

# Head Injuries: Epidemic of Youth

*Editor's Note: Part 2 of our series on pediatric head injuries focuses on pathophysiology, rehabilitation, and prevention.*

## **Anatomy/Physiology of the Brain**

The brain is divided into three major areas: the cerebrum, the cerebellum, and the brainstem. Each component of the brain has a distinct function, and injury to a specific area often can be correlated with a specific deficit. The bones of the skull form the wall of the cranial cavity and include frontal, occipital, temporal, and parietal bones. Blood vessels and cranial nerves enter and leave the skull through the foramina, small openings at the base of the skull. The intracranial contents consist of three components: the brain, blood (arterial and venous), and cerebrospinal fluid. The inexpandable cranial cavity created by the skull holds all three components.

In infants and young toddlers, the open anterior fontanel initially allows for a small and gradual increase in pressure that will be detected by the bulging between the frontal and parietal bones. The fontanel will not compensate for the large increasing pressures associated with intracranial lesions from blunt trauma or diffuse axonal injury seen in coup-contrecoup forces and shaken baby syndrome. The Monro-Kellie dictum states that the increase in volume of one component requires adjustment in the volume of the other two. Traumatic injury to the head causes one or more of these components to gain volume. After an injury, the body and brain initially will attempt to compensate by shifting fluid volumes. If the compensatory mechanisms are not successful in

adjusting the three components, the intracranial pressure (ICP) rises, decreases blood flow, and compromises neurological functioning. Normal ICP is 4-15 mmHg; ICP above 20 mmHg is considered abnormal. Signs of increasing ICP include:

- irritability and listlessness
- confusion and disorientation
- changes in level of consciousness seen in decreasing Glasgow Coma Scale (GCS)
- inability to suck in infants
- high pitched cry and changes in speech
- inability to follow simple commands
- pupil dilation and decreased response to light
- reduced spontaneous movement
- deterioration in posturing (flexion, extension, flaccid)
- hypertension, tachycardia, and apnea
- respiratory arrest followed by cardiopulmonary arrest

Herniation is the displacement of part of the brain from one compartment to another secondary to high ICP. Signs of herniation include: rapid decrease in level of consciousness, cranial nerve deficit, bilateral or unilateral motor extension and then flexion, brainstem dysfunction, and changes in vital signs and respiratory status. Herniation is a surgical emergency and requires rapid decompression of the cranial vault. The pediatric neurosurgical team may establish an intracranial monitoring device through the use of an external ventriculostomy, subarachnoid bolt, or intracranial catheter.

The importance of rapid

assessment, management, and transport, as well as the primary and secondary surveys and the Glasgow Coma Scale for Pediatrics, were discussed in Part I of this series, which was published in the August issue of this newsletter.

## **After the Head Injury**

Recovery after a head injury in children varies widely both with the severity of injury and with the child's and family's understanding of the recovery process. Even children who sustain "only" a mild injury such as a concussion may have personality changes, circadian rhythm, recurrent headaches, and problems with attention and motivation for a period of weeks or months. Current research indicates that children and their families should be given specific anticipatory guidance related to the cognitive and behavioral changes that may occur. Too frequently these children (and adults) look normal and can go through daily activities of living, yet are unable to function at school or with groups of people. The National Head Injury Foundation has coined the phrases the "silent epidemic" and the "walking wounded" to describe head injuries and its victims. Children with the sequelae described above are at higher risk for repeated injuries and may need the EMS system in the future if parents and the community are not prepared.

The statement that "children recover from head injury better than adults" has been used too frequently throughout the country. This statement is based only on the mortality or live-die statistics. Current research has shown that despite the apparent good

*(Continued on page 2)*

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(Continued from page 1)

neurologic recovery seen during physical exams of children after head injuries, there is a high incidence of social, behavioral, educational, and psychiatric disturbances in their lives. The Pediatric Comprehensive Neurorehabilitation Program at the Kennedy Krieger Institute in Baltimore has established a Head Injury Psychiatry Clinic to provide diagnosis and treatment recommendations for children who sustain mild and moderate brain injuries.

The child who has sustained a moderate to severe injury will need a specialized rehabilitation program related to specific areas of disability. In some individualized cases, the outpatient rehabilitation services and special education school services can be combined to assist the child with a mild hemiparesis or a specific language deficit. But in most circumstances, the child who has a temporary or permanent deficit that prevents a return to school at his/her former level of independence should receive intensive rehabilitation services in an acute pediatric head injury program. A comprehensive rehabilitation plan for

the head-injured child must include the coordination of multiple disciplines in the health care and educational communities. Facilitation of a smooth transition from acute care to rehabilitation to home requires the commitment and involvement of EMS, hospitals, schools, and local communities. The unique medical and technology needs of each child should be incorporated into an ITP—that is, Individual Treatment Plan—during rehabilitation. The specific emergency care interventions and transportation plan should be sent to the local EMS jurisdiction prior to the child returning home. Close followup with the primary care pediatrician and with the neurotrauma and rehabilitation teams will be essential for the ongoing reintegration of the head-injured child and family into the school system and their community.

## Prevention of Head Injuries

Traumatic injuries in children have occurred for centuries. The increase in morbidity is a direct reflection upon two societal factors. First, industrialization and mechanization have increased the severity of and opportunities for injury to occur. Second, in a nation that

through immunization has successfully decreased deaths from childhood illnesses, traumatic injury to children has, until recently, received little attention and little financing for injury control. The national effort to increase the focus on preventing childhood injury has been greatly influenced by both of Maryland's pediatric trauma centers: the Injury Prevention Center at the Johns Hopkins University School of Public Health and the National SAFEKIDS Campaign at Children's National Medical Center have worked to increase awareness and to facilitate local, state, and national programs to decrease childhood injury. To be successful, injury prevention efforts must occur in every jurisdiction, in every "first due area," and in every home.

Injury prevention involves four key components known as the 4 E's of injury control: EDUCATION about injury patterns and specific actions to prevent injury; ENGINEERING to develop safety equipment and design safer environments; ENFORCEMENT through legislation that mandates specific behaviors and safety devices; and EVALUATION of all three (education, enforcement, and engineering). Throughout Maryland, there are injury control and injury prevention activities occurring every day. While involvement in state and local coalitions, networks, legislative initiatives, and public education programs contributes to improving the health of children (and adults), the specific behaviors we exhibit in our daily practice and personal lives provide the best example for parents, extended family members, and children themselves. According to the National SAFEKIDS, this year one out of every four children will suffer a preventable injury serious enough to require medical attention.

Injury to our children is not an accident; injury is a preventable disease.

◆ Cynthia J. Wright, MSN, RNC, CRRN  
Pediatric Nurse Coordinator, MIEMSS

## Memorandum of Understanding for CISD Services



A Memorandum of Understanding recently was signed between MIEMSS and Baltimore County career and volunteer firefighters to provide critical incident stress debriefing (CISD) services to those needing them. At the signing were Jim Clemens (Region 3 Maryland CISD Coordinator), Marge Epperson-SeBour (Director of Psychosocial Services at the R Adams Cowley Shock Trauma Center and former Director of the Maryland CISD Program); Chief Elwood Banister (Baltimore County Fire Dept); and Lee Sachs (President of the Baltimore County Firefighters Association).

# Haz Mat Disaster Drill at Westvaco's Plant

A chlorine leak on a rail car was the focus of a disaster exercise at Westvaco Corporation's paper mill in Luke, Maryland in Region I on October 6. Seventy-eight people from Westvaco, mutual aid companies, and various agencies participated in the drill.

Although Westvaco conducts four disaster drills each year involving mutual aid companies (two of these are hands-on drills), this was the first haz mat exercise. Westvaco has its own emergency medical squad, comprising 98 members, to treat and transport (if necessary) employees injured at the plant; 19 people received haz mat training this year and became Westvaco's first haz mat team. (An EMS team from Westvaco's emergency medical squad placed first in the West Virginia State Championship in July.)

During the October 6 drill, pulp mill personnel discovered the chlorine leak and reported it to Westvaco's communications center which first alerted Westvaco's emergency medical and haz mat personnel and later Luke Fire Department, then continued to work with the incident command officer to request the help of additional companies as needed.

Seven fire departments (FD) were requested to participate in the drill: Luke FD, Bloomington FD, Westernport FD, Piedmont FD, Barton FD, McCoolle FD, and Keyser FD. They were responsible for the search and rescue of victims unaccounted for after a building was evacuated and assisted in haz mat efforts, including decontamination.

Local ambulance companies involved



*The Westvaco Haz Mat team works to cap a simulated chlorine leak during a disaster drill. They work on a rail dome placed on the bed of a pickup truck parked next to the chlorine cars. Green smoke bombs were used to simulate the chlorine.*

in the drill included Tri-Towns Rescue Squad and Keyser Emergency Medical Squad. They assessed, treated, and simulated the transport of "victims" discovered during the drill. Seven "victims" were moulaged and acted out the symptoms for such problems as respiratory and eye injuries resulting from chlorine gas exposure, diabetic injuries, a heart attack, and a leg injury resulting from a fall.

According to Diane May, a training instructor at Westvaco, the drill went very well and showed some areas that could be improved. Eleven evaluators reviewed all

parts of the drill, commenting on the incident command system, EMS, search and rescue, the haz mat team, and the communications center. The evaluators included MFRI fire/rescue and haz mat instructors; administrators from MIEMSS and the Department of Natural Resources; the Region I ALS Prehospital Coordinator; and local EMS and haz mat personnel.



*Haz mat personnel were decontaminated during the drill.*

## Maryland Receives State Trauma Systems Grant

MIEMSS recently was awarded a grant from the Health Resources and Services Administration (HRSA), Division of Trauma and Emergency Medical Systems, for the development of a Trauma System Quality Management Plan for Maryland that will also be used as a national model.

The Trauma System Quality Management Plan will be developed with the purpose of evaluating the operational and clinical components of the trauma system and will enable MIEMSS to monitor the efficiency and effectiveness of the Maryland trauma system. As part of the plan, evaluation tools will be developed to link all the components of the trauma system throughout the state.

The development of this plan will require input from providers in each component of the system, including prehospital, hospital, rehabilitation, and the community. Through this model, MIEMSS will be able to enhance the delivery of quality trauma care and be responsive to changes in the needs of Maryland citizens.



*Victim with simulated injuries was assessed and now is prepared for transport.*

## Radios Upgraded in Baltimore City

All medic units in the Baltimore City Fire Department (BCFD) have been fitted with upgraded radio equipment by MIEMSS Communications. In late September, Motorola MT-1000 hand-held radios (and rechargers) and Standard 3000 Mobile radios were installed in the city's 18 first-line ambulances, 20 reserve units, and 2 supervisors' vehicles. This equipment replaces outmoded PX-300 radios, some of which were in service since the early 1980s.

The MIEMSS Communications staff had been repairing BCFD radios on an almost-daily basis. Old equipment had to be collected and cannibalized to keep up with maintenance requirements. The new equipment obviously allows great savings in repair costs. It will also improve the quality of communications.

Because the new radio configurations consist of installed and

portable units, the logistics of taking communications equipment to the patient's side are simplified. Before the upgrade, medics carried the bulky and heavy PX-300 from the vehicle to the site of injury or illness. Now they can carry the smaller hand-held units when they leave the medic unit to administer patient care. Because all front-line and reserve units have the new radio equipment, the previous need to transfer radios from vehicles going out of service for repair to reserve ambulances is eliminated.

MIEMSS' purchase and installation of this radio equipment was funded by state revenues generated by the "\$8 bill" passed by the Maryland General Assembly in 1992. The upgrade in Baltimore City is part of the long-term plan of MIEMSS to upgrade radio communications for all medic units in the state.

## Physio-Control Resumes Production

Physio-Control Corporation announced that it has resumed shipment of its LIFEPAK 10 defibrillator/monitor/pacemaker. The announcement follows a reinspection by the Federal Drug Administration (FDA) of the company's documentation, processes, and procedures.

It is anticipated that production of the LIFEPAK 10 will reach full volume during third quarter 1993.

In mid-1992 Physio-Control voluntarily suspended shipping LIFEPAK products following an FDA biennial inspection in which the agency made observations with respect to certain federal manufacturing regulations. The observations related to documentation and manufacturing regulations and procedures. Last July the company signed an agreement that stipulated Physio-Control must satisfactorily undergo reinspection by the FDA prior to resuming operations.

## Disaster Exercise on USNS Comfort



In August, the U.S. Navy and fire services from Baltimore City, Baltimore County, and Anne Arundel County conducted a disaster exercise on the USNS Comfort, a floating trauma center docked in Baltimore. The drill was repeated four times to accommodate the various shifts of the fire services; about 40 fire fighters participated in each session. The scenario was a closed space fire in the ship's oxygen generation unit, which was handled by the ship's crew with the support of a fire boat and ground fire rescue services.

Chief John Frazier, of the Baltimore City Fire Department, was the liaison between the U.S. Navy and the fire services. He explained that the drill was a valuable test of mutual aid agreements as well as the incident command system.

Prior to each exercise, Comfort crew members guided fire fighters through a familiarization tour of the ship. At the completion of the drill, participants critiqued their operations to identify "lessons learned." The drill was observed by the ship's commander, Captain Richard Cicchetti, and Maryland's Acting State EMS Director, Dr. Richard Alcorta. Evaluators were sent from the Navy's fire fighting school in Cape May.

The USNS Comfort, with 1,000 beds and an armamentarium of diagnostic and monitoring equipment, is dedicated to providing emergent medical care during military conflicts and in relief efforts after disasters.

## Laurel Volunteer Rescue Squad Wins World Championship

It's not every day that members of a rescue squad are honored with a parade through their hometown. But then again it's not every day that a rescue squad becomes World Champions. That is what happened on August 21 when a four-member emergency care team from Laurel Volunteer Rescue Squad, Inc. received first place at the awards banquet of the International Rescue and Emergency Care Conference in Richmond, Virginia.

The winning team—John Harding (team captain), Adam Globberman, Rich Takacs, and Dave Morgan—surpassed about 25 teams from the U.S., Canada, and Virgin Islands.

They proved their knowledge of patient care on a written test composed of 200 questions on various topics, such as anatomy, treatment, and legal issues, and during two hands-on skills demonstrations involving two very different scenarios. The first scenario described a thunderstorm that occurred on a golf course. The EMS team from Laurel had to treat two mannequins lying unconscious and later a "victim" who wandered in. The second scenario revolved around a cannon exploding on a Civil War battlefield filled with people (including the rescuers) who were sightseeing. Three team members became "victims" with various injuries, while Dave Morgan was left "uninjured" to treat them.



Laurel Volunteer Rescue Squad's winning team: (l-r) Leona Rowe (coach), John Harding, Adam Globberman, Rich Takacs, Dave Morgan, and Deborah Fiedler (coach). Photo: Alton Duffield, Jr.

Actually Laurel Volunteer Rescue Squad is no stranger to winning international EMS competitions. In 1971 and three times in the 1960s a women's team from the Laurel squad won first place. Twenty-two years later the current four-man team recaptured the crown and soon will begin practicing for the next competition. Chief Steve Hand and squad members hope 1994 will be another winning year for them!

## EMS Providers Surveyed

Where should Maryland EMS be today and tomorrow, especially in regard to the EMT-Paramedic program? This is the focus of a survey that has been mailed to all 1400 CRTs and approximately 1500 EMT-As (10% of total EMT-As certified) in Maryland.

Anyone who has received the survey but has not yet completed it is urged to do so immediately and to mail it to MIEMSS in the self-addressed envelope that was included with the survey. It is not necessary to include one's name; all surveys should be submitted anonymously.

The strength of Maryland's EMS system lies in its prehospital care providers, and this survey was generated as a response to the desire that their voices be heard and give a clear perspective on the field providers' views of their current EMS system.

The survey was written, produced, and reviewed by Bruce Walz, PhD, of the Emergency Health Services Program at UMBC and by MIEMSS. The EMS Subcommittee of the Maryland State Firemen's Association also reviewed the survey. It is an instrument designed by the provider for the provider to impact on Maryland's EMS system.

Anyone who has received the survey but has not yet completed it is again urged to do so immediately.

## MFRI/MIEMSS Management Update

Current field care of sucking chest wounds and flail chest may not always be effective or beneficial to the patient. Following are techniques that will enhance patient care.

### Sucking Chest Wound

Emergency care of sucking chest wounds requires sealing the wound with an occlusive dressing (plastic wrap) and taping the dressing on all four sides. In addition, it is necessary for the emergency care provider to **maintain pressure on that seal with the palm of a gloved hand to ensure that a good seal is maintained.** Tape often does not stick to bloody, sweaty skin; and air can perfuse through the semi-permeable type of plastic wrap that is often used for sealing the wound. If tension pneumothorax develops, remove hand pressure and release a corner of the seal to allow air to escape, then reseal and replace hand pressure over the dressing.

### Flail Chest

Emergency care of flail chest

currently includes stabilizing the flail section with a bulky trauma dressing secured to the chest with tape. Again, tape often does not stick to bloody, sweaty skin; and the emergency care provider may be tempted to wrap the tape around the entire chest which restricts chest expansion during respiration. **The most effective method of stabilizing and monitoring the flail section is by applying gentle pressure with the rescuer's gloved hand.** Use of a light sandbag is acceptable but it must be held in place with the rescuer's hand pressure. Do not rely on tape to effectively secure the trauma dressing or sandbag.

These are airway/breathing maneuvers which must be performed to save a patient's life. Both of the above methods require the full attention of a single EMT/rescuer. Additional assistance may be necessary to provide other needed care or monitoring of the patient.

## MAIS Report Writer Now Available in Regional Offices

As part of its ongoing effort to improve the quality of information related to EMS in Maryland, MIEMSS has installed Beta Test Version 2.1 of the MAIS Report Writer in its five regional offices. Although the software is dubbed as "Beta Test," it is fully functional and can generate reports for all MAIS runsheets processed by the office of Operations Research and Systems Analysis (ORSA), giving the regional administrators the ability to answer many of the questions that have until now required special programming by ORSA's staff.

The current version allows the regional administrator to request reports by jurisdiction and date. Future versions will expand the ability to specify selection criteria and will provide access to FoxPro's Report Writer as an integral part of the system so that the user will be able to create and run custom reports that meet his or her specific needs.

MIEMSS expects to make the next version of the software available to interested jurisdictional EMS officials as well as individual ambulance companies and will provide them with their own data. They can then use this software to access the information on the runsheets they have submitted to ORSA. At the present time the regional administrators can provide the reports to those who request them.

The MAIS Report Writer software operates on 386-compatible PC's with 4 MB of RAM, and is written in FoxPro 2.5. It requires a printer capable of printing 172 characters per line in landscape mode (e.g., HP Laserjet II or III). Anyone interested in receiving the next version should contact John New at 410-328-7798 for more information.

In another project related to MAIS data management, two hospital emergency departments are manually abstracting data from the hospital copy of the MAIS runsheet. A by-product of this project will be the ability to compare the abstracted data with the scanned data from the same runsheets, thereby enabling MIEMSS to further assess and ensure the quality of the data contained in the MAIS database.

## Update on Health Care Decisions Act

As of October 1, 1993, House Bill 1243, the Health Care Decisions Act, went into effect. This legislation impacts on Living Wills and guardianship and will result in the definition of parameters for stopping advanced life support to provide for a gentler death in keeping with the patient's wishes.

MIEMSS and the State Board of Physician Quality Assurance have been charged with the responsibility of establishing a prehospital Do Not Resuscitate (DNR) Protocol. This policy will be considered an "EMS/DNR" policy. The inclusion criteria, the standardization of a way to identify individuals with valid DNR orders, and the policy itself will require extensive review with legal and ethical input because of the sensitive nature of withholding advanced life support.

Virginia currently has an EMS/DNR policy that the National Association of State Emergency Medical Services Directors feels is the template for the nation. Maryland will be reviewing and incorporating portions of Virginia's EMS/DNR policy, which stipulates a highly identifiable and unique bracelet for those individuals who do not wish advanced life support.

Being aware of the sensitivity of this new policy, MIEMSS is working closely with the State Board of Physician Quality Assurance and the Attorney General's Office to design the EMS/DNR policy. This policy will take 12 to 18 months to develop, standardize, and distribute. An educational program will also be developed to explain the EMS/DNR policy.

But how does the Health Care Decisions Act, which was effective October 1, impact the EMS community today? Currently, the only policy or protocol that is in effect is the hospice protocol which has been authorized by the State Board of Physician Quality Assurance and MIEMSS. If an EMS provider responds to a resident and the family states that the victim has a Living Will but is **not** a hospice patient, the prehospital provider will need to continue resuscitation, including ALS, until arrival at the emergency department where the physician, hospital, and legal assistants will make a determination about the validity of the Living Will and what is in the best interest of the patient. This means

that, until the EMS/DNR policy is authorized by MIEMSS and the State Board of Physician Quality Assurance and is reviewed by the Attorney General's Office, there will be no change from the current practice and standards of BLS and ALS delivery in Maryland.

♦ *Richard L. Alcorta, MD*  
*Acting State EMS Director*

## EMS Care 94 Update

"Rural and Urban EMS—Partners in Progress" is the theme of EMS Care 94, to be held April 30 and May 1, 1994 at the Omni Hotel in Baltimore. The conference is sponsored by the Region III EMS Advisory Council and the MIEMSS Region III Office and is hosted by the Baltimore City Fire Department.

This year there will be two registration "pathways." One registration fee includes the conference sessions, refreshments during breaks, and meals; the other includes only the conference sessions and refreshments during breaks (meals are on your own).

Preconference activities scheduled include an ACLS (advanced cardiac life support) course, an EMT-A skills class, and a PALS (pediatric advanced life support) course. These courses will be held April 28 and 29, 1994 at nearby satellite locations.

Registration forms will be provided in a future issue of this newsletter. All registrations will be accepted on a first come, first serve basis.

## Attention Prehospital Care Providers

Focusing on the theme of EMS Care 94, "Rural and Urban EMS—Partners in Progress," the Baltimore City Fire Department is creating a slide show for EMS Care 94. You are invited to send copies of any action slides from your company to P.M. Clarence Nalley, Medical Bureau, Baltimore City Fire Department, 1100 Hillen St., 2nd Fl., Baltimore, MD 21202.

# Prescription Drugs: Substances of Abuse

Substance abuse is a problem in Maryland that each of you, as an emergency health care provider, is faced with when responding to calls for service. You come into contact with a wide variety of people and their medical problems. One problem that is very prevalent in Maryland but is often "hidden" or overlooked is the misuse and abuse of prescription drugs.

Prescription drugs are used every day by many people for medical reasons; however, a great number of people illegally use prescription drugs in lieu of, or in addition to, traditional street drugs. These people obtain the prescription drugs from many sources: from illegal street dealers; by passing forged prescriptions; by stealing from a pharmacy; or by visiting doctors under false pretenses and obtaining a "legitimate" prescription.

It is important for you to realize the impact that prescription drugs can have on a person and to recognize the potential problems they may cause. Prescription drugs often are used by an addict to enhance the effects of the traditional street drugs or to clear up infections associated with injection sites of traditional street drugs. Often the abusers of prescription drugs are at the "end of the rope"; they have used everything possible to get "high" but that still is not enough.

When you respond to a call and the patient appears to be under the influence of drugs, ask him/her what types of drugs have been taken and do a little investigating so that your patient can be treated in the best manner. Look in the area of the patient for prescription bottles or prescription medications. Check the bottles to see when the prescriptions were issued and by what doctors. If the patient has

numerous bottles for the same medications issued by different doctors, it may be a clue that the person has a prescription addiction. Ask the patient how many prescription pills he/she takes a day; some addicts can consume a large quantity of substances without appearing to be under the influence. Check to see when the patient last ingested the drug and what it was. Some prescription drugs, Xanax in particular, can produce serious side effects as the quantity of the substance decreases in the patient.

If you discover a prescription drug that you are not familiar with, contact the Poison Control Center and ascertain what drug it is and any possible reactions or side effects. Remember that medications can be abused. The fact that a medication is in a prescription bottle does not mean the prescription is valid, needed, or being used correctly. I am not trying to insinuate that all prescriptions are bad; I am trying to give you enough information so that you look twice when prescription drugs are in question and can recognize a patient with a prescription drug problem. Consider the following signs of prescription drug abuse:

- Traditional signs of drug abuse: slurred speech, inactive pupil response, sweating, disorientation, etc.
- Numerous prescription bottles lying around (often in other people's names or containing a drug different than what is listed on the bottle)
- Prescription bottles in numerous doctors' names for the same prescription and near the same time period
- Patient has significant knowledge of drug names and the treatment of a particular problem. (The prescription

abuser is generally very well versed in medical terminology and can generally write a prescription as well as a doctor.)

- Patient may have blank prescriptions, a list of pharmacies where he/she attempted to get prescriptions filled, or telephone books with pharmacies circled.
- Patient may have numerous insurance or medical assistance cards in his/her possession (often the cards are in the names of several different people).

If you have any questions regarding the illegal use of prescription drugs or if you have any information regarding this activity, please contact your local police department or the Maryland State Police, Bureau of Drug Enforcement, Drug Diversion Unit, 410-290-0050.

- ◆ *David M. Hammel, EMT-A  
Drug Diversion Unit  
Maryland State Police*

## New Ford Design Creates EMS Problem

Based on the June 1993 issue of the *EMS Insider*, published by Jems Communications, there is concern about the mid-1992 Ford design of the F350, 7.3 liter diesel engine. The design is centered around a single serpentine fan belt that drives the alternator, air conditioner, compressor, power disc brakes, and steering. This design can cause significant risks if the fan belt should break. The ambulance will lose not only power brakes, but also power steering, placing the vehicle in great jeopardy. Please evaluate your EMS Ford units that may be of this design.



### Pyramid 93

*(Left photo) On behalf of the Pyramid Planning Committee, John Gallagher, Jr., president of the Charles County Mobile Intensive Care unit, presents a plaque to Dr. Richard Alcorta in recognition of his first year as acting state EMS director.*

*(Right Photo) Pyramid 93 participants gathered at the Harry Lundeberg School of Seamanship at Piney Point in St. Mary's County, September 11-12.*



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**DATED MATERIAL**

## Automated External Defibrillation Program OK'd as Statewide Option

The Automated External Defibrillation (AED) Program has been approved as a statewide optional procedure by MIEMSS and endorsed by the State Board of Physician Quality Assurance. This option will be available to First Responders and EMT-As.

Survival of the cardiac arrest patient depends on a series of critical interventions. This "chain of survival" has four independent links: early access, early CPR, early defibrillation, and early advanced life support. The American Heart Association has identified early defibrillation of the cardiac arrest victim as the most important single factor in this "chain." Approval of the AED as an optional procedure is an attempt to increase the availability of early defibrillation in Maryland.

It is intended that First Responder and EMT-A use of the AED would occur as part of an initial response basic life support unit in instances where an advanced life support unit is not readily available. Although AED is an important link, it does not relieve the necessity for rapid response advanced life support units to support the basic life support use of the AED. There is an increased survival rate with

the AED alone, but when combined with the rapid response advanced life support unit, the survival rate rises dramatically.

The need for the complete chain: early access, early CPR, early defibrillation, and early advanced life

support cannot be overemphasized.

Jurisdictions wishing to use the AED should request approval from MIEMSS through their local/jurisdictional medical director and their regional medical director.

## Report on Paramedic Education Project Completed

The "Rural Paramedic Education Project," the final report of a study by Bruce Walz, PhD, NREMT-P, and Patricia Hicks, BS, NREMT-P, was completed in August. Dr. Walz is a faculty member of the Emergency Health Services (EHS) program at UMBC and Ms. Hicks is an EHS graduate student and paramedic.

The study was commissioned by former MIEMSS Director Dr. Kimball Maull in February 1992 to evaluate current training programs in Maryland and to look at distance learning techniques to facilitate training in light of MIEMSS' goal of upgrading all CRTs to EMT-Ps in the future.

The report focuses on six areas:

- National trends in EMS education, especially at the ALS level
- Distance learning in EMS and health professions

- Results of a survey of current EMT-P training programs in Maryland
- Summaries of views from field providers on EMT-P training expressed during a series of 2-hour town meetings conducted in each of Maryland's five EMS regions
- Development of model programs for the upgrading of CRTs and the training of EMT-Ps using the current EMS educational infrastructure
- Development of models for EMT-P training utilizing distance learning and educational technology

In the appendices are a course content outline and guidelines for course hours for the National Standard Curriculum and a sample syllabus for courses with a modular approach.

Copies of the report have been distributed through the offices of the MIEMSS regional administrators.