

Maryland
EMMS
NEWS



MARYLAND INSTITUTE FOR EMERGENCY MEDICAL SERVICES VOL.6 NO.1 NOV. 1978



Children Receive Specialized Care at Hopkins

Ten weeks after tiny Michelle Johnson was admitted to the Pediatric Trauma Center at Johns Hopkins Hospital, she was progressing well, but her nurse was concerned because she still had not smiled. And Michelle's wide, brown eyes did look as serious as an adult's. But that was understandable. Twenty-five percent of Michelle's body was covered by second-degree burns—her back, legs, buttocks; she was connected to IV lines and wires monitoring changes in her body systems. Michelle had twice overcome an additional crisis—internal hemorrhaging resulting from the stress of her burn wounds. At the time of her injury, she was only four-months-old.

Michelle's young age underscored the fact that trauma does not limit itself to adult victims. In fact, trauma is the leading cause of death in children, according to J. Alex Haller, Jr., M.D., Director of Pediatric Surgery and Robert Garrett Professor of Pediatric Surgery at Hopkins' Pediatric Trauma Center, the regional specialty referral center for pediatric trauma in Maryland's EMS system. Dr. Haller says that although major trauma is the fourth leading cause of death in the population as a whole, more than 50 percent of the children who die in the United States die as a result of serious injuries.

Hopkins' Pediatric Trauma Center, officially designated in 1973, is the first pediatric trauma center for children in a university hospital. Committed to caring for children with life-threatening emergencies, the Pediatric Trauma Center, which is linked administratively to the Children's Medical and Surgical Center, has specially trained physicians and nurses and equipment to handle the needs and problems unique to children. Its patients generally range between the ages of one week and 14 years.

Dr. Haller stresses that children are not miniature adults and they often differ from adults in their physiological and psychological responses to injuries. Laurens Pickard, M.D., chief resident in pediatric surgery at the Hopkins' Trauma Center, points out that rapid loss of body heat is a constant problem with young children with severe injuries because of the child's relatively large body surface compared with its weight. This problem is heightened if transfusions of large quantities of refrigerated blood are used. Rapid loss of body heat may cause heart arrhythmias and may interfere with a child's normal blood-clotting process. To help offset this problem, a constant warm temperature is maintained in the admitting area, operating room, and intensive care unit, and warming lights and warming blankets are often used. Because a child's circulatory volume



After receiving treatment for her burn wounds, Michelle Johnson is checked by Dr. Pickard and Kim Bishop.

is much smaller than an adult's, the loss of even a small amount of blood can be extremely dangerous. Rapid changes in fluid, electrolyte, and caloric balance are another problem in children and necessitate careful monitoring. In addition, children frequently react unpre-

dictably to commonly prescribed prescription drugs. They also run a high risk of having congenital defects that may complicate the healing of injuries.

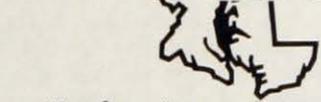
The medical team's problem in dealing with a child's physiological response to injury is com-

pounded by the frequent inability of a child to describe his or her symptoms. This problem is intensified when the child is unconscious—a condition occurring quite frequently at the Pediatric Trauma Center due to the large incidence of head injuries in children.

Another problem encountered is emotional scarring. Since impressionable children may be psychologically damaged if they see badly wounded or screaming adult patients being wheeled in, children receiving emergency care are treated in areas separate from those used to treat adults. In addition, the emphasis at the Pediatric Trauma Center is on treating the total child. The staff realizes that trauma cannot be an enjoyable experience, but tries to make it less terrifying for the child who is separated from his family and normal environment. Sensitive to the feelings of children and their needs for comfort and security, the staff gives each child extra attention and care when that child does not respond, for they realize that even a

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911 In Md.: Why Is It Important?



You have just seen someone trying to break into the house next door. Do you know the number to call for help? Perhaps you do. Many people know how to call for help at home. Either they memorized the numbers or they wrote them down near their telephones. Yet many people haven't taken this initial step.

You are traveling to Ocean City and you observe an accident. The first person to arrive at the scene flags you down and asks you to call for help. Do you know what number to call? If you don't, you are not alone. Few people know the emergency numbers of adjoining counties even though they may work there or frequently travel through the area.

The most widely used method of reporting emergencies is the telephone. However, for the citizen faced with an emergency, it is frequently difficult to recall or find the proper telephone numbers, and valuable time is lost in confusion.

Maryland is continuing to improve its emergency systems. But without quick and easy entry into the emergency systems for police, fire, and ambulance response, the most efficient and sophisticated systems are ineffectual.

Since 1968 the single, three-digit number 911 has been designated nationally as the number to call in an emergency. Recent telephone company statistics indicate 500 communities now have the 911 emergency number system.

In Maryland, progress toward establishing 911 has been spotty.

At present nine of Maryland's 24 political jurisdictions have established 911 and two systems will probably be added by July 1, 1979. Major population areas without 911 include Baltimore City, Anne Arundel County, and the seasonally populous Ocean City area.

This partial establishment of 911 has created its own problems, since Maryland residents who have the service assume that it exists everywhere. For example, in one recently publicized case in Anne Arundel County (which does not have 911), delay was caused because the caller dialed 911. In those counties where 911 does not exist, dialing 911 will connect you with a regular operator. This operator does not know that the call is an emergency and in many cases will not even be located in the same county as the call originated.

Why don't we have 911 service throughout Maryland? The reasons are primarily apathy, misunderstanding and bureaucratic protectionism, and money.

Apathy toward 911 generally takes the forms of "It won't happen to me." Nobody likes to think about emergencies happening to themselves. Unless you've recently been involved in an emergency situation, you probably assume that emergencies always happen to someone else. Or you may say: "I know how to call for help." But does the Baltimore City resident who comes upon your accident in Cambridge know how to summon emergency assistance? If we care about saving

lives, our own included, we have to overcome this apathy.

The installation of 911 is frequently perceived as a threat by existing emergency service organizations. They respond to the idea of 911 by saying: "If someone else answers the phone we won't get our calls," or "Our system works just fine right now. Our statistics show that we respond in under six minutes to 95 percent of the calls. Another operator would just delay this response time."

In Maryland, fire and ambulance service is fairly well-coordi-

The following major cities have a 911 response system:

- New York
- Chicago
- Philadelphia
- Washington, D.C.
- Boston
- Detroit
- Pittsburgh
- Seattle
- Indianapolis
- Memphis
- Denver
- Norfolk
- Richmond

nated, and jurisdictional disputes have been worked out through mutual-aid agreements. However, police service is not so clearly defined, since it responds to a wider spectrum of emergencies. We have state, county, and in some cases, local police. Who should be called for a particular emergency? Opponents of 911 imply that the citizen making the call should decide by

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BRBC Plans Pediatric Burn Unit, Research

Plans for a four-bed pediatric burn unit and more intensive burn research at the Baltimore Regional Burn Center are closer to becoming a reality due to the efforts of the Covenant Guild, Inc., and the Baltimore City Firefighters, who have pledged financial support for the two projects.

This summer the Covenant Guild, Inc., pledged \$25,000 over a two-year period to equip a four-bed pediatric burn unit with intensive-care equipment. To date, the Firefighters have already raised \$6,000, with \$4,000 donated for the purchase of a laminar flow hood, which provides a germ-free envi-

ronment for the conduct of burn research.

According to Andrew Munster, M.D., Director of the Baltimore Regional Burn Center, approximately 60 children with major burns are treated each year by the Burn Center staff in the pediatrics department directly below the Burn Center. Plans for reconstructing a major portion of the pediatric intensive care unit as a self-contained four-bed pediatric burn unit have been discussed during the past three years, but funds were unavailable to support the project. To emphasize the importance of the proposed project, Dr. Munster points out that the closest pediatric regional burn centers are currently located in Boston and Cincinnati. Guild president Margie Edelstein, who became aware of the need for a separate burn unit for children through her work at the Maryland Institute for Emer-

gency Medical Services, foresees no problem in raising the \$25,000 within the two-year period.

Expansion of services offered to burn patients is only one way the Baltimore Regional Burn Center is trying to improve burn care. Through the Center's research program directed by Richard Winchurch, Ph.D., efforts are being made to discover substances that will enhance the immunization response in burn patients and thus reduce mortality. These efforts are furthered by the new piece of equipment, the laminar flow hood, recently donated by the Baltimore City Firefighters. In recognition of their support, the burn research center was dedicated to the Baltimore City Firefighters last May.

The contributions of the Firefighters are especially important because of the shortage of government and foundation funds for burn research. Dr. Munster notes that approximately \$3.40 in federal funds is allotted per patient for cancer research while approximately one cent per patient is allotted for burn research. Yet burns are considered the worst form of trauma that a patient can sustain. Burns affect the skin, the body's largest organ, and disrupt many body systems. Patient survival depends primarily on the age and physical condition of the patient and the size of the burn wound and on the patient's ability to resist infection. Little can be done to dramatically affect either the patient's age or size of his wound; but the Burn Center's research staff hopes to be able to help burn patients combat infection more effectively.

Dr. Winchurch points out that a patient's immunization system or host-defense mechanism is depressed when he is severely burned. Despite advances in antibiotics during the past years, this situation has not improved significantly. Dr. Winchurch, assisted by Parnell Keeling, M.D., a burn research fellow, are working to discover substances that will enhance the body's immunization system. Lymphocytes from the blood of burn patients are cultured and stimulated with common antigens. (Lymphocytes are the body's defense against infection.) After the elicited response is measured, a different substance is introduced into the culture to see if the immunization response is enhanced. By using lymphocytes from the blood of burn patients, Drs. Winchurch and Keeling can obtain a more accurate idea of a patient's immunization capability without jeopardizing the patient. Absolute sterility is assured in the culture by the system of air circulation maintained in the laminar flow hood. An alarm is sounded if the germ-free environment is not maintained.

The burn research and the expansion of facilities being furthered by the contributions of the Firefighters and the Covenant Guild, Inc., contribute to the Baltimore Regional Burn Center's goal of giving every burn patient a better chance of living a productive life.

—Beverly Sopp



Dr. Keeling examines a lymphocyte culture under the laminar flow hood.

Photo: E. Garber

EMRC Coordinates Communications For Region III Ambulances, Hospitals

The little windowless room looks like a "command center" set in a Hollywood movie. In the purplish glow of the black lights, a semi-circular desk can be seen covered by green-and-white radio/monitor equipment. Suspended on the wall facing the desk are two giant maps covered with various blinking colored lights.

This little room, tucked away in an almost unfindable corner of Sinai Hospital in Baltimore, is one of the nation's most sophisticated regional emergency medical services communications centers. The Emergency Medical Resources Center, or the EMRC as it is known in the field, coordinates all ambulance to hospital communications for Maryland's EMS Region III—Baltimore City, Anne Arundel, Baltimore, Carroll, Harford, and Howard counties.

The forerunner of the statewide EMS communications system, the EMRC was placed into operation in May 1975. Emergency Medical Services Development, Inc., a non-profit corporation under the direction of John D. Stafford, M.D., (now Director for EMS Systems Programs at MIEMS), was formed to administer the project.

The EMRC fields over 15,000 potentially life-threatening cases each year, of which 6,000 involve cardiac telemetry consultations. In addition, the EMRC handles requests for linkages in each of 10 other life-threatening situations and has the capability of cross-linking a number of medical consultation centers on a "conference-call" type network.

Although ambulance to hospital communications seem a fairly simple concept, the description of how the system works is somewhat more complex.

While the system is on standby, the EMRC functions as a giant ear, tuned into the entire region via Call Channel 1. When an ambulance goes into service, a corresponding light activated at the ambulance's home base glows red on one of the

two giant maps. By monitoring which ambulances are in service, the EMRC can anticipate demands on the communications system.

Green, yellow, and red lights on the wall maps indicate the alert status of every hospital in the region. A green light indicates that the ER is accepting all patients. A yellow light (yellow alert) means that ER is taxed to its capacity and is accepting only the most serious, life-threatening cases. A hospital ER on "Red Alert" status is taxed to the limit of its cardiac care capacities, and will accept only cardiac cases which are unstable. Each hospital individually activates the map indicator lights and the EMRC is constantly aware of the status of the region's hospital ER's.



In the purplish glow of black lights, the EMRC, with its flashing electronic maps, resembles something out of "Star Wars."

Once in the field, if the ambulance needs a hospital consult for their patient, the crew will radio to the EMRC via CALL 1. From anywhere in the region, that transmission will be picked up by the nearest base station—a tower and electronic station which amplifies the signal—which then transmits it to the EMRC.

The EMRC receives signals on one frequency and transmits them on another. This dual frequency capability was created to permit simultaneous transmission of an EKG and voice—i.e., the ambulance could transmit a patient's

EKG to the consulting hospital, and the consulting physician could talk to the ambulance at the same time. This capability is generally not used, however, because the frequencies are so close as to "bleed over" into one another, interfering with the clear transmission of the EKG. The only exception occurs when a doctor may break in before the full EKG strip is received.

When the ambulance makes its initial contact with EMRC, the operator will locate the base station closest to the ambulance in order to send back a signal strong enough to be received. Once the ambulance identifies itself, its location, and the nature of its transport, the EMRC operator will request the ambulance

to switch to one of five MED channels, thereby clearing CALL 1 for additional call-ins.

The operator will then patch the ambulance into the appropriate consulting hospital via whatever base station will transmit the strongest signal. The end result will be a transmission from ambulance to base station microwave links to EMRC to telephone line to hospital and back the same route.

EMRC communications work best, the operators explain, when protocols are followed both in the field and the hospital. For example,

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Pediatric Trauma Center Treats Severely Injured

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child as young as four-month-old Michelle Johnson may suffer emotional wounds long after the physical ones are healed.

These considerations were taken into account when a complete emergency treatment center for children was planned. Separate facilities are available to handle minor emergencies and trauma or multiple system injuries of children. Children with accidental injuries which are not immediately life-threatening, such as dog-bites, minor lacerations, and fractures, or illness emergencies such as pneumonia or meningitis, are brought to the Children's Emergency Room on the first floor of the Edwards A. Park Building. According to Dr. Haller, approximately 350 children are seen weekly by pediatricians and surgical assistants.

Severely injured children are transported by helicopter or ambulance to Johns Hopkins' main trauma receiving area. This area is equipped for both adult and

by trauma patients and elective surgery patients) is designed specifically for children. Donald Duck, Snoopy, drawings by the children brighten the walls; mobiles swing



J. Alex Haller, Jr., M.D., is Director of Pediatric Surgery and Robert Garrett Professor of Pediatric Surgery at the Hopkins' Pediatric Trauma Center.

Photo: R. W. Linfield. Courtesy of the "Johns Hopkins Magazine."



Arthur Roach, a physician's assistant in the Children's Emergency Room, checks the neurological responses of Gregory Ash. Separate from the Pediatric Trauma Center, the Children's Emergency Room receives children with non-life-threatening injuries.

from cribs and beds. Parents are allowed to stay overnight in the intermediate-care area since their presence helps comfort a child.

As soon as they are ready, children are brought to the Child-Life area, which doubles as a recreational and instructional area with several of 15 Child-Life workers available to help with school lessons, play games, tell stories, help children care for animals such as gerbils, teach arts and crafts, present puppet shows, or engage in similar activities. The use

of familiar activities helps to make a child's stay at the Center less frightening.

Dr. Haller notes that about four or five children are admitted each week to the Pediatric Trauma Center. Auto accidents, falls, drownings, and burns are the causes of most injuries treated, but the number of gunshot wounds has also increased. Blunt impact injuries result in 80-90 percent of the multiple system injuries, and often result in internal injuries that are difficult to detect. Head injuries appear quite frequently in children because their heads are relatively larger and poorly supported by weak neck muscles.

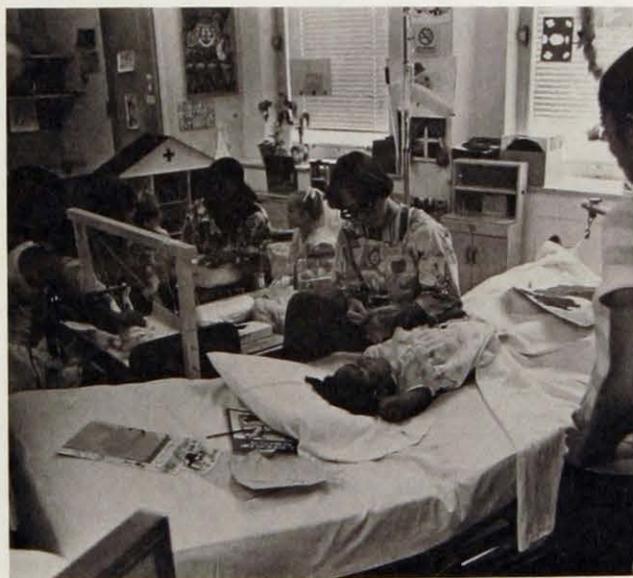
Dr. Pickard points out that special problems are presented in cases of suspected child abuse. The child has to be examined with a high degree of suspicion for hidden injuries since there is generally no positive medical history. He cites examples of children being treated for bruises and lacerations whose X-rays revealed healing fractures of the arm or leg.

The Pediatric Trauma Center responds to severely injured children with sophisticated medical treatment and understanding of the unique problems of childhood. And the children seem to respond with trust, as if they know that the Pediatric Trauma Center is a special friend of children.

—Beverly Sopp



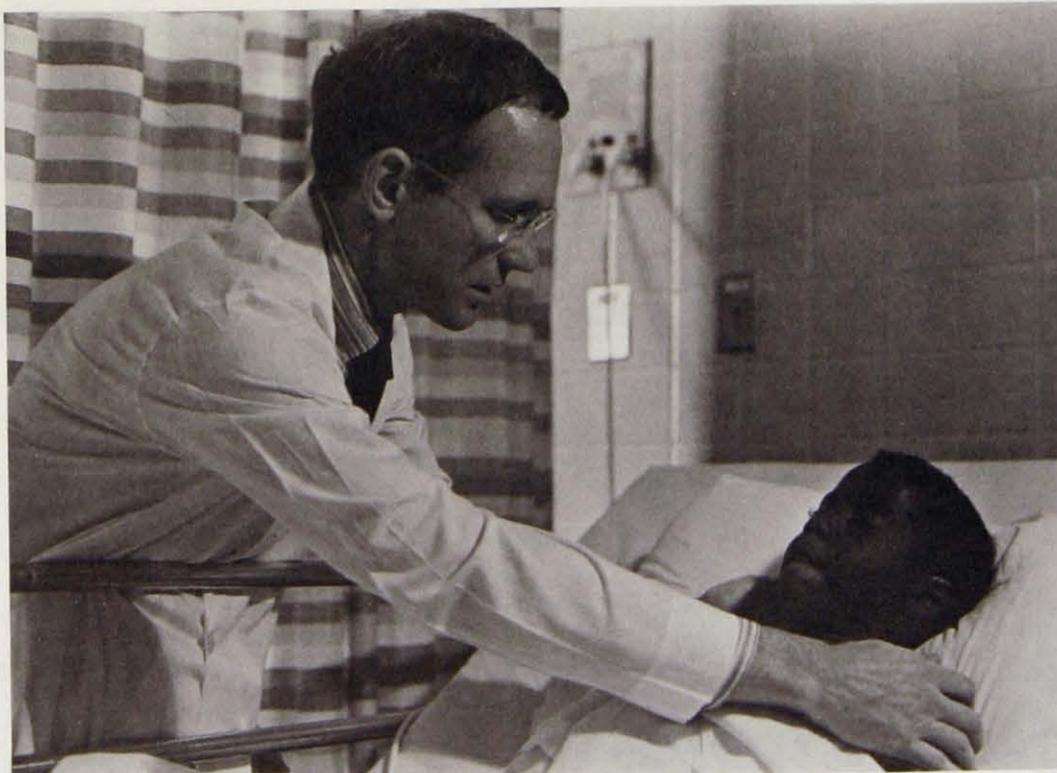
Child-Life staff work with young patients in the brightly decorated playroom area.



Storytelling and games are among the activities offered by the Child-Life staff to help the children feel more "at home" in the hospital setting.

children with personnel trained in the acute management of trauma injuries. The medical team meeting the severely injured child includes a pediatric surgeon from the Children's Medical and Surgical Center. They begin resuscitation, start IV lines, and take other measures to stabilize the patient. X-ray facilities and blood and chemistry labs are nearby and available 24 hours a day.

After the child is stabilized he or she may go directly to the operating room, which has pediatric anesthesia machines and special monitoring equipment for pediatric patients. Or the child may go directly to the seventh floor, 14-bed intensive-care area located in the adjacent Children's Medical and Surgical Center. Here the nurse-patient ratio is 1:1, and special equipment for children is utilized, including new monitors to detect early signs of brain swelling, which can cause neurological damage. During his stay, a child may be seen by various specialists and undergo therapy. The pediatric intensive care area, as well as the main recovery area for intermediate care patients (both of which are shared



Six-year-old Avon Woodard is a "model patient" according to Dr. Pickard. Avon, who was hit by a truck, is just beginning to

overcome his reluctance to talk about the accident. Photos: D. Register

EMTs Deal with Alcohol-Intoxicated Patients

Auto accidents, drownings, burns, violence, attempted suicide or homicide, or other crisis situations may bring the emergency medical technician (EMT) face to face with an alcohol-intoxicated patient. Dealing with that patient may be a problem for EMTs for several reasons: frequently they have little training or few guidelines for handling crisis situations associated with alcohol; and frequently they have negative emotional reactions if the alcohol-intoxicated patient is loud, obscene, or abusive.

Jeff Mitchell, Maryland EMS Region V coordinator and a member of the National Committee on the Prevention of Alcohol and Drug Abuse, points out that not only are all of the 100 million Americans who drink alcohol affected by it to some degree but some statistics indicate that 10 percent of American adults who use alcohol are alcoholics. As an EMT-instructor who has an advanced graduate degree in clinical psychology, Mr.

Mitchell offers some background on what EMTs should be aware of when they deal with an alcohol-intoxicated patient.

Depending on its concentration, alcohol absorbed into the bloodstream can affect one's judgment, coordination, perception, and sense of balance. The level of blood alcohol and how it affects an individual is determined by such factors as the amount of food in the stomach, the rate of alcohol consumption, and the body weight of the drinker.

After one or two drinks, many people experience disorientation often starting as a mild high and ending in depression. Their normal reflexes may slow; their coordination may be impaired and they may have trouble walking; or they may have trouble remembering names or dates. This is the alcohol-intoxication stage and no special medical treatment is required; however, the patient should be transported to a hospital to be checked by emergency department staff. Later

the patient may "sleep it off," and his behavior will return to normal once the alcohol is eliminated from his system.

As the alcohol is carried into the bloodstream, it acts as a depressant. In this stage, an alcohol-intoxicated person may lose control of his emotions, become quite volatile, and react intensely to even minor stimuli. As the alcohol-intoxicated patient continues to drink and becomes emotionally and physically depressed, he appears to be in a stupor, a state similar to shock; he may stare blankly or be easily led. Additional alcoholic intake can cause the respiratory, cardiac, and kidney functions to slow down. At this point, the alcohol-intoxicated patient could become unconscious (go into a coma) and even die. Sometimes the behavioral symptoms noted above may appear in an alcoholic only when his alcohol level has declined. To the alcoholic, the withdrawal phase can be even more dangerous than the intoxicated

state. The EMT should remember that patients in DTs have a higher mortality rate than patients suffering from heart attacks.

An alcohol-intoxicated patient should be taken seriously. Alcohol deadens inhibitions. A patient threatening to injure others or himself is likely to carry out the threat. The EMT should also be aware that an alcohol-intoxicated person often suffers head or crush injuries; head injuries frequently result from falls, while crush injuries and subsequent loss of blood circulation could result from as simple an act as falling asleep on one's arm. Alcohol can also produce heart arrhythmias, and complicate any disease the patient already has. It is commonly known that alcohol damages every cell in the human body.

The following suggestions might be helpful in dealing with alcohol-intoxicated patients:

1. The alcohol-intoxicated patient should not be placed in police custody but should be transported to a hospital emergency room. Sometimes it may be necessary for police officers to escort the patient within the ambulance during the transport to the hospital.

2. The EMT should never work alone. He or she should work carefully and never rush an alcohol-intoxicated patient unless there is a definite medical emergency.

3. Vital signs should be taken. If the patient is unconscious and the EMT is certified to begin IV treatment, a physician should be contacted at the receiving hospital to see if an IV should be started.

4. The EMT should assess the patient's physical condition and degree of orientation. A full secondary survey is essential. The patient should be checked for bruises, lacerations, and distortions of joints and bones. A bruise should be examined very carefully. Alcohol can decrease a person's normal blood-clotting mechanism, so that a bump on the head could cause internal hemorrhaging.

5. The EMT should try to obtain as full a medical history as possible, including any disease (such as diabetes, heart disease, or peptic ulcer) that could be complicated by alcohol; any drugs taken within the last few days; when the last drink was taken; what the person had been drinking; and any recent illnesses.

6. To help calm his fears, the EMT should inform the alcohol-intoxicated patient about what is going to happen to him. (For example, the EMT could say: "We're taking you to the hospital to be examined by a doctor to make sure you didn't hurt yourself.")

7. The EMT should try to support the patient in a non-threatening, non-stimulating environment. Because an alcohol-intoxicated person is extremely sensitive to light, he should be kept in subdued light in a room without shadows. A bright room may cause the patient to hallucinate. Persons or objects that offer adverse stimuli should be removed from the environment.

8. The EMT should keep the patient in touch with reality. He should not agree or disagree with

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MIEMS Equips Two Ambulances; Trains Campus Police to Assist with Transports



Md. State Trooper Medic Observer helps Officer Joe Young to offload a patient (Officer Jesse James) from the Med-Evac helicopter.

Last February the Baltimore City Fire Department ambulance division began replacing its few remaining small, "box"-type vehicles with larger, better-equipped ambulances.

The major result of this move was enhanced care for Baltimore citizens, but the move also made a significant impact on the Maryland Institute for Emergency Medical Services (MIEMS).

Previously, patients arriving via Maryland State Police Med-Evac helicopter were transported from the University of Maryland heliport by Baltimore City Fire Department ambulance. The small "box" ambulance was the only type in the city fleet that could fit on the up-and-down ramps leading to the heliport.

With the small "box" ambulance out of service, MIEMS began equipping two van-type vehicles. At the same time, a special training program was started by paramedical training specialists Lou Jordan and Ron Schaefer, to prepare the University of Maryland police for assisting with the trauma transports.

According to Mr. Jordan, the entire force of 62 University police officers were trained in how to handle trauma patients and how to

assist in emergency care from the time the Med-Evac helicopter arrives until completion of the transport in the MIEMS Admitting Area.

Basically, the officers will be responsible for driving the MIEMS ambulance, offloading the patient from the helicopter and loading into the ambulance, transporting to the MIEMS Admitting Area where the patient will be placed on the X-ray scanner, then moving the patient off the scanner and into the diagnostic operating area.

To prepare the officers for their new roles, Mr. Jordan and Mr. Schaefer conducted round-the-clock classes for the three shifts of police, to avoid disruption of their normal operations. Each officer attended three of these classes in addition to taking training in cardiopulmonary resuscitation (CPR), provided in cooperation with the University of Maryland Hospital.

Mr. Jordan and Mr. Schaefer explained how to safely approach and work around the helicopter, how to offload a Med-Evac patient, what information to exchange with

the Maryland State Police crew, and how to load the patient into the ambulance. The officers were also familiarized with oxygen delivery equipment, esophageal airways, and shock trousers, which may be present on patients they transported. The officers will work under the direction of the MIEMS admitting team during the transport.

For each Med-Evac arrival, two officers on the first response team will respond to the heliport immediately upon notification, accompanied by a third officer to man the fire apparatus. A second response team will be designated on each shift.

The two new MIEMS ambulances are equipped to handle two litter patients, with oxygen and suction apparatus, cardiac monitor/defibrillators, and ample supplies for the emergency stabilization of patients. Radio contact will be maintained between the ambulance and the trauma center via University police walkie-talkie.

—Marianna Herschel



John Ashworth III, Administrator, MIEMS, and Wade A. Jolliff, Jr., Director of Special Services, University of Md. at Baltimore, participate in the ribbon-cutting ceremony for the new MIEMS ambulances.

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EMRC Staff Facilitates Telemetry Consultations

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ambulances calling in should identify themselves by county and number. This identification enables the EMRC operator to select the appropriate base station through which to respond. Without this information, the operator must respond via the Sinai base station, its strongest, which may not reach some areas.

Another ambulance protocol of great importance is identifying the type of patient being transported. During busy periods, the EMRC must have the ability to triage incoming calls. Cardiac-related cases take top priority. Identifying destination is important, since the EMRC is aware of the receiving status of all hospitals in the region.

Equally important to the system is the thorough briefing of hospital personnel providing consultations. These personnel should be highly familiar with the operation of their consoles. For example, the telephones on these consoles are activated to transmit by pushing a button in the handle. However, voice transmission does not occur until a fraction of a second after the button is pushed. If a physician should respond to a question from the ambulance with a single word, spoken as he or she depresses the activation button, that word will be lost. In the same way, parts of phrases and sentences can be lost.

Hospital personnel should also be up-to-date on the capabilities of the ambulances, their personnel, and what medications are on board.

Ambulance and hospital personnel should be sure to request all necessary information and clarification when needed, the EMRC operators stress. Otherwise, problems could result. For example, the EMRC attempts to monitor all transmissions, but in the event of multiple ongoing runs, it is sometimes unable to do so. Hospitals requiring additional information which was either unclear or omitted during the initial transmission will occasionally request it from the EMRC. If the EMRC has had multiple ongoing runs and has not been able to monitor the initial transmission, it may be unable to contact the ambulance to obtain the information if the ambulance has already shut off its radio.

The EMRC emphasizes its role as a facilitating, rather than a participatory agent. Any need for participation such as that described above, reduces the center's capability for handling multiple runs. As in SYSCOM, the operators are communications technicians with EMT and CRT training, but are not authorized to give medical advice. Therefore, the ambulance-hospital communication should be used to its best advantage.

Problems at the EMRC include busy periods which delay answering calls. The operators suggest, if radio contact cannot be made due to a clogged CALL 1 channel, ambulances should arrange to call via telephone. Three telephone lines are available *only for emergencies*: 578-8401, 578-8402 or 578-8400. Any non-emergency calls coming in on these lines will be immediately referred to an administrative number: 578-8036 or 578-9592.

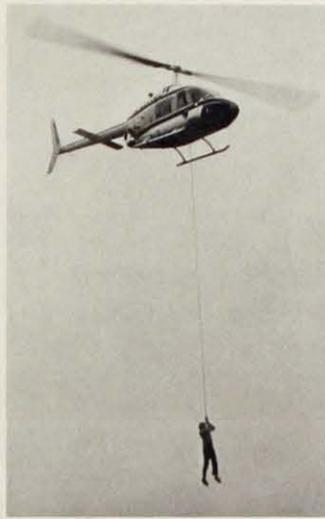
—Marianna Herschel

Md. State Firemen's Assoc. Convenes in Ocean City

Editor's Note: Chuck Scott, chairman of the ambulance committee of the Md. State Firemen's Association, reports on the annual convention at Ocean City last June.

Many activities and seminars on emergency care were included in the annual Md. State Firemen's Association (MSFA) Convention in Ocean City. John Stafford, M.D., Director of EMS Systems Programs at the Maryland Institute for Emergency Medical Services (MIEMS), spoke to emergency medical technicians (EMTs) and cardiac rescue technicians (CRTs) on future plans and training in the Maryland EMS system. J. Scheulen, R.P.A., from the Baltimore Regional Burn Center, presented a seminar to EMTs on emergency care of burns. B. Halpin, Section Supervisor, Fire Casualty Program of the Johns Hopkins Applied Physics Lab, and Tom Baker, R.N., Hyperbaric Chamber at MIEMS, made a presentation to the entire convention on emergency care of smoke inhalation patients. In addition, the Maryland State

ence of ambulance squads throughout the state, the revised sections of the standards are printed below.



During a demonstration of a modified rope-sling rescue, Lou Jordan is hoisted by a Med-Evac helicopter.

Photo: A. Trohanis



Medic Observer Frick explains the equipment aboard a Med-Evac helicopter to a crowd at Ocean City.

Police demonstrated a new harness used to rescue persons trapped in flood areas or in areas where landing is impossible.

President Oscar Baker reappointed Chuck Scott of Abingdon, as chairman of the ambulance committee of the MSFA for 1978-79. The Committee consists of the following persons: Homer Seider, St. Michael's; William Boyd, Liberty Road; Charles Ringer, Hagerstown; Edgar Crist, Brunswick; Charles Havens, Westminster; Joseph Weisgerber, Hillandale; and Kenneth Gibson, Snow Hill.

The MSFA also passed a new set of ambulance standards at its June convention. For the conveni-

Photo: D. Register

Revised Standards for Volunteer Ambulance Companies

By-Laws

Sec. 12. The minimum standards for volunteer ambulance companies are:

- Active membership consisting of at least ten (10) trained men and two (2) officers in compliance with sub-section C of this Section; a heated station of adequate size and construction for the housing of the apparatus and equipment; and a suitable means of receiving an alarm and alerting company membership.
- Each ambulance shall have a reliable two-way radio and contain equipment conforming with the rules and regulations provided for herein. Said equipment shall be in good condition. The equipment on each ambulance and records relating to its maintenance and operations as such, shall be open for inspection at any reasonable time to a duly authorized representative of the Maryland State Firemen's Association.
- From and after January 1, 1979, every ambulance belonging to a member company of the Maryland State Firemen's Association, when operated on a mission in the State of Maryland, shall be occupied by at least two (2) attendants, eighteen (18) years of age or older, certified as follows: all attendants must possess a valid Emergency Medical Technician-Ambulance Certificate issued by the Department of Health and Mental Hygiene, or an Advanced First Aid and Emergency Care certificate issued by the American Red Cross. At least one attendant must ride in the patient compartment during any transport, one of the two attendants or another third person, who is not certified, may be the driver.
- The Ambulance Committee of the Maryland State Firemen's Association shall inspect the medical equipment and supplies required on ambulances when it deems such inspection is necessary and shall maintain a record thereof. Upon determination by the Ambulance Committee of the Maryland State Firemen's Association, based upon an inspection, that the required medical supplies or equipment fail to meet the requirements of these by-laws, the member company shall be notified in writing Thirty days after such notification, the requirements not having been complied with, the membership of the company concerned may be suspended

by the Maryland State Firemen's Association.

- It shall be the duty of the member company, operating the vehicle concerned, to comply with the provisions of these sections and all regulations adopted under the authority of these sections. Notification of suspension for non-compliance shall be made in writing by registered mail, return receipt requested, delivered to the member company.
- Every ambulance shall be equipped with medical supplies and equipment as follows:

GENERAL SUPPLIES AND EQUIPMENT

- 24 sterile gauze pads, assorted sizes
- 1 roll each: 1", 2", 3" adhesive tape
- 1 roll 1" non-allergenic tape
- 1 tweezer
- 12 cravats
- 12 rolls of 4" self-adjusting gauze bandages (Kling, Kerli, etc.)
- 4 cold packs
- 1 box Band-Aids—assorted
- 6 sterile sanitary napkins
- 3 sterile trauma dressings
- 6 tongue depressors
- 1 poison kit with syrup of ipecac and activated charcoal
- 1 adult h/p cuff
- 1 stethoscope
- 1 emesis pan
- 1 penlight
- 1 roll sterile aluminum foil (min. 18" x 25')
- Toilet or facial tissue
- 2 quarts of saline or distilled water

STERILE O.B. KIT

- 1 large towel or receiving blanket
- 1 pair sterile disposable rubber gloves
- 6 sterile gauze pads (min. 3" x 3")
- 2 Kelly clamps or sterile ties
- 6 sanitary napkins
- 1 bulb syringe
- 1 pair scissors, bandage or surgical, blunt
- A commercially available O.B. kit may be substituted for items 1-7 above.

PORTABLE FIRST AID KIT

- 24 sterile gauze pads (minimum 3" x 3")
- 1 roll adhesive tape (minimum 5 yards)
- 1 bite stick
- 12 cravats (triangular bandages)
- 1 set resuscitubes
- 1 ring cutter
- 1 pair bandage scissors
- 1 pack ammonia inhalants
- 1 penlight
- 6 gauze bandages (2", minimum 5 yards)

- 6 gauze bandages (4", minimum 5 yards)
- 6 gauze bandages (6", minimum 5 yards)
- 1 marking pen

AIRWAY MAINTENANCE SUPPLIES

- Two oxygen supplies: one portable, one fixed with all oxygen delivery equipment fitted for medical oxygen equipment ONLY.

- Portable unit: not less than 300 liter capacity equipped with a yoke, pressure gauge, flow-meter, delivery tube, and oxygen masks. The unit should be capable of delivering an oxygen flow of at least 10 liters/min. Two (2) extra size "D" cylinders or equivalent shall be available.

- Installed unit: An oxygen supply of at least 3000 liters must be provided and be accessible for replacement, preferably from outside the patient compartment working space. At least one oxygen wall outlet provided with a plug-in flow meter and delivery tube.

At the cylinder, a reducing valve (from 2,000 lbs. per square inch cylinder pressure to a minimum of 50 lbs. per square inch line pressure) with pressure gauge.

- Oxygen masks (with or without bags) semi-open, valveless, transparent, disposable (or easy to clean and decontaminate), and in sizes for adults, children and infants.

- A hand-operated bag-mask resuscitation unit which can be attached to an oxygen supply with adult, child, and infant-size masks.

- One positive pressure resuscitator (portable)
- Oropharyngeal airways (infant, child, adult sizes)

- Two suction means should be available:

- Pipal suction: Installed suction should be powerful enough to provide an air flow of over 30 liters per minute at the end of the delivery tube and a vacuum of over 300 Hg to be reached within 4 seconds when tube is clamped. The suction force shall be adjustable for use on children and intubated patients. The suction source must be reliable from the engine manifold or permanent electric suction unit with a vacuum source and wall outlet. A wall outlet shall be provided.
- Adjustable portable suction apparatus with catheter and suction tips. Suction apparatus must be able to develop 25 to 29 inches of mercury vacuum.

LINEN SUPPLIES

- 2 pillows
- 2 sets of sheets and pillow cases
- Towels
- Blankets, 2 or more, constructed of cotton or other non-conductive material

STRETCHERS

- 1 cot with mattress and four (4) wheels and adjustable head position

FRACTURE EQUIPMENT

- 1 full and 1 half backboard with straps
- 1 orthopedic stretcher
- 1 extremity traction splint with webbing ankle hitch or equivalent
- 2 or more padded board splints, 48" by 3", and 2 or more similar splints, 36", of a material comparable to 4-ply wood for coaptation splinting of fracture of the leg or thigh, or pneumatic splints
- 2 or more padded 15" by 3" wood splints or pneumatic splints for fracture of the forearm
- 1 each cervical collar—small, medium, large
- 1 neck roll
- 2 sandbags about 3" in width, 3" in thickness, and 12" in length

SAFETY ITEMS

- 1 fire extinguisher (5 lb. multipurpose dry chemical)
- 2 handlights (with 6 volt battery)
- 6 road flares (RedFlare, minimum of 30 minutes)
- 10 triage tags
- 1 can dog repellent
- 1 pry axe or forcible entry tool
- "NO SMOKING" sign posted in patient compartment

RECOMMENDED OPTIONAL EQUIPMENT

- Disinfecting solution for ambulance
- Pediatric bag mask resuscitator
- Pediatric B/P cuff
- 2 safety helmets
- 2 running coats
- 50' of 3/4" rope
- Self-contained breathing apparatus
- 2 life preservers
- I.V. pole and I.V. hanging hardware
- Authorized Paramedic Kit
- CPR Board
- 1 4 oz. bottle of alcohol or 20 prep pads (alcohol or betadine)
- 12 cotton swabs
- 1 make bite kit
- 1 bed pan
- 2 each arm and leg restraints
- 1 stair chair
- 1 Reeves stretcher or equivalent
- 1 Bask sterile normal saline (minimum 1000 cc) with I.V. setup

In Memoriam

Dr. Ayella, MIEMS Radiologist

With deep regret the Maryland Institute for Emergency Medical Services announces the death of Robert J. Ayella, M.D., F.A.C.R., Chief of Radiology at the Institute and Professor of Radiology and Anatomy at the University of Maryland Medical School. Dr. Ayella died September 29 in a Bryn Mawr hospital following a heart attack.

On the MIEMS staff for 10 years, Dr. Ayella recently had a new book *The Radiologic Management of the Massively Traumatized Patient* published by Williams and Wilkins. He also published articles in many journals.

Dr. Ayella frequently was a consultant for the U.S. Army on medical-military projects and was currently assisting the Army in refining the Medical Microdose X-ray Scanner which produces a "flat" picture of the entire body within seconds.

Dr. Ayella is remembered by MIEMS staff not only for his professional accomplishments but for his sense of humor and willingness to give of himself. His death is a great professional and personal loss for MIEMS.



Photo: E. Garber

News Capsules

Dr. R.A. Cowley Appointed To National Committee

R Adams Cowley, M.D., director-founder of the Maryland Institute for Emergency Medical Services, was recently appointed by President Carter to the National Highway Safety Advisory Committee. Dr. Cowley was also named chairman of the EMS subcommittee.

MAST Trouser Use

The inflatable MAST Trousers are easily damaged by fragments of glass and sharp objects on the accident scene. All EMS personnel using these devices should exercise extra caution to prevent accidental puncture of the MAST Trousers by broken glass or sharp objects.

Marking Rescue Equipment

Ambulance and helicopter personnel are urged to mark their equipment so that it can be easily identified to be returned when left at the specialty referral centers or hospitals.

Media Library for ASSH

The Raymond M. Curtis Hand Center at The Union Memorial Hospital was recently designated the media library for The American Society for Surgery of the Hand. The media library includes: videotaped lectures, observations of surgical and microsurgical procedures, rehabilitation techniques, social work practices, and patient education for the physician, nurse, physical and occupational therapists, social worker, and patient. The presentations include lectures from the foremost specialists in microsurgery and hand surgery.

Maryland EMS News

Maryland Institute for Emergency Medical Services
22 S. Greene Street
Baltimore, Maryland 21201
Phone: (301) 528-6846
Director: R Adams Cowley, M.D.
Published quarterly by the Information and Editorial Office and Instructional Media Resources Office.
Editor: Beverly Sopp, 528-3697.
Designer: Jim Faulkner

MIEMS Recommends National Plan for Disasters

The Maryland Institute for Emergency Medical Services submitted recommendations to the National Health Resources Advisory Committee to consider establishing a Task Force to develop a national plan for emergency care evacuation following mass casualty incidents. These recommendations were made in light of the Emergency Management at an Airport Catastrophe conference, sponsored by the MIEMS and the Baltimore-Washington International Airport last May. The Task Force would consider the resources available for transportation of mass casualty victims to definitive care centers; communications needed to mobilize necessary resources; and authority and authentication procedures.

Guidelines for EMT's

(Continued from page 4)

the patient's hallucinations. For example, the EMT might say: "I don't see any snakes but you might."

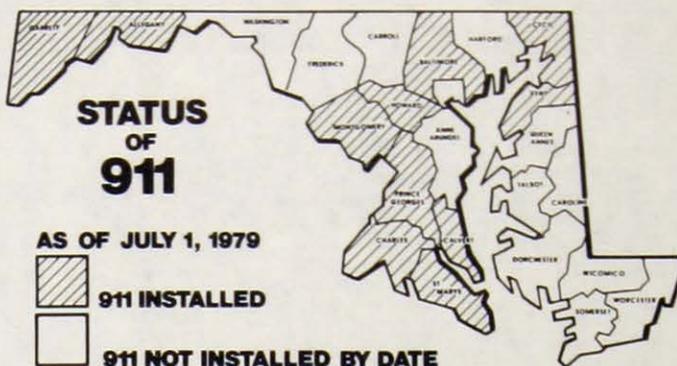
9. The patient should be treated with respect, called by his name, and never laughed at or ridiculed. The EMT should try to fill his primary requests if they are not harmful (for example, notification of relatives or friends).

10. Restraints should be used only when other methods have failed. If it is necessary to use restraints, humanitarian restraints such as properly tied Kerlix or padded leather restraints should be tried, and precautions taken so the patient's circulation is not cut off.

11. The EMT should be sure the emergency room personnel know that the alcohol-intoxicated patient is waiting to be triaged and treated.

Additional information can be obtained by contacting Jeff Mitchell at 735-5580. "Cause the Effect, Effect the Cause," a film about the reactions of an emergency department staff to an alcohol-intoxicated patient, is also available to EMTs and other emergency medical personnel by contacting the MIEMS audio-visual department (528-3930).

—Beverly Sopp



Looking at 911 in Maryland

(Continued from page 1)

the number he dials. Unfortunately the citizen is probably the person least able to make this judgment in an emergency. Successful 911 systems have incorporated all police services in the planning phase of 911 so that when a person calls in an emergency, the most appropriate response is dispatched. The public should not be forced to play emergency roulette. It has, and can be worked out ahead of time.

In many cases a well-designed 911 system will not add any more layers to the response system; in fact, it can actually reduce personnel by consolidating services. However, there will be cases where the 911 operator will be an added per-

MIEMS Supports No-Fault Insurance

R Adams Cowley, M.D., Director of the Maryland Institute for Emergency Medical Services, has joined forces with other health professionals to support legislation now being considered in Congress to set minimum standards for state no-fault insurance laws.

The legislation would, Dr. Cowley says, improve the delivery of emergency medical services by assuring non-government payment for services provided by medical and paramedical personnel as well as for transportation and communication. In addition, no-fault insurance would cover rehabilitation and long-term care for paraplegia, quadriplegia, and other serious injuries. Lawsuits would be restricted, and no-fault could cost the same or less than "fault" insurance.

In a letter to *Emergency*, Dr. Cowley was joined by Dr. Bruce A. Houtchens, Dr. Robert Jackson, and Dr. Leonard Bender in urging support of S. 1381 in the Senate and H.R. 6601 in the House of Representatives.

The health professionals are working with the Committee for Consumers No-Fault, a coalition of consumer groups, labor unions, business associations, and medical organizations.

Under the "fault" system of automobile insurance, millions of dollars are spent each year to fix blame rather than mend those people who are injured, Dr. Cowley said. It is insurance against lawsuits, not against injuries. No-fault insurance would spend the resources for care.

For more information about the legislation, contact Health Professionals for No-Fault, 1220 19th Street, N.W., Washington, D.C. 20036; (202) 466-6930.

—Dottie McCaleb

son in the chain. Does this mean that it will take longer? No. The additional time required to process an emergency call is more than compensated for by the speed with which a citizen can notify the system of an emergency.

A study conducted by the Franklin Institute Research Laboratories concluded that "the measure of total response time saved is the only true measure of the efficiency of the emergency resource system; 911 can contribute significantly to total time saved."

Nine-one-one does cost money to install and operate. The cost depends upon how sophisticated a 911 system you have to or want to establish. It is somewhat analogous to ordering phone service for your home. You can have a single black phone rather inexpensively, but if you add extensions and other refinements, the cost increases. Similarly with 911 service. Some of the rural counties have been able to establish 911 service for under \$10,000 in first-year costs with yearly costs under \$4,000. To provide the more densely populated counties and the city of Baltimore with the type of 911 service they want, however, could run as high as \$2 million.

Who should, and who can pay for 911 service? Several formulas have been tried across the country. The more successful have combined state and county funds and augmented these with federal grant funds whenever possible. During the next legislative session a 911 bill is almost certain to be introduced and the question of funding will be of major concern.

What can you do? The study by the Franklin Institute found that instituting 911 service seldom resulted from administrative direction of emergency agencies. In the majority of cases the decision to establish 911 service came about through political initiative; people wanted the service and let their legislators know. In order for Maryland to have a statewide system of 911 you and other interested citizens must let your local and state representatives know.

If you live in a city or county that does not have 911 you should be asking your commissioners or mayor: "Why not?" If you live in a county that already has 911 you have a right to expect other jurisdictions to do their share and you should contact your state legislators to urge mandating 911 throughout the state. —Bill Hathaway, Mr. Hathaway, Director of Planning and Development at MIEMS, is working with the Health System Agency and the Regional Planning Council to formulate legislation for the next legislative session.

Orthopedic Trauma Service Pioneers In Use of New Devices at MIEMS

You can't always sign the casts of MIEMS patients with fractures anymore. The familiar white-plaster casts for fractured bones are being partially replaced by a complex apparatus that is changing and improving upon old methods of fracture management.

Orthopedic surgeons at the Maryland Institute for Emergency Medical Services (MIEMS) have emerged as national leaders in the use of Hoffmann external fixation of fractures.

This technique, which employs pins through segments of fractured bone, attached to a frame with clamps and universal joints, was the subject of an international conference at the University of Maryland School of Medicine, September 14-16. (The Continuing Education Division of the University of Maryland at Baltimore reports that the meeting attracted more than twice the number of physician registrants than any previous scientific conference held at the Medical School.)

Charles C. Edwards, M.D., Chief of the Orthopedic Trauma Service at MIEMS and Chief of Orthopedic Surgery, University of Maryland School of Medicine, and Andrew F. Booker, M.D., Assistant Professor of Orthopedic Surgery, Johns Hopkins University Medical School, were conference chairmen and moderators.

The faculty, composed of 20 international experts, represented much of world experience in the use of external fixation in the treatment of major extremity and pelvic injuries. The conference included a scientific symposium on the scientific and clinical aspects of external fixation and a practical workshop with personalized instruction on the application of the apparatus.

Although external fixation surfaced many years ago, until the advent of the Hoffmann system, it had not assumed a major role, Dr. Edwards said. The Hoffmann appara-

Indeed, Dr. Edwards said, the success or failure of fracture management is often dependent on the care of soft tissue wounds. With casts, the care of wounds and infection can present major problems. With the Hoffmann apparatus, the wounds are healed and the skin closed before the apparatus is removed and a cast applied. With the cooperation of MIEMS plastic surgeons, steady progress is being made in achieving reliable soft tissue coverage of extremity wounds with major loss of muscle and skin.

Since the Orthopedic Trauma Service at MIEMS began using the device almost two years ago, the Service has probably used the device more frequently than any other institution, making MIEMS a national study center for the use, indications, and results of Hoffmann external fixation.

The Orthopedic Trauma Service is a branch of MIEMS under the leadership of Dr. Edwards, who is also Chief of Orthopedic Surgery at the University of Maryland Medical School. In addition to Dr. Edwards, the Orthopedic Trauma Service includes two fulltime attending surgeons, Jaime Solano, M.D., and Bruce Browner, M.D.; an orthopedic trauma fellow, John Nordt, M.D.; and a chief resident with two junior residents.

This staff is involved in all orthopedic emergency treatment and follow-up of MIEMS patients. Patients are followed by the same physicians through initial management, reconstructive surgery, post-operative management both at MIEMS and in the University of Maryland Hospital, and in a follow-up orthopedic trauma clinic, to complete recovery.

In addition to their work with external fixation, the MIEMS Orthopedic Surgical Branch is pioneering in the improved assessment and early stabilization of spinal column injuries. As with the Hoff-

placed internally in dislocated thoracic or lumbar spines to allow decompression without removing bone. This also permits early mobilization and speeds neurological recovery in incomplete lesions. Because MIEMS is a referral center for CNS injuries, the surgeons have had much experience in this technique and have become leaders in its application.

Because of the unique patient population at MIEMS, the Orthopedic Trauma Service has extensive experience in managing multiple trauma patients with complex fractures, with severe soft tissue disruption, and spinal injuries. The possibilities for clinical research are therefore very promising. The experience and surgical results of the Orthopedic Trauma Service have already been selected for presentation in the principal session of the world's largest and most prestigious orthopedic surgical meeting, the American Academy of Orthopedic Surgeons, to be held in San Francisco this February. Dr. Edwards foresees continuing growth and development in the understanding and treatment of patients with severe musculo-skeletal injuries.

—Dottie McCaleb

Maryland EMS Regions IV, V Awarded HEW 1204 Funds

The U.S. Department of Health, Education, and Welfare has awarded \$470,000 in 1204 funding to the Maryland Institute for Emergency Medical Services for EMS Regions IV and V.

EMS Council Adopts Standard Triage Tags

Maryland EMS currently uses a red-green-yellow-gray triage-tag system to indicate priority of care. However, the order of colors indicating priority of care may soon be changing. Representatives from the Mid-Atlantic EMS Council have adopted a standard triage tag, which would be a modification of the triage tag currently used throughout Maryland.

The proposed triage tag system would consist of a red-yellow-green-gray set of tags to indicate priority of care, with red indicating the highest priority.

After considerable study, the Mid-Atlantic EMS Council urged standardization of triage tags in its member states of Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia to facilitate triage efforts and patient care rendered under mutual aid agreements.

Maryland's current triage tag was developed several years ago in cooperation with representatives from the Emergency Medical Services Technical Advisory Committee (EMSTAC) and the Association of Training Academies. Although 60,000 triage tags have been distributed for use in triage training in Maryland and have been utilized successfully, Maryland EMS recognizes the advantages of a standard tag. A fall meeting is planned to discuss the recommended changes.

Directory of EMS Regional Coordinators

Region I — Appalachia Region (Allegany and Garrett Counties)

David Ramsey — Ravene St., P.O. Box 34, Grantsville, Maryland 21536, 895-5934.

Region II — Mid-Maryland (Frederick and Washington Counties)

Michael S. Smith — 1610 Oak Hill Ave., Room 134, Hagerstown, Maryland 21740, 791-2366; 293-1749.

Region III — Metropolitan Baltimore (Baltimore City and Baltimore, Anne Arundel, Harford, Howard, and Carroll Counties)

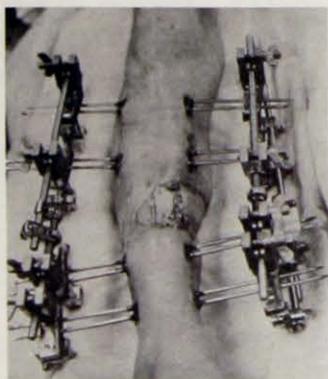
George Pelletier, Jr. — MIEMS, 22 South Greene St., Baltimore, Maryland 21201, 528-3930.

Region IV — Eastern Shore (Cecil, Kent, Queen Anne's, Caroline, Talbot, Dorchester, Somerset, Wicomico, and Worcester Counties)

Marc Bramble — 7 Federal St., P.O. Box 536, Easton, Maryland 21601, 822-1799.

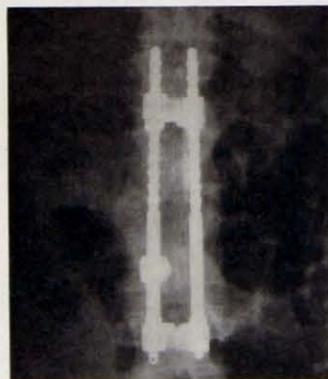
Region V — Metropolitan Washington (Montgomery, Prince George's, Charles, Calvert, and St. Mary's Counties)

Jeff Mitchell; Ed Lucey (Assoc.) — 5408 Silver Hill Rd., Suitland, Maryland 20028, 735-5580.



The Hoffmann apparatus allows ready access to soft tissue wounds.

tus has the versatility, stability, and wide application that were lacking with previous devices. It can be adapted for any fracture except a fracture of the spinal column. In addition, through its system of pins, clamps, joints, and frame, any change in position can be achieved. A third advantage of the Hoffmann system and the way it differs from casts is that its use allows ready access to soft tissue wounds, a problem encountered more often in multiple trauma patients than in patients with ordinary fractures.



Harrington rods are frequently used in spinal cord injuries.

mann device, rigid surgical stabilization of the spine permits early and improved patient mobilization. For cervical spine injuries, the MIEMS orthopedic surgeons have further developed existing wiring and grafting techniques with excellent surgical results. The orthopedic surgeons work closely with MIEMS neurosurgeons in the management of spinal injury to assure the patient optimum neurologic management as well as high-quality surgical care. Harrington rods for compression or distraction are

Photos: Courtesy of Charles Edwards, M.D.

—Marianna Herschel

Address Correction Requested
 325 E. Oliver St./Baltimore, Md. 21202

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.

NOVEMBER

- 28 Winter Emergencies, Spring Grove State Hospital, Baltimore
- 29 Spinal Seminar (LPN Assoc.), Deers Head Hospital Center, Eastern Shore

DECEMBER

- 5, 6 The Nurse as a First Responder, Myersville Volunteer Fire Co., Frederick
- 6, 7 Change, Marriottsville Spiritual Center
- 7, 8 Principles of Patient and Family Teaching, Woodmont Center, Montgomery College, Bethesda
- 7, 8 Respiratory Problems of the High-Risk Newborn, Cross Keys, Baltimore
- 12 Orthopedic Emergencies, Spring Grove State Hospital, Baltimore
- 12, 13 The Nurse as a First Responder (2nd session), Myersville Volunteer Fire Co., Frederick
- 14 Respiratory Emergencies in the Newborn, Leonardtown

JANUARY

- 9, 10 The Nurse as a First Responder, Montgomery Co. Fire Academy
- 16, 17 The Nurse as a First Responder (2nd session) Montgomery Co. Fire Academy
- 18, 19 Sudden Death in the Acute Care Setting, Friendship Inn, BWI Airport
- 22 Respiratory Emergencies in the Newborn, Harford Memorial Hospital, Havre de Grace
- 23 The Family of the Patient in Crisis, Union Hospital, Elkton
- 24 Change (Follow up to 12/6, 7), Marriottsville Spiritual Center
- 30 Respiratory Emergencies in the Newborn, Peninsula General Hospital, Salisbury
- 30, 31 Principles of Patient and Family Teaching, Spring Grove State Hospital, Baltimore

FEBRUARY

- 6 The Family of the Patient in Crisis, Woodmont Center, Montgomery College, Bethesda
- 6 Inhalation Injuries, Spring Grove State Hospital, Baltimore
- 6, 7 The Nurse as a First Responder, Salisbury
- 7 Orthopedic Emergencies, Region II
- 13 Blood Gases, St. Mary's
- 13, 14 The Nurse as a First Responder, Salisbury
- 20, 21 Spinal Cord Injury, Region III
- 27, 28 Principles of Patient and Family Teaching, Salisbury

MARCH

- 6, 7 Alcohol and Street Drugs, Friendship Inn, BWI Airport
- 6, 7 Cardiac Emergencies, Howard County College, Columbia
- 7, 8 Spinal Cord Injury, Region V
- 14 The Family of the Patient in Crisis, Southern Maryland
- 15 Respiratory Emergencies in the Newborn, Union Hospital, Elkton
- 20, 21 The Nurse as a First Responder, Md. Rehabilitation Center, Baltimore
- 20, 21 Principles of Patient and Family Teaching, Region II
- 20, 21 Burn Management, Salisbury
- 27, 28 The Nurse as a First Responder (2nd session), Md. Rehabilitation Center, Baltimore
- 28 Infection Control in the Critically Ill, Spring Grove State Hospital, Baltimore

APRIL

- 3, 4 The Nurse as a First Responder, Md. Rehabilitation Center, Baltimore
- 4 The Family of the Patient in Crisis, Baltimore
- 4, 5 Fluid and Electrolyte Balance, Eastern Shore Hospital Center
- 9, 10 Change, Region I
- 10, 11 The Nurse as a First Responder (2nd session), Md. Rehabilitation Center, Baltimore
- 11, 12 Spinal Cord Injury, Elkton
- 24 Crisis Surrounding Infants Born at Risk, Peninsula General Hospital, Salisbury
- 25 The Family of the Patient in Crisis, (snow date from January), Elkton
- 25 Legal Aspects of Emergency and Critical Care Nursing, Spring Grove State Hospital, Baltimore
- 30, Crisis Intervention, Howard County College, Columbia

MAY 1

MAY

- 2, 3 Principles of Patient and Family Teaching, Eastern Shore
- 7, 8 Crisis Intervention (2nd session), Howard County College, Columbia
- 8 The Family of the Patient in Crisis, Region I
- 9, 10 Burn Management, Woodmont Center, Montgomery College, Columbia
- 15, 16 The Nurse as a First Responder, Leonardtown
- 16 Summer Emergencies, Annapolis
- 22 High-Risk Pregnancies, Salisbury
- 22, 23 The Nurse as a First Responder (2nd session), Leonardtown
- 24 The Family of the Patient in Crisis, Region II

JUNE

- 5, 6 The Nurse as a First Responder, Oakland
- 8 The Family of the Patient in Crisis, Salisbury
- 12, 13 The Nurse as a First Responder (2nd session), Oakland

GENERAL EMS WORKSHOPS

NOVEMBER

- 10-11 Supportive Therapy in Burn Care, Bethesda, MD. Contact: E. Black, M.D., NIGMS, National Institute of Health, 5333 Westbard Ave., Rm. 925, Bethesda, MD 20016.
- 16-18 Multiply Injured Adult with Complex Fractures, CA. Contact: American Academy of Orthopedic Surgeons, Box 6310-A, Chicago, IL 60680.

DECEMBER

- 4-6 Review of Common Arrhythmias, Boston, MA. Contact: Harvard Medical School, 25 Shattuck St., Boston, MA 02115.

JANUARY

- 18-19 Sudden Death in the Acute Care Setting, Friendship Inn, BWI Airport. (For physicians, nurses, EMTs.) Contact: Ann Leasure, MIEMS (528-3930).

MARCH

- 11-15 Amer. College of Cardiology, FL. Contact: W. D. Nelligan, 9111 Old Georgetown Rd., Bethesda, MD 20014.