

Maryland

E·M·S

# NEWSLETTER

Vol. 20, No. 1

For All Emergency Medical Care Providers

August 1993

## Governor Names DeVries EMS Board Chairman

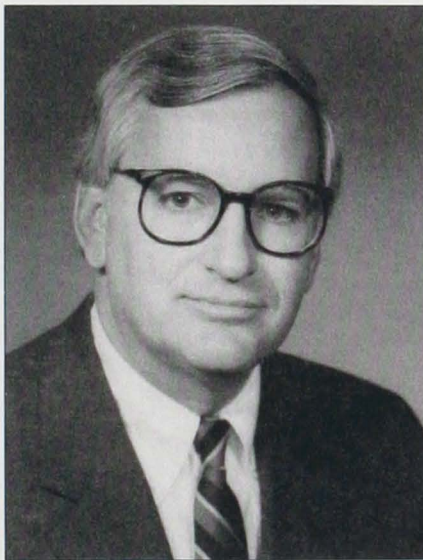
Governor William Donald Schaefer recently appointed Donald L. DeVries, Jr., chairman of Maryland's new Emergency Medical Services (EMS) Board, which was established by the Governor and General Assembly to oversee the statewide EMS system. MIEMSS reports directly to the EMS Board, which reports directly to the Governor.

Mr. DeVries is a partner in the firm of Goodell, DeVries, Leech, and Gray. For more than 20 years, he has focused on representing hospitals and physicians in medical malpractice litigation. He has also taught and lectured extensively in the fields of malpractice and trial law.

Mr. DeVries currently is on several local boards of directors. He has served on the Board of Visitors for Shock Trauma since 1989 and as its chairman since 1990, a position he resigned when he was appointed chairman of Maryland's EMS Board. He was also chairman of the Solicitation Committee of the Shock Trauma Gala in 1988 and 1989.

The 11-member EMS Board (see page 2 for list of members) first met on July 8 and then on August 3 (after this newsletter went to press). At its July 8 meeting, the Board was welcomed by James D'Orta, MD, who chaired the Emergency Medical Services Commission created by Executive Order of Governor Schaefer in 1992 to review Maryland's EMS system and to recommend structural changes needed to ensure its place as the model for the nation.

Dr. D'Orta noted: "This EMS Board is the first of its kind in the nation to answer directly to a governor



Donald L. DeVries, Jr., Esq.

and reflects Governor Schaefer's continuing commitment to Maryland's EMS system." He praised the Board members but warned that their charge will be difficult. He challenged the Board to fulfill the Governor's goal of improving the EMS system to best serve all ill and injured patients without consideration of political or fiscal pressures.

"We have asked this diverse group to do an important job: help us ensure that Maryland's emergency service system remains the best in the country," said Governor Schaefer. "Maryland has had a reputation for having the strongest EMS system, and we'd like to keep that reputation."

Chairman DeVries echoed Dr. D'Orta's appreciation for the Governor's leadership in EMS and stated that Maryland's system is now back on track after a tumultuous year. Mr. DeVries said: "The Board's

objective, purely and simply, will be to maintain the emergency system's record of cooperative excellence and enhance it in the future." Mr. DeVries urged Board members to serve as advocates for the entire statewide system, not just the area of the system that they represent.

In other Board business, Chairman DeVries asked Board member Victor Broccolino, President of Howard County General Hospital, to head a search committee for the Executive Director of MIEMSS. A nationwide search will be initiated to identify an individual with medical and EMS management background to head the MIEMSS staff.

The EMS Board will also review the nominations submitted for its principal advisory body, the 27-member EMS Advisory Council.

### EMS Board Duties

- Does studies and analyses of EMS
- Reviews and approves the State's EMS budget
- Adopts regulations
- Applies for funds
- Publishes information related to EMS service delivery
- Appoints the Executive Director of MIEMSS
- Prepares and submits an annual report to the Governor and General Assembly that reports on patients transported to all trauma centers in the state
- Prepares and ensures compliance with the EMS plan
- Adopts regulations to implement the EMS plan

## Maryland EMS Board

Governor William Donald Schaefer has announced 10 of the 11 members on the EMS board. The following have been appointed to the board:

<u>CATEGORY</u>	<u>NAME</u>	<u>TERM</u>
EMS Board Chairman	Donald L. DeVries, Jr., Esq. Partner, Goodell, DeVries, Leech and Gray Attorneys at Law	1997
Secretary of Maryland Department of Health and Mental Hygiene or the Secretary's designee	Nelson J. Sabatini Secretary of Maryland Department of Health and Mental Hygiene	1995
A representative of UMAB, nominated by the Board of Regents	Donald E. Wilson, MD Dean and Professor of Medicine, University of Maryland School of Medicine	1996
A physician knowledgeable in the delivery of emergency medical services	Sheila Rhodes, MD, MPH, FACEP Attending Physician, Emergency Medical Services at Franklin Square and Carroll County General hospitals and Senior Physician at the Baltimore Gas and Electric Company	1997
A physician experienced in the clinical care of trauma patient services	Willie Blair, MD, FACS Associate Professor of Surgery, Prince George's Hospital Center	1996
A nurse experienced in the clinical care of trauma patients	Dennis Jones, RN, BSN Clinical Nurse Specialist, Department of Emergency Medicine, Franklin Square Hospital	1997
A career firefighter, EMT, or rescue squad person knowledgeable in the delivery of emergency medical services	John Frazier Staff Chief, Baltimore City Fire Department	1997
A volunteer firefighter, EMT, or rescue squad person knowledgeable in the delivery of emergency medical services	Philip Hurlock Director, Queen Anne's County Emergency Operations Center	1996
A hospital administrator knowledgeable in the management and delivery of emergency medical services	Victor Broccolino President and CEO, Howard County General Hospital, Inc.	1996
Public-at-large member (county population of less than 175,000)	Ellen Waters Community Representative Ocean City Medical Center	1995
Chairperson of the EMS Advisory Council	To be announced	1995

## Head Injuries: Epidemic of Youth

*Editor's Note: Part 1 below focuses on prehospital assessment and management. Part 2, to be published in a future issue, will examine the recovery phase, pathophysiology, and prevention of pediatric head injuries.*

Each year traumatic injuries to children are responsible for 8,000 deaths, 50,000 permanent disabilities, and 2 million temporary disabilities. Trauma is the leading killer of children. Head injuries in children are the most frequent cause of death and disability from trauma.

Children are more susceptible to head injury because of both their anatomical characteristics and developmental stages. A child's head is proportionally much larger than an adult's. The brain at birth is 15% of adult size, while a child's body at birth is 5% of adult size. Infants' and young children's skulls have more ability to expand and tolerate increases in intracranial pressure due to the open anterior fontanelle (which closes at about 18 months) and the as yet unfused suture lines. Infants have less muscle support for their heads and therefore are at great risk for injuries from poor head control and from "shaken baby syndrome." As a child begins to creep, crawl, and walk, he leads with his head and thus sustains many minor bruises and bumps to the head.

More serious injuries to the head and brain occur from the energy involved in a fall or blow from another object. External injuries to a child's head are often significant because of the highly vascularized scalp. Internal injuries to the brain include blunt contusions, intracerebral bleeding, and shearing injury to the base of the brain.

The growing child continues to be a high risk for head and brain injury. Falls and motor vehicle, bicycle, and motorbike accidents are the leading causes of head injury for children and adolescents. While children have fewer intracranial hematomas than adults, the incidence of contusions, fractures, and increased intracranial pressure are higher for them than for adults. (Johnson, 1988; Bruce, 1993).

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## EMS Week '93

Emergency medical personnel in Maryland were honored during EMS Week, May 23-29. Numerous events throughout the state centered around the theme of "Emergency Medical Services: We're Ready-Are You?" A sampling of these activities is noted below.

### Proclamation

Governor William Donald Schaefer, as well as various county officials, showing their dedication and appreciation of EMS personnel, signed proclamations officially declaring EMS Week.

### Special Activities

- Charles County Association of Emergency Medical Services sponsored a poster contest for children aged 4-11. Posters "answered" the question: "What would you do if you had a medical emergency?"

- Ocean City EMS sponsored 3-hour community CPR classes.

- Caroline County ALS held a dinner and awards ceremony at Federalsburg Volunteer Fire Department.

- Sharptown Volunteer Fire Department visited elementary schools.

- Montgomery County Department of Fire and Rescue Services, along with the Montgomery County Medical Society and the local business community, sponsored 3-hour community CPR classes on Lifesaver Day.

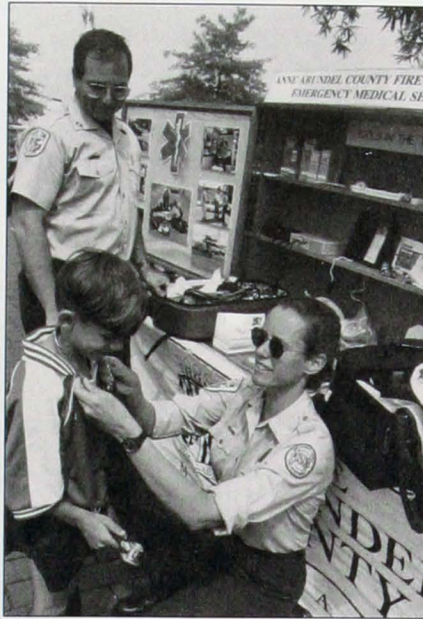
- The Prince George's County Fire Department sponsored an information program in elementary schools.

- Baltimore County Fire Department conducted ride-alongs.

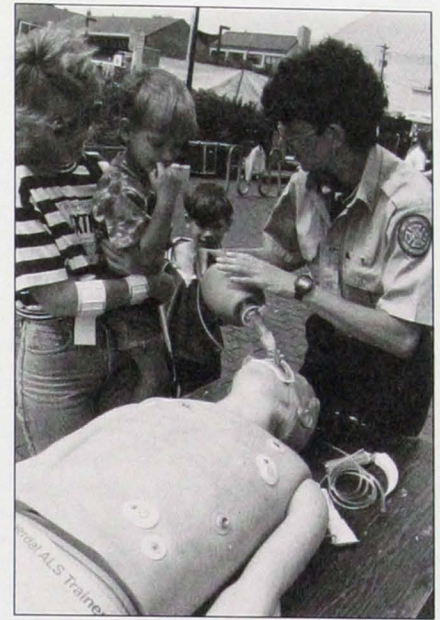
- The First Christian Church in Hagerstown hosted a special church service and reception in recognition of all emergency services (fire, EMS, police, and hospital) providers who work or reside in Washington County.

- Frostburg Area Ambulance Service did programs in pre-schools and elementary schools regarding the use of 9-1-1; sponsored a coloring contest for pre-school through third grades, a poster contest for grades 4-6, and an essay contest for junior- and senior-high-school students; and conducted programs with mascots Rescue Rabbit and Medic Mouse for children.

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EMT-Ps Donald Kelly and Sue Egan from Anne Arundel County Fire Department show "tools of the trade" to Lee Trohanis at EMS Day in Annapolis.



Lindy Burkhardt (EMT-A, ACLS certified) demonstrates advanced airway skills at the EMS Day in Annapolis.



Maryland State Police Trooper 3 is displayed at the Washington County Hospital EMS picnic.



Brunswick Volunteer Ambulance Co. demonstrate auto extrication skills to a group of spectators.

## EMS Week '93

(Continued from page 3)

- Tri-Towns Ambulance and Rescue Service sponsored a coloring and drawing contest for four elementary schools; they also conducted a trivia contest for adults.

- Southern Garrett County Rescue Squad sponsored a poster contest for elementary school students as well as essay contests for junior- and senior-high-school students.

### Exhibits, Demonstrations, Open Houses

- Dorchester EMS, Inc. sponsored EMS Awareness Days. In addition to displaying ambulances and equipment, prehospital providers conducted blood pressure screenings at various locations in Cambridge, including a retirement home and an agency for the developmentally disabled.

- Eldorado-Brookview Volunteer Fire Department held an Open House that included a CPR booth, blood pressure checks, and a car extrication demo.

- Queen Anne County held an EMS Day.

- EMS Day in Annapolis drew participants from Annapolis and surrounding areas. Included were demonstrations of search and rescue, trauma and cardiac resuscitations, and underwater rescue; displays of emergency vehicles; and exhibits on rescue activities and trauma prevention.

- Havre de Grace Ambulance Corps sponsored an Open House. Included were equipment displays; medic unit tours; demonstrations of cardiac resuscitations, auto extrication, and drug detection by K-9 dogs; blood pressure screenings; visits by Vince and Larry, the seatbelt dummies; and a visit by Buddy, the Harford County 9-1-1 dinosaur who explained when and how to use 9-1-1.

- Baltimore City Fire Department conducted blood pressure screenings and displayed ambulances and equipment at various shopping areas.

- Brunswick Volunteer Ambulance Company held an Open House that included blood pressure screenings as well as vehicle, equipment, and auto extrication demonstrations.

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Many EMS providers were represented when Governor William Donald Schaefer signed a proclamation officially declaring EMS Week in Maryland. Shown (l-r) are Phil Rooke (dispatcher, Garrett County Central Alarm), Sgt. Douglas A. Dods (Maryland State Police Aviation Division), Lt. Lloyd Carter (career EMT-P, Baltimore City Fire Department), Susie Nicol (volunteer EMT-A, Frederick County), Dottie Dyott, RN (emergency department nurse, Easton Memorial Hospital), Dr. Ellen Smith (emergency department physician, Suburban Hospital), Dr. Richard Alcorta (acting state EMS director), John Ashworth III (then interim director of MIEMSS; now director of the R Adams Cowley Shock Trauma Center), and Governor William Donald Schaefer.



The Dive Rescue Unit from Anne Arundel County Fire Dept. at EMS Day in Annapolis.



Washington County Hospital's trauma prevention display at Valley Mall.



Youngsters line up for the bike safety rodeo held during the open house held by Emmitsburg Ambulance Co.



Passers-by stop at the many EMS displays at Valley Mall in Washington County.



EMS, fire, police, and EMS hospital staff attend the picnic sponsored by the Washington County Hospital/Medical Staff.

## EMS Week '93

(Continued from page 4)

- Emmitsburg Ambulance Company sponsored an Open House that focused on a bike safety rodeo, a mass casualty drill, equipment displays, and visits by the seatbelt dummies Vince and Larry.
- Rocky Ridge Volunteer Fire Company held an Open House, conducted blood pressure screenings, and demonstrated EMS equipment.
- Valley Mall in Washington County was the site of many EMS displays.
  - City of Cumberland Fire Department held an Open House and also displayed EMS equipment and conducted blood pressure screenings at the Downtown Mall.
  - Frostburg Area Ambulance Service held an Open House and did blood pressure screenings.
- **Hospital Activities**
  - Carroll County General Hospital sponsored an "appreciation dinner," in recognition of the services provided by EMS personnel.
  - Carroll County General Hospital sponsored an EMS Day in which the Carroll County Volunteer Ambulance Association participated.
  - Frederick Memorial Hospital sponsored a picnic and baseball game for the county's EMS providers and their families.
  - Washington County Hospital/Medical Staff held a picnic for the county's EMS, fire, police, and EMS hospital staff. The Washington County EMS Committee also presented special awards.
  - Sacred Heart Hospital in Cumberland sponsored a dinner for all EMS providers. A continuing education program for prehospital care providers was also presented.
  - Frostburg Hospital, Inc. had an EMS display for the public; cosponsored a public awareness program with the Frostburg Area Ambulance Service; and conducted a continuing education program for EMS providers.
  - Memorial Hospital and Medical Center of Cumberland, Inc., held an Open House.

## EMS Week '93



Participants in the EMS Skills Competition at EMS Day in Queen Anne's County.



Attending the open house held by Rocky Ridge Volunteer Fire Co., a young girl checks out the EMS coloring book.



A rescue boat is displayed during the EMS Day held in Queen Anne's County.

## Atlantic General Hospital Dedicated



Atlantic General Hospital (AGH) in Berlin (Worcester County) was dedicated on May 16. Shown here (l-r) at the dedication ceremony are AGH President William Donatelli, Chairman of AGH Board Jim Almand, and State Comptroller Louis Goldstein.

## Head Injuries: Epidemic of Youth

(Continued from page 2)

### Regionalized Pediatric Trauma Care

Advances in the knowledge of traumatic injury patterns and the child's physiologic response to multiple injuries have dramatically improved the care injured children receive across the country. Maryland has long had a model system of regionalized delivery of care to injury victims, both adults and children. Critically injured children are transported by prehospital care providers to pediatric trauma specialty centers for rapid, definitive, and potentially life-saving care.

Unfortunately this high level of care is not universal throughout the country.

The key factor in decreasing morbidity and mortality is that the right child is treated by the right team of professionals, at the right center with the right resources and commitment, in the critical timeframe of the "Golden Hour" for trauma care. That time frame can change to the "Platinum Half Hour" of care when children are the victims, due to the vulnerability of their airway and the potential insult from hypoxia.

The definition of childhood and "a child" can be confusing. For the purposes of triage and appropriate transport and transfer of injured young victims, any seriously injured person who is 14 years of age or under is a pediatric patient ("child") and should be transported to the pediatric trauma center designated for that region. Both the Pediatric Trauma Centers at the Johns Hopkins Children's Center and at Children's National Medical Center have the trauma and neurosurgical teams necessary to meet the pediatric and neurosurgical components involved. Children with head injuries are taken preferentially to Hopkins from most of the state. Children from the metro Washington area and inside the Washington beltway go to Children's National Medical Center.

### Head Injuries in Children

Regardless of mechanism or specific type of injury, the meticulous and repeated neurological assessment of the child is very important. As with all injuries, the first component of

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# Prehospital Management of Pediatric Head Injury

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assessment is the Primary Survey : Airway (and C spine), Breathing, Circulation, Disability, and Exposure. Initial management of these priorities will ensure that the brain receives a constant and adequate supply of well oxygenated blood, essential for brain cells and life itself. A "quick neurological check" can be completed during the first minutes of care.

The Glasgow Coma Scale (Jennett and Teasdale, 1974) has become the national standard for both initial and ongoing assessment of level of consciousness after a head injury. The Glasgow Coma Scale can easily be applied to children of all ages by professionals who recognize the normal behaviors for specific ages.

During the Secondary Survey, the neurologic assessment also includes evaluation of pupil size, symmetry, and response to light; cranial nerve function, motor strength, reflexes and symmetry in all extremities; and sensory components of visual acuity, auditory function, proprioception, and balance.

The classification of head injury into mild, moderate, and severe relates to level of consciousness at the time of the injury and immediately afterwards, the type of brain injury sustained, and the long-term prognosis for recovery and return to home, school, and community (Johnson, 1988).

## Mild Head Injury

A mild head injury has an initial GCS of 13-15 and includes: concussions with or without posttraumatic seizures, linear skull fractures without disruption of cranium. Concussion occurs when the brain receives a brief blow or jar from an external source which results in a mild degree of movement. There may or may not be a brief period of loss of consciousness associated. Once a child is at a Pediatric Trauma Center, there is no visible injury to the brain that can be seen with CT scan or MRI. After a concussion, children (like adults) have some loss of memory surrounding the injury (posttraumatic amnesia) and mild headaches, confusion, and nausea. Typically these symptoms decrease in frequency within a day or two and disappear within two weeks.

Scalp lacerations and hematomas

Glasgow Coma Scale for Pediatrics					
		> 1 Year	< 1 Year		
Eyes	4	Spontaneously	Spontaneously		
Opening	3	To verbal command	To speech or sound		
	2	To pain	To painful stimuli		
	1	No response	No response		
Best	6	Obeys command	Spontaneous movement		
Motor	5	Localized pain	Withdraws to touch		
Response	4	Flexion withdrawal	Withdraws to pain		
	3	Flexion abnormal	Flexion abnormal		
	2	Extension	Extension abnormal		
	1	No response	No response		
		> 5 Years	2-5 Years	0-23 months	
Best	5	Oriented & converses	Appropriate words	Smiles, coos, cries appropriately	
Verbal	Response	4	Disoriented & converses	Inappropriate words	Consolable cries
		3	Inappropriate words	Persistent cries to pain/screams	Persistent inappropriate cry
	2	Incomprehensible sounds	Grunts/moans	Grunts/agitated	
	1	No response	No response	No response	

Sequential monitoring of the GCS is essential to guide the management of a child with serious head injury.

are often associated with mild head injuries. Blunt injury to the head may result in a subgaleal hematoma occurring in the scalp which will swell for a few days and then slowly reabsorb. Linear fractures are seen frequently in children without associated brain injury. Typically the fracture heals within 3 months in infants and 6 months in older children. Depressed fractures in children are most commonly seen in the parietal and frontal regions from a direct blow causing the bone to fracture inward and not return. Neurosurgical intervention may be needed and these children must be transported to a regional Pediatric Trauma Center for evaluation and specialized care.

Basilar skull fractures occur after a direct forceful blow to the head or a high speed impact with a solid surface (ground, car, wall). Classic signs of basilar skull fractures include:

- Blood in the external auditory canal or behind the tympanic membrane
- CSF draining from ear or nose
- Bruise on mastoid bone behind ear (battle sign)
- Periorbital discoloration (raccoon eyes)

Initial management of basilar skull fractures includes prevention of further injury, identification of underlying intracranial lesion, and prevention of infection. Only one physician should examine the child's ears and nose once the child has been stabilized in the resuscitation area at a Pediatric Trauma Center.

Children exhibit more posttraumatic seizures than adults. Typically the seizure is a one-time occurrence within an hour of the injury, self-limiting, and free from deficits or sequelae. No specific pharmacological treatment is needed after the initial resuscitation as long as the child remains free from seizure. Airway maintenance is the key factor in preventing secondary injury to the brain after all seizures and head injuries.

## Moderate Head Injury

A child with a moderate head injury presents with a GCS of 9-12 and may have: open skull fractures, depressed skull fractures, and/or brain contusions. Contusions result from more force or energy applied to the brain and cause bruising which can usually be seen on a CT scan. Contusions are associated

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**DATED MATERIAL**

# Prehospital Management of Pediatric Head Injury

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with specific deficits related to the area of the brain affected that may vary in duration. Motor deficits include hemiparesis, oral motor coordination, and balance. Cognitive deficits include memory, attention span, language processing, problem solving, and impulse control.

## Severe Head Injury

A child with severe head injuries has a GCS of 8 or less and may have: epidural and subdural hematomas, intracranial hematomas, brain laceration, and/or herniation. Epidural hematomas most frequently occur in the temporal region of the brain. Subdural hematomas occur more frequently than epidural hematomas in children; they result from shearing of veins or damage to cortical surface arteries and may occur with brain contusions or lacerations. Intracerebral hematomas in children most frequently occur in the temporal lobe from a direct blow to the area or from shearing forces during a high energy injury.

The emergent and immediate care for all children with head injuries starts with assessment and stabilization and the ABCs of the primary survey. The

establishment of a secure airway is especially important for a child with a severe injury because his neurological status may change quickly. Oxygenated blood in adequate volumes must reach the injured brain to prevent further injury and long-term disability or death. The primary injury to the brain occurs at the time of impact, but the secondary injury can occur if appropriate care is not initiated to minimize edema and hypoxia and ensure adequate circulation. Once the respiratory and cardiovascular status are stabilized, the neurological assessment and intervention proceeds as the child is transported to a Pediatric Trauma Center.

In the case of severe head injuries, surgical intervention is needed rapidly to establish a monitoring device for measuring intracranial pressure (ICP) and to treat the specific lesion and/or fracture. Rapid recognition, assessment, stabilization, triage, and transport are essential.

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