' bill (SB 86) to analyze blood for blood-alcohol content was also passed.

EMS legislation was another major topic in Annapolis. EMS bills that passed include legislation requiring CPR in racketball facilities (Hollinger, HB 10), a bill enabling licensed persons to treat disabled victims without that person's consent (Masters, HB 88), and a Trust Fund for 911 Emergency Telephone System (Brown, HB 1102). In addition, a resolution supporting and encouraging the Vial of Life Program (Curran, SJR 43) was passed.

Several bills that would have affected EMS did not make it through the session. These included bills which would have required child passenger restraints, prohibited riding in unenclosed parts of vehicles, and changed standards for emergency mental health admissions. Two bills that MIEMSS opposed (Brown, HB 1175, HB 1324) would have mandated certain standards for ambulances and drivers. Both of them failed.

—Carol Benner

Butane Lighters Present Risks

Spread the word—disposable butane cigarette lighters can be dangerous. In recent months, these lighters have been responsible for the death of several employees of the Union Pacific Railroad. These accidents occurred while employees, who had butane lighters on their person, were welding. A spark from the welder landed on the butane lighter, burning through the case and exposing the liquid butane which exploded. A disposable butane lighter has the explosion force of approximately three sticks of dynamite.

People working in areas where welding and flame operations are performed or anywhere there are open flames should be alerted to this little-known danger.

—Judy Krouse

HELMET DATA

July 1 — December 31, 1979

	WITH HELMETS	WITHOUT HELMETS
NO. OF ADMISSIONS*	7	18
AGE		
Range	18-27	14-36
Average	21.6	25.7
NATURE OF INJURIES		
Head	0	14
Chest	1	0
Amputations	0	1
Fractures	4	2
Abrasions & Contusions	2	1
OUTCOME		
Survival	7	3
Disability	0	4
Deaths	0	11
Fatality Rate**	0%	61%

NOTE: Data was collected by Carol Benner, Clinical Laboratory Supervisor.
 * Excludes 12 victims where helmet usage could not be determined.
 ** Statistically significant difference, (p = .01).

AA County Fire Dept. Responds to Plane Crash

February 23, 1979. A foggy, rainy Friday evening, 8:03 p.m. Anne Arundel County Fire Department receives a call. A small private aircraft carrying four persons has crashed just short of the runway enroute to Baltimore-Washington International Airport. The Fire Unit prepares to respond. . . .

Aircraft crash incidents present some difficult and unpredictable problems for emergency personnel. Are emergency personnel really prepared for such disasters? Are they equipped with the professional knowledge and technical skills required for effective rescue and recovery operations in such incidents?

Chief Roger Simonds, EMS officer for Anne Arundel County Fire Department, believes they

with BWI personnel and notified them of the plane's difficulties; however, he soon became so panic-stricken that he could not even effectively communicate the number of people aboard. While on its final approach to BWI, the plane crashed into a densely wooded swamp area, about one-half mile from the end of the runway, killing three persons and seriously injuring another.

Four different rescue agencies responded to the initial alert — Anne Arundel County Fire Department, Anne Arundel County Police, Maryland State Police, and BWI fire rescue personnel. Approximately 30 people from Anne Arundel County Fire Department were involved, including four engine com-



incident site. Since helicopters were not able to be used due to poor weather conditions, State Police supplied four-wheel drive vehicles for transportation to and from the incident site.

Once the incident site was found, searchers combed the area completely, looking for the victims. The lone survivor received appropriate care and was prepared for transport to the Shock Trauma Center at Baltimore; however, it took rescuers over an hour to complete these operations due to the location of the accident and the weather conditions. Two victims had been in the main fuselage of the plane, which had been consumed by fire; another victim's body was strewn over the area.

Since there was only one survivor, triage did not present a problem. However, there was the problem of locating and identifying the individuals in the aircraft. The triage tag was used in a somewhat different fashion than just putting the tag on an individual. Since parts of the victims' bodies were strewn over the area, a standard triage tag was used whenever a body part was found, to identify the body units. Thus, the use of the triage tag was extended in this incident.

Although emergency personnel responded effectively in this aircraft crash incident, improvements in the system are continually being sought. To improve future operations and ensure even better preparation for incidents of this nature, the Anne Arundel Fire Department is in the process of formulating a broader disaster operations plan. The Department has made some firmer commitments with county and state police in regard to the establishment of command posts and command-post procedures. In addition, they would like to purchase certain equipment that from a practical standpoint might prove benefi-

cial for any future disaster incidents. These include some four-wheel drive apparatus to aid access into difficult areas and some U-haul trailers. The trailers would be equipped with a fair supply of basic equipment for providing care to victims (bandaging materials, spine boards, etc.) and would be stationed at different staging areas of an accident scene. Other than that, management of such an incident involves "being aware of your resources and pooling resources from a number of different agencies to make the job more effective," Simonds said.

Perhaps one of the reasons why response to this emergency was so effective was the fact that emergency personnel had a disaster operations plan and regularly scheduled drills to prepare them for such an incident. Also, a few months prior to this particular aircraft crash, a mock disaster drill had been staged at BWI Airport. Although disaster drills may be criticized as mere "game-playing" by some, Simonds admitted that the exercises done at BWI were "very helpful and instrumental in defining basic plans of operation." He added that "such elements as the staging area, capturing all the parties involved, and utilizing resources went much easier than if we were to go out there without that type of preparation."

But what if the incident had been of a larger scale? What if a commercial airliner with hundreds of passengers aboard had crashed? Simonds is confident that the present system and emergency personnel could have handled a much larger incident had it been necessary: "We have the format for the basic operation and our people are very well attuned. If it had been on a larger scale, it would have taken us longer to determine the extent of the situation and to pool proper resources but I believe we could have handled it without any major difficulty."

—Denise Calabrese



Photos: Anne Arundel Fire Department

are. The above incident could have resulted in the loss of a life had emergency personnel not responded quickly and appropriately. Response by emergency personnel proved they can handle such an emergency and provided direct experience should another incident of similar or even larger proportions occur. According to Chief Simonds, much was learned from the crash of over a year ago. Emergency personnel continue to evaluate the incident, looking at ways the system worked and at areas needing improvement.

According to Chief Simonds, the trouble in the above incident began when the plane struck a high tension wire around the Dundalk area, while attempting to land at Martin Airport. With approximately 600 feet of cable wrapped around its landing gear, the plane headed for Baltimore-Washington International Airport, where proper radar for low-visibility operations was available. During the short flight, the pilot had communications

panies, two truck companies, one ambulance, one paramedic station wagon, the battalion officer, and Chief Simonds, the EMS Officer.

Ironically, having four different agencies involved posed somewhat of a problem at first, Simonds indicated, because there were so many people in so many different areas, looking for the incident site. The units then staged themselves at specific command posts and consequently developed better communications. According to Simonds, "The thing that hurt us initially . . . was the fact that we had conflicting reports of the incident site. Once we dispelled the incident site discrepancies and established the staging area, then it came together very well."

Another problem was gaining access to the isolated, densely wooded area. Fog, rain, and several inches of snow on the ground hampered rescue efforts. A front-end loader and flood light unit were brought in to help rescuers get to the



EMT Practical Exam Revised



The Ad Hoc Committee on Training, Testing, and Certification (consisting of representatives from MIEMSS, the Maryland State Firemen's Association, the Maryland State Ambulance and Rescue Association, the Maryland Council of Training Academies, the Maryland Fire and Rescue Institute, and the Maryland Fire and Rescue Education and Training Commission) recently approved revision of the testing procedures used for the EMT practical exam.

Students had complained that the skills procedures used for the practical were not stressed during the classroom instruction sessions or that equipment used during the practical was not the same as that used in the classroom. This attributed to a high failure rate.

Students who failed two of the five stations had been required to repeat the 21-hour refresher course; students failing three or more stations had to repeat the entire 84-hour course. Because this required an additional investment of time and money, students were reluctant to repeat the course; thus potential volunteer ambulance personnel, who contribute to the emergency care of citizens with a minimum burden to the taxpayer, were lost.

In response to these considerations, the Ad Hoc Committee on Training, Testing, and Certification agreed that revision of the practical exam testing procedures was necessary. These changes were implemented by MIEMSS which has been mandated responsibility for standards of certification of the EMT by the Maryland legislature. Last December, MIEMSS started individualized retraining of students who failed one or two stations of the practical. This retraining occurs immediately at the site of the practical whenever the students give an incomplete or weak skills performance. In other words, if students fail station A and/or station B, they can be immediately retrained by the instructor-evaluator who tested them, and then retested to verify that they can perform the required basic life-support procedures satisfactorily. In this way, MIEMSS feels that the high standards of the EMT program are not compromised, and the students

are given an additional opportunity to demonstrate their level of basic skills attainment.

Students will be allowed to retest a maximum of two times on any one station. If a student fails to pass after the second attempt, he or she must complete the 21-hour refresher course and retest on those stations failed within 60 days of the original practical exam. If a student completes the 21-hour refresher course and again fails after two retest attempts to pass the station he or she originally failed, the student must retake the entire 84-hour EMT course before being retested.

The new testing procedures do not apply to students failing three or more stations of the practical. Those students must still complete the 21-hour refresher course. Those that again fail the station they originally failed must retake the entire 84-hour course.

Prior to the implementation of the new testing procedures in December, the pass rate for the practical exam was approximately 70 percent. After the EMT practical exam procedures were revised, the pass rate rose to 94 percent.

—Beverly Sopp

AA Co. EMTs Participate In Apprenticeship Program

Anne Arundel County firefighters and certified EMTs and CRTs are eligible to train as career ambulance EMTs and EMT-paramedics under the county's new apprenticeship program. This program has been approved and registered by the Maryland State Apprenticeship and Training Commission and is the first of its kind in the state.

Once state-certified, an EMT may enter a continuing education program for an additional year to become a career ambulance EMT. This program consists of 144 hours experience in the field under a journeyman and 12 hours per month in the classroom — nine hours viewing video tape and three hours discussion. Faculty from Anne Arundel Community College's nursing program will contribute to the classroom course. To become a journeyman paramedic, present CRTs will have to receive additional training but will be given credit for areas covered in their CRT instruction. The complete program consists of approximately 400 hours. Present paramedics in the Anne Arundel County system

already meet the program's standards and will be automatically certified as journeymen.

To date, there are approximately 60 paramedic apprentices within the career department. Course Modules include: Crisis Intervention, Patient Assessment and Anatomy and Physiology, Pharmacology, Shock Fluid Therapy, Central Nervous System, and Musculoskeletal System modules. Begun in October 1979, the total program will take about two years to complete.

Anyone completing the apprenticeship program will be awarded certificates from three agencies: the International Association of Firefighters and Fire Chiefs; the U.S. Department of Labor; and the Maryland State Department of Labor. This program is federally funded through a grant sponsored by the International Association of Firefighters and Fire Chiefs. Additional funds will be approved by the Maryland State Board of Education, apprenticeship training section.

—Lynn Rutkowski and
Denise Calabrese

MIEMSS Certifies Five Companies In Ambulance Inspection Program



(Clockwise, from top right) MIEMSS Paramedical Training Officer Ron Schaefer checks oxygen equipment during an ambulance inspection. Among the ambulance companies that received certification plaques to date, shown with company representatives: Mt. Airey Vol. Fire Dept., Jay McElroy; Glen Burnie Paramedic #33, Chief Roger Simonds and duty crew; Owings Mills Vol. Fire Co., Steve Woods and Bill Isaac.

MIEMSS initiated a statewide voluntary ambulance inspection program. Those companies requesting and successfully passing the inspection receive a Certificate of Excellence plaque plus decals for their vehicle(s).

To date, five companies have been certified: Glen Burnie Paramedic #33; Owings Mills Volunteer Fire Company; Mt. Airey Volunteer Fire Department; Rising Sun Community Volunteer Fire Company; and Bel Air Volunteer Fire Company.

The list of equipment on the ambulance checklist varies little from that required by the Mary-

land State Firemen's Association. As part of the inspection, companies are also required to certify their manning of the vehicle(s).

As an adjunct of the inspection procedure, suction and breathing apparatus are checked to ensure that the equipment is functioning properly and providing accurate readings; adjustments are made on the spot if possible. (In spot checks, it has been found that many gauges may not be registering accurately.) The medical communications radio is also checked for proper functioning.

The inspection is strictly voluntary and is *not* the first step toward a required inspection. Since most units are already meeting and exceeding Basic Life Support standards, there does not appear to be a need for a law. The voluntary inspection program will, however, formally recognize those units throughout the state that have worked to provide high standards of emergency ambulance service and will make this fact apparent to the public.

Procedures for requesting an inspection and the criteria are available by contacting your regional coordinator.

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MIEMSS Supports Vial-of-Life Program



EMTs are called to a house where an elderly woman has been found alone and unconscious on her dining-room floor by a neighbor. Upon arrival, they remember to check the refrigerator for what is called a "Vial-of-Life." On a medical information form contained in the vial, they learn that the patient is a diabetic and therefore probably experiencing an insulin reaction. Her hospital and her

inserted into the vial which is then stored under the top right-hand refrigerator shelf. (The refrigerator was chosen as the standard storage location because nearly every home has one, and it is relatively fire-proof.)

MIEMSS, in response to a request by State Senator J. Joseph Curran, is coordinating the program statewide. After initial evaluation of the program last summer, MIEMSS found that the Vial-of-Life forms and the recommended location of the vial differed according to the sponsoring organization. Standardization was necessary within the program if the vials were to be recognized and used by ambulance personnel anywhere within the state. In response to this need, MIEMSS developed a standard medical information form and instruction brochure. Both are now ready for use in both new and existing programs.

and kit distribution, which will be handled through various Nutrition Centers, Meals on Wheels, Health Fairs, and the like. For further information on their involvement, contact Paul Manacher, Public Information Office, 383-5064.

Standard form samples and further information regarding distribution methods; costs and manufacturers; potential sponsors; and program implementation protocol can be obtained from Kristin Meyer at MIEMSS, 528-3697.

—Kristin Meyer

BP Nurse-Medic from Scotland Observes Md. EMS System

Last summer the gas shortage made oil and its supply a matter of intense interest. Robert Davidson is also very interested in the supply of oil, but from a different perspective. For six months of the year, he works on the giant platform drilling for and pumping oil from the North Sea. A nurse, he is the sole provider of medical care on one of the isolated, community-like installations housing 200 people. He is also one of those in the "offshore industry" trying to set high standards for the provision of care offshore.

Mr. Davidson was in Maryland last summer to observe the Maryland EMS system, which he says is recognized in his country, Scotland, as one of the most outstanding in the world.

An employee of BP (British Petroleum), Mr. Davidson has been serving on the offshore installation for five years, "since the legs were put into the sea." There are about 30,000 people involved in the offshore industry and about 50 installations in the North Sea.

The British government recently recognized the need to set standards for the provision of health care and the training of medics for this unusual environment. The industry itself has an interest in assuring that these standards are high. It became interested in existing EMS systems as models. Mr. Davidson won a scholarship from the Florence Nightingale Memorial Committee, supplemented by BP funds, to come to the U.S. to study systems of providing emergency medical services, of training, retraining, and certifying medics, and of regulation. He spent almost two months in Maryland observing all components of the system. He made brief visits to Seattle and San Francisco to observe their EMS systems before returning to the United Kingdom.

The offshore industry in Scotland has recruited nurses from both the civilian and military health services to serve as medics on the drilling and pumping installations. Mr. Davidson believes that BP is the industry leader in pilot training of non-physician personnel to serve offshore. It is developing modular training courses for the medics. There are 21 medics in

Helicopter Transports

Reminder to EMS field personnel: Patients transported via Maryland State Police Med-Evac helicopters should have IV lines started in their right arms so that the medical observer can monitor the IV lines.

Field personnel are also reminded that Med-Evac patients must be placed on flight stretchers to ensure proper security during transport. The orthopedic stretchers and backboards carried on land units can in most cases be placed on the flight stretchers.



1. Fold and insert form.



2. Place label on vial.



3. Place label on refrigerator.



4. Fasten vial.

doctor's name and phone number are on the medical form. The EMTs are thus able to obtain a direct consultation with the doctor, in which he orders them to start her on an IV of 50 percent dextrose. Before she even reaches the hospital, she is regaining consciousness. Without the Vial-of-Life medical information form, the assessment, consultation, and treatment might have been delayed.

The Vial-of-Life program was begun several years ago to assist the elderly and people with special medical problems. Through the program, which is now operational in more than 34 states and several foreign countries, emergency rescue personnel coming to a patient's home are alerted to the fact that vital medical information on a patient is in a capsule stored in the patient's refrigerator.

In Maryland, there are currently about 10 counties actively participating in the program. Various community organizations (such as the Lions Club, Jr. Women's Club, Sheriff's Dept., Moose Lodge, Chamber of Commerce, etc.) and area hospitals (such as Bon Secours and Good Samaritan hospitals) are sponsoring and distributing Vial-of-Life Kits in their areas.

The kits consist of a medical information form, two labels (one for the vial and one for the refrigerator door), and the vial. Once the form is filled out, it is

The standard program format has been endorsed by the American College of Emergency Physicians, the Maryland Fire and Rescue Institute, the Maryland State Firemen's Assoc., and the Maryland State Ambulance and Rescue Assoc. These associations encourage the use of the new standard form, and will disseminate information on the program and the recommended materials to their members. The Maryland Fire and Rescue Institute will be including information on it in their training packets. Ideally, all rescue personnel should be aware of the program, and should be trained to check refrigerators for the information.

MIEMSS is also urging all counties to implement the Vial-of-Life program. The Maryland State Office on Aging has decided to sponsor the program in all of their area agencies around the state. They will be responsible for information dissemination

EMT, CRT Reminder

EMTs and CRTs are reminded to include their full names and EMT or CRT identification numbers on all correspondence with the Maryland Institute for Emergency Medical Services Systems. They should inform the MIEMSS Office of Testing and Certification of any changes in name, address, or company affiliation.



Photo: Dave Esposito

MIEMSS Paramedical Training Specialist Ron Schaefer watches as Robert Davidson inserts an EOA device.

BP, one per installation. Each installation has a three-bed hospital.

The major clinical service for the offshore industry in the North Sea is based in Aberdeen where a 2000-bed hospital has an Accident-Emergency Unit. Helicopters transport those requiring hospitalization from the installations to this hospital, but flying time is one hour from the shore, one hour back. BP also maintains doctors on shore for consultation with the medics by telephone and to fly out to the installations if needed. Field surgical teams of a general practitioner and an anesthesiologist are also available to travel out to the rigs. However, the helicopter crews currently have no medic training. Therefore the medic on the installation must try to stabilize a patient either before transport or until the physician or field surgical team arrives.

Although BP has a good safety record and some medical problems are avoided by pre-employment physical screening, Mr. Davidson says acute medical problems do develop, including occasional nasty accidents, like the helicopter crash injuring ten people.

Mr. Davidson will use his experience in Maryland to influence government regulation to help implement a program of training, and provision of emergency medical care for the offshore industry. He hopes that the link now established between MIEMSS and his organization may continue with other BP medics coming to Maryland to study.

—Dottie McCaleb

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Observations for EMTs

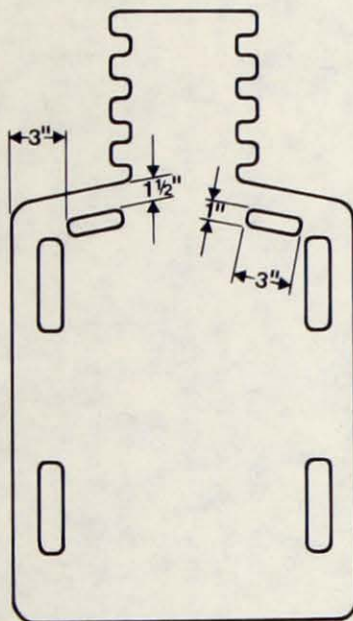


Illustration by Al Ralston

Backboards

Short backboards have recently received a new look. Slots have been provided in the shoulder area of the board that allow the straps to be passed through to secure the patient to the board. These slots alleviate the problem of the straps slipping off the board. Those companies wishing modifications to their boards, should contact senior instructor Charles Woods at MFRI (454-5966).

MAST Trousers

EMTs and CRTs are reminded that when they insert

MAST Trousers on a patient the foot pump and hose should remain attached during patient transport. The MAST Trousers will be removed by the clinical staff at the MIEMSS specialty referral center where the patient has been transported and returned as soon as possible to the ambulance company. To facilitate this return, ambulance companies are reminded to adequately mark their MAST Trousers with their company name on the rear of the abdominal panel.

Ice Packs

A case has been reported where a leaking chemical ice pack applied to a face injury caused further complications when it leaked into the patient's eye. To prevent this type of accident occurrence, companies utilizing chemical ice packs should take the precaution of ensuring the ice pack is not ruptured.

CPR Boards & Esophageal Obturator Airways

Companies carrying the EOA and the manufactured plastic CPR board should use extreme caution when utilizing these devices simultaneously. The CPR board is designed to cause hyperextension of the patient's head by elevating the shoulders of the patient and al-

lowing the head to drop back. While this is the proper position for maintaining an open airway, it should be noted that hyperextension of the patient during the insertion of the EOA is contraindicated. Hyperextension can lead to possible tracheal intubation. Proper positioning is that of a neutral or flexed position of the patient's head. Personnel utilizing the CPR board should ensure proper position of the patient's head before attempting to insert the EOA. This can be accomplished by placing a pad/pillow under the patient's head or inserting the EOA prior to placing the CPR board under the patient.

The Paramedical Training Office has received three reports of this situation occurring. By sharing this information, it is hoped that all paramedics will be alerted to this potential problem and take the steps necessary to continue delivery of the best emergency care possible.

If you have suggestions that could assist other ambulance crews in the delivery of emergency care, please forward them to Lou Jordon or Ron Schaefer, Paramedical Training Officers, MIEMSS, 22 S. Greene Street, Baltimore, 21201.