

**REPORT OF THE  
VIRGINIA DEPARTMENT OF HEALTH ON**

**The Need For And  
Feasibility Of Implementing  
A Training Program On  
Traumatic Brain Injury  
For Emergency Medical  
Personnel, Educators, and  
Mental Health Counselors**

**TO THE GOVERNOR AND  
THE GENERAL ASSEMBLY OF VIRGINIA**



**HOUSE DOCUMENT NO. 59**

**COMMONWEALTH OF VIRGINIA  
RICHMOND  
1990**

REPORT ON THE NEED FOR AND FEASIBILITY OF  
IMPLEMENTING A TRAINING PROGRAM ON  
TRAUMATIC BRAIN INJURY  
FOR  
EMERGENCY MEDICAL PERSONNEL, EDUCATORS,  
AND MENTAL HEALTH COUNSELORS  
(HJR 393)

The 1989 Report of the Joint Subcommittee Studying the Needs of Head and Spinal Cord Injured Citizens and the Need for Research Pursuant to House Joint Resolution 135 (House Document No. 72) called for further study in several areas. One specific recommendation of the Report called for a study of the need for and feasibility of implementing a training program on traumatic brain injury for emergency medical personnel, educators, and mental health counselors (HJR 393).

The training needs of these three disciplines vary significantly due to the time frame and circumstances of their interaction with the head injured person and the different roles they perform or services they provide for the person. Due to these differences, the training needs of emergency medical personnel will be addressed separately from the needs of educators and mental health counselors.

#### TRAINING OF EMERGENCY MEDICAL PERSONNEL

Training attended by basic and advanced life support providers across the state of Virginia is standardized through the use of national standard training curricula published by the U.S. Department of Transportation (DOT). Attached is a copy of the specific Lesson Plan utilized by state certified instructors in teaching the recognition and treatment of the head and neck injured patient.

Recognition of the head and neck injured patient begins with a high degree of suspicion based on the mechanism of injury. From this criteria alone, the patient is often treated for such an injury even if no other indication of head or neck injury exists. The Emergency Medical Technician (EMT) is also taught what changes to note in vital signs and physical assessment (i.e. pain, tenderness, painful movement, deformity, weakness or paralysis) that might indicate the existence of an injury to the head or neck. The hallmark sign that all EMT's are specifically instructed to note is any change in level of consciousness. Although not taught the terminology, the EMT is trained to recognize Cushing's reflex. The parameters for determining a Glasgow Coma Score are also taught.

Although no specific statewide treatment protocol has been developed, the U.S. DOT Lesson Plan is designed so that all

suspected injuries to the head and/or neck are treated in the following manner: Establishment of an airway with manual cervical spine control; correcting further life threatening conditions; and a central nervous system assessment determining present level of brain function prior to completing the primary survey. Following an appropriate secondary survey, the suspected head and/or spinal injured patient is treated with a rigid cervical collar, short spinal immobilization device if appropriate, and all are secured to a long spinal immobilization device for transport. Sequential assessments are performed during transportation to detect changes in the patient's condition. Further care involves maintaining adequate ventilations and supplemental oxygen therapy. Transportation to the closest most appropriate facility is encouraged.

The Division of Emergency Medical Services (EMS) of the Virginia Department of Health would not recommend that additional training be required of the prehospital emergency medical provider in this area. The initial training of the Emergency Medical Technician in Virginia thoroughly addresses care of the head injured patient, as do periodic refresher training courses. Through the various committees that advise the Division of EMS on training curricula, this specialty training will continue to be emphasized.

In December, 1988, a report entitled "Emergency Medical Management of Spinal Cord Injuries in the Field" was issued by the Woodrow Wilson Rehabilitation Center of the Virginia Spinal Cord Injury System. This document provides an excellent summary of the field management of this type of patient and should be distributed to all EMT Instructors and EMS agencies across the state to add to information already available in the lesson plans.

Other special training opportunities can be made available through seminars, workshops, and other continuing education offerings. The Annual State Emergency Medical Services Symposium is one of many possible settings for such workshops. The Division of EMS is also currently planning to use statewide satellite networking for continuing education, and traumatic brain injury will be one of many topics addressed in these sessions. Proper recognition and treatment of head and spinal cord injuries is a critical aspect of quality emergency medical care and it will continue to be given careful attention in EMS training and continuing education programs. Pilot testing of new modalities of treatment for traumatic brain injury will be encouraged when such programs are developed and operated under strict medical control.

#### TRAINING OF EDUCATORS AND MENTAL HEALTH COUNSELORS

As initially reported in 1985 in the Report to Secretary Fisher on Head Injury in Virginia, "Approximately fifty percent of the

head injured in Virginia who require services are school age. An unspoken requirement placed upon public education is to reintroduce the young person to academic and peer social life.

However, many times these children are placed in classes and programs for the learning disabled and/or the emotionally disturbed due to the cognitive deficits and emotional-behavioral impairments that result from the injury. However, the head injured child differs in the nature of his learning difficulties from the typical learning disabled child. Head injured children require instructional personnel who have been sensitized to the peculiar nature of their disability and educational programs that accommodate their learning difficulties."

In November, 1988, the Virginia Department of Education, The Virginia Head Injury Foundation, The Department of Rehabilitative Services, and the Traumatic Brain Injury Rehabilitation, Research and Training Center of Virginia Commonwealth University, Medical College of Virginia sponsored a two day conference for educators and families. The Conference was entitled "Meeting the Challenge: The Brain Injured Child in the Public School". A copy of the program for this conference is attached. The office of Special Education Programs, within the Department of Education, serves in a coordinating role for these efforts.

As reported in House Document No. 72 (1989 General Assembly), "In recent years, the Virginia Head Injury Foundation has provided in-service training for teachers, administrators and pupil services personnel on identification of the needs of head injured children and the provision of integrated educational, health, social, and support services for such children. Through its in-service training programs and services, the Foundation has improved the quality of life for some such children and their families." The Virginia Head Injury Foundation is encouraged to continue to serve the head injured children of the Commonwealth by assisting in the preparation of their instructors.

There have been some other good efforts aimed at preparing educators to work effectively with traumatic brain injured children, but there is, to date, no systematic approach to this training on an ongoing basis. A more formal, systematic effort is recommended to assure that educators are sensitized to the particular learning needs of these young people. The general format and content of the November, 1988 Conference provides a good framework for such an effort. In addition, some of the materials and programs being developed for mental health counselors also lend themselves to incorporation in the programs for educators.

As with special programs for educators, efforts to date aimed at educating mental health professionals serving people with traumatic brain injury are excellent, but are fragmented and insufficient to meet the need. The best and most comprehensive efforts to meet the training needs of Department of Mental Health, Mental Retardation, and Substance Abuse Services

(DMH/MR/SAS) professionals who serve people with traumatic brain injury and their families are being conducted through the Traumatic Brain Injury (TBI) Psychiatric & Behavioral Resource Center of the Department of Psychiatry of the Medical College of Virginia. These training activities have been closely coordinated with DMH/MR/SAS and are funded through the State Department of Developmental Disabilities. The program provides training and technical assistance to enhance diagnostic and therapeutic efforts of DMH/MR/SAS personnel who treat developmentally disabled persons with traumatic brain injury.

During the period of July, 1987 and July, 1989, six one-day workshops were conducted and a number of training products were developed, including an annotated bibliography, a resource package, a videotape titled "Traumatic Brain Injury: Effective Diagnosis and Treatment", a TBI training needs assessment, and a TBI regional resource contact list. Consultation was also available after training. A second training grant was funded by the State Department of Developmental Disabilities to expand the activities of the first two year grant. More detailed description of the past and future activities under this program are attached.

The TBI Grant Coordinator has indicated that, through both workshop evaluations and direct communication with participants, it is evident that this kind of program is very much in need and existing efforts have barely scratched the surface in meeting the training needs of DMH/MR/SAS professionals who are serving people with traumatic brain injury. It is strongly recommended that the MCV Department of Psychiatry's TBI Psychiatric and Behavioral Resource Center, the Department of Developmental Disabilities and DMH/MR/SAS continue and perhaps even expand existing efforts to meet these particular educational needs.

#### CONCLUSIONS AND RECOMMENDATIONS

There is no doubt that persons suffering from traumatic brain injury have special and unique needs that can best be met if the effected service providers, whether they be emergency medical personnel, educators, or mental health professionals, have had special education and training to prepare them for that role.

There is a clear commitment on the part of all of the state agencies involved in this study to improve the quality and availability of training on traumatic brain injury for the various disciplines studied. While additional training should not be required, quality training and continuing education should be widely available and personnel should be encouraged to take advantage of such offerings. The following recommendations are made to enhance and improve existing programs and efforts in this area:

1. It is recommended that the document entitled "Emergency Medical Management of Spinal Cord Injuries in the Field", issued in December, 1988, by the Woodrow Wilson Rehabilitation Center of the Virginia Spinal Cord Injury System, be reproduced and distributed to all Emergency Medical Technician Instructors and all Emergency Medical Services Agencies in the Commonwealth.
2. It is recommended that the Department of Education provide in-service training on traumatic brain injury and the educational needs of traumatically brain injured students for classroom teachers and pupil personnel staffs.
3. It is further recommended that the Department of Education, in cooperation with other appropriate state agencies, annually or biannually, sponsor a special conference on traumatic brain injury for educators and families.
4. It is recommended that the Virginia Head Injury Foundation be encouraged to continue assisting the Department of Education with in-service education programs on traumatic brain injury for educators.
5. It is recommended that the Department of Mental Health, Mental Retardation and Substance Abuse Services work closely with the Medical College of Virginia, Department of Psychiatry's Traumatic Brain Injury Psychiatric and Behavioral Resource Center and the Department of Developmental Disabilities to continue and expand educational opportunities and technical assistance for mental health professionals. It is further recommended that a systematic plan be developed to assure availability of needed training for mental health personnel who work with persons with traumatic brain injury.

## APPENDICES

House Joint Resolution No. 393

Lesson 14, Lesson Plans, Emergency Medical Technician Curriculum,  
U.S. Department of Transportation

Conference Program, "Meeting the Challenge: The Brain Injured  
Child in the Public School", November, 1988

Abstract of Training & Technical Assistance Program of the  
Medical College of Virginia Department of Psychiatry, Traumatic  
Brain Injury Psychiatric & Behavioral Resource Center, July,  
1987-July, 1989 and July, 1989-July, 1990.

# GENERAL ASSEMBLY OF VIRGINIA -- 1989 SESSION

## HOUSE JOINT RESOLUTION NO. 393

*Requesting the Department of Health under the direction of the Secretary of Health and Human Resources to study the need for and feasibility of implementing a training program on traumatic brain injury for emergency medical personnel, educators, and mental health counselors.*

Agreed to by the House of Delegates, February 6, 1989

Agreed to by the Senate, February 23, 1989

WHEREAS, appropriate emergency treatment before a head injury patient reaches the hospital is critical to the prevention of further damage to brain tissues; and

WHEREAS, it is essential that emergency medical personnel are adequately trained to identify and provide the initial medical care that is vital to saving the lives of such individuals; and

WHEREAS, approximately fifty percent of the head-injured in Virginia who require services are school age and these children need to be reintroduced to academic and peer social life; and

WHEREAS, many times such children are placed in classes and programs for the learning disabled and/or the emotionally disturbed due to cognitive deficiencies and emotional-behavioral impairments which result from the injury, yet the head injured child differs in the nature of his learning difficulties from the typical learning disabled child; and

WHEREAS, children with traumatic brain injuries require instructional personnel who have been sensitized to the peculiar nature of their disability and educational programs which accommodate their learning difficulties; and

WHEREAS, families of brain-injured persons need help in learning to cope with the fact that their head-injured relatives are different people now with unique needs and desires; and

WHEREAS, it is important that all service providers involved with head-injured people, including emergency medical personnel who have the initial contact with such people, educators who reintroduce brain-injured children to academics, and mental health counselors who help families cope, have the appropriate training to deal with each of these situations; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department of Health under the direction of the Secretary of Health and Human Resources is hereby requested to study the need for and feasibility of implementing a training program on traumatic brain injury for emergency medical personnel, educators, and mental health counselors.

The Secretary shall report findings and recommendations by December 1, 1989, to the Joint Subcommittee Studying the Needs of Head and Spinal Cord Injured Citizens and the Need for Research.



LESSON PLANS

EMERGENCY MEDICAL TECHNICIAN

LESSON 14

U.S. DEPARTMENT OF TRANSPORTATION

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## Lesson 14

# Injuries of the Head, Face, Eye, Neck and Spine

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### Objectives

At the conclusion of Lesson 14, the instructor will have provided sufficient information, demonstration, and practice to the student, to ensure his/her ability to:

- Describe how brain is protected from injury.
- List functions of central nervous system.
- List functions of peripheral nervous system.
- List functions of autonomic nervous system.
- State function of cerebrospinal fluid.
- List four types of brain injury and how they occur.
- List three types of intracranial hematoma and how they occur.
- List five signs/symptoms of possible brain injury.
- List three signs/symptoms of possible skull fracture.
- Describe treatment for blood and/or cerebrospinal fluid loss of nose/ears.
- List steps in emergency care for patient with suspected skull fracture.  
Describe treatment for suspected brain injury.
- List steps in emergency care for soft tissue neck/facial injury.
- List six signs/symptoms of suspected neck/spine injury.
- Demonstrate how to open airway in patient with suspected neck injury.
- Demonstrate how to evaluate conscious patient with suspected spinal injury.
- Demonstrate how to evaluate unconscious patient with suspected spinal injury.
- List three situations when a spinal injury should be suspected.
- Demonstrate proper cervical traction.
- Demonstrate proper application of three (one improvised) cervical immobilization devices.
- Demonstrate proper short spine board immobilization technique.
- List steps in proper spinal cord injury management.
- Demonstrate 4-person lift for patient with suspected spinal injury.
- Demonstrate 4-person log roll for patient with suspected spinal injury.
- Demonstrate proper application of long spine board.
- Demonstrate how to "package" a patient with a suspected spinal injury to ensure no movement with board turned/tipped.
- Demonstrate proper helmet removal techniques.
- List three instances when a short spine board should be used.
- List seven anatomical structures of the eye and describe the function of each.
- List the possible normal/abnormal pupil reactions/size.
- Describe the treatment for chemical burns of the eye.
- Describe the treatment for thermal burns of the eye (lid).
- Describe the treatment for light burns of the eye.
- Demonstrate the proper bandaging technique for an eye with an impaled object.
- Describe treatment for a lacerated eyelid or eyeball.
- Describe treatment for a lacerated eyeball.
- Describe special considerations for patients with contact lenses.

### Requirements

#### Material:

- Brochure: How and When to Remove a Safety Helmet from a Patient With Head Injuries (one for each student) AAOS or similar.

**Equipment:** (one of each)

- Oval eye pad
- Cotton tipped application
- Paper cup
- Contact removal kit
- 4 x 4 gauze pad
- Triangular bandage
- 3" Kling
- Cervical collar (small, medium, large)
- Blanket
- Sandbags
- Short Backboards/straps
- Long Backboards/straps
- Towels (full size)
- Safety Helmet
- 35mm projector
- Movie screen
- Chalkboard

**Illustrations:**

- Chart listing the normal/abnormal pupil reaction/size
- Chart listing special considerations for patients/contact lenses.
- Chart listing functions of CNS.
- Chart listing functions of peripheral and autonomic nervous system.
- Chart listing steps in emergency care for patient/suspected skull fracture.

**Visual Aids:**

- 35mm slides AAOS or similar.

**Instructor:**

- One for lecture knowledgeable in all areas of subject matter for this lesson.

**Instructor  
Preparation/Tasks**

**The Instructor Should:**

- Review the lesson outline to assure understanding of contents and procedures.
- Review and preview all references and visual aids selected for the lesson by the course administrator.
- Select and prepare appropriate instructional aids in addition to those provided by the course administrator; if desired.
- Be familiar with all visual aids and other equipment to be demonstrated during the lesson.
- Provide the student with a clear understanding of types of injuries and proper treatment techniques for those injuries; in the area of the head, face, eye, neck and spine.

Time (Elapsed) Actual	Contents
<b>Administrative Matters</b> (—) 0:05	1. Student attendance. 2. Announcements, etc.
<b>Introduction</b> (0:05) 0:05	1. <b>Lesson Coverage</b> <ol style="list-style-type: none"> <li>a. Design and functions of the eye and nervous system.</li> <li>b. Signs, seriousness and techniques of care for patients with injuries to the head and spine.</li> </ol> 2. <b>Need For Lesson</b> <ol style="list-style-type: none"> <li>a. Head injuries can result in brain damage, spine injuries in paralysis, and face and neck injuries in severe airway difficulties.</li> <li>b. It is especially important that the rescuer be knowledgeable about the signs, seriousness and management of these patients.</li> </ol> 3. <b>Lesson Objectives</b> <ol style="list-style-type: none"> <li>a. Describe how brain is protected from injury.</li> <li>b. List functions of central nervous system.</li> <li>c. List functions of peripheral nervous system.</li> <li>d. List functions of autonomic nervous system.</li> <li>e. State function of cerebrospinal fluid.</li> <li>f. List four types of brain injury and how they occur.</li> <li>g. List three types of intracranial hemotoma and how they occur.</li> <li>h. List five signs/symptoms of possible brain injury.</li> <li>i. List three signs/symptoms of possible skull fracture.</li> <li>j. Describe treatment for blood and/or cerebrospinal fluid loss of nose/ears.</li> <li>k. List steps in emergency care for patient with suspected skull fracture.</li> <li>l. Describe treatment for suspected brain injury.</li> <li>m. List five examples of problems resulting from facial or neck injury.</li> <li>n. List steps in emergency care for soft tissue neck/facial injury.</li> <li>o. List six signs/symptoms of suspected neck/spine injury.</li> <li>p. Demonstrate how to open airway in patient with suspected neck injury.</li> <li>q. Demonstrate how to evaluate conscious patient with suspected spinal injury.</li> <li>r. Demonstrate how to evaluate unconscious patient with suspected spinal injury.</li> <li>s. List three situations when a spinal injury should be suspected.</li> <li>t. Demonstrate proper cervical traction.</li> <li>u. Demonstrate proper application of three (one improvised) cervical immobilization devices.</li> <li>v. Demonstrate proper short spine board immobilization technique.</li> <li>w. List steps in proper spinal cord injury management.</li> <li>x. Demonstrate 4-person lift for patient with suspected spinal injury.</li> <li>y. Demonstrate 4-person log roll for patient with suspected spinal injury.</li> <li>z. Demonstrate proper application of long spine board.</li> <li>aa. Demonstrate how to "package" a patient with a suspected spinal injury to ensure no movement with board turned/tipped.</li> <li>bb. Demonstrate proper helmet removal techniques.</li> <li>cc. List three instances when a short spine board should be used.</li> <li>dd. List seven anatomical structures of the eye and describe the function of each.</li> <li>ee. List the possible normal/abnormal pupil reactions/size.</li> <li>ff. Describe the treatment for chemical burns of the eye.</li> <li>gg. Describe the treatment for thermal burns of the eye (lid).</li> </ol>

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**Time  
(Elapsed)  
Actual**

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**Contents**

**The Nervous System  
(0:10) 0:10**

- hh. Describe the treatment for light burns of the eye.
  - ii. Demonstrate the proper bandaging technique for an eye with an impaled object.
  - jj. Describe treatment for a lacerated eyelid or eyeball.
  - kk. Describe special considerations for patients with contact lenses.
1. **Components.** The nervous system consists of the brain, spinal cord, and nerves.
  2. **Brain**
    - a. It is the controlling organ of the body and the center of consciousness.
    - b. It occupies the entire space within the cranium.
    - c. Each type of brain cell has a specific function and certain parts of the brain perform certain functions.
  3. **Spinal Cord**
    - a. The spinal cord consists of long tracts of nerves that join the brain with all body organs and parts.
    - b. It is protected by the spinal column.
  4. **Nerves**
    - a. Sensory nerves send information to the brain on what the different parts of the body are doing relative to their surroundings.
    - b. Motor nerves emanate from the brain and result in stimulation of a muscle or organ.
  5. **Actions**
    - a. Automatic
    - b. Reflex
    - c. Conscious
    - d. Voluntary control of muscles
    - e. Involuntary control of muscles

**Injuries To The Spine  
(0:20) 0:30**

1. **Dangers**
  - a. It is especially important to provide proper care for patients with suspected spinal injuries since damage to the spinal cord can result in paralysis.
  - b. Therefore, all unconscious accident patients should be treated as if they had spinal injuries and all conscious patients should be carefully checked for spine injuries prior to movement.
  - c. Accident patients with weakness or numbness of arms or legs must be assumed to have spine injuries.
2. **Signs.** The following signs may be indicative of spinal cord injury:
  - a. **Pain.** The patient may be aware of pain in the area of injury.
  - b. **Tenderness.** Gently touching the suspected area may result in increased pain.
  - c. **Painful Movement.** If the patient tries to move, the pain may increase—never try to move the injured area for the patient.
  - d. **Deformity.** Deformity is rare although there may be an abnormal bend or bony prominence.
  - e. **Cuts and Bruises.** Patients with neck fractures will have cuts and bruises on the head or face. Patients with injuries in other spine area will have bruises on the shoulders, back or abdomen.
  - f. **Paralysis.** If the patient is unable to move or feels no sensation in some part of his body, he may have a spinal fracture.
3. **Steps for Checking Signs and Symptoms**

**a. Conscious Patients**

- 1) **Ask**—what happened, where does it hurt, can you move your hands or feet, can you feel me touching your hands (feet)?
- 2) **Look**—for bruises, cuts, deformities.
- 3) **Feel**—for areas of tenderness, deformities.
- 4) **Have Patient Move**—if he can do so comfortably.

**b. Unconscious Patients**

- 1) **Look**—for cuts, bruises, deformities.
- 2) **Feel**—for deformities.
- 3) **Ask Others**—what happened?

**4. Complications**

- a. Persons with neck injuries may have paralyzed chest muscles. Breathing can then be accomplished only by the diaphragm. Inadequate breathing and shock may result.
- b. Paralysis of the nerves affecting the size of blood vessels may occur and shock may result.

**5. Emergency Care**

- a. In addition to caring for life-threatening problems, the most important consideration for a victim with a suspected spine injury is to immobilize him BEFORE moving.
- b. Unless it is necessary to change a patient's position to maintain an open airway or there is some other compelling reason, it is best to splint the neck or back in the original position of the deformity.
- c. Patients with suspected spine injuries will require cervical collars and immobilization on a spine board or special stretcher. Demonstration and practice will be provided in this and in subsequent lessons.
- d. A helmet should be removed unless there is difficulty in removing it, or increased pain. In such instances, the patient should be immobilized on the spine board with the helmet in place.

**Ten-Minute Break  
(0:50) 0:10**

**Injuries to the Skull and  
Brain  
(1:00) 0:30**

1. **Skull Fractures.** Fractures of the skull are common in accident victims. Their seriousness depends on the amount of injury to the brain. Serious brain injury is much more common when there is not skull fracture.

a. **Types.** Skull fractures may be open or closed. They may also be:

- 1) **Linear**—line fracture or crack in the skull. Most skull fractures are of this type.
- 2) **Comminuted**—multiple cracks radiate from the center of impact.
- 3) **Depressed**—pieces of bone are pushed inward pressing on and sometimes causing tearing of brain tissue.
- 4) **Penetrated Skull**—objects such as bullets or knives may penetrate the skull and lodge in the brain—remember, do not remove foreign objects.
- 5) **Basal**—fractures of the base of the skull.

b. **Cerebrospinal Fluid**

- 1) The brain and spinal cord are protected by layers of tissue filled with a liquid called cerebrospinal fluid.
- 2) This fluid provides nutrition to some of the brain cells and serves as a shock absorber.

- 3) Cerebrospinal fluid and blood may drain from the nose or ears when a person has a skull fracture.
  - 4) Rule of care—do NOT attempt to stop bleeding from the nose or ears when a skull fracture is suspected. Doing so may cause increased pressure on the brain or an infection around the brain.
  - c. **Signs.** Signs of a skull fracture include:
    - 1) Deformity of the skull.
    - 2) Blood or clear fluid (cerebrospinal fluid) draining from ears or nose.
    - 3) Black eyes.
- 2. Injuries to the Brain**
- a. **Concussion**—a temporary loss of function for some or all of the brain.
    - 1) Patient may be confused or staggering or become totally unconscious and unable to breathe for a short period of time.
    - 2) Patient has some loss of memory for events surrounding the accident.
  - b. **Contusion**—bleeding and abnormal swelling of brain tissue.
    - 1) Patient may lose consciousness.
    - 2) Paralysis may be present on one side of body or of all four limbs.
    - 3) One pupil may dilate.
    - 4) Vital signs may progressively deteriorate.
  - c. **Cerebral Hematoma**—blood clots causing pressure on brain tissues. Signs are the same as those for contusions.
- 3. Emergency Care.** Care for patients with suspected head injuries require management of the injury as well as repeated evaluation over time. Procedures are:
- a. Correct life-threatening problems—maintain respiration and circulation.
  - b. Suspect a cervical or other spine injury in vehicular accidents and falls.
  - c. Control bleeding—not drainage.
  - d. Dress and bandage open wounds—minimize pressure.
  - e. Position according to associated injuries:
    - 1) Head elevation if possible (no pillows)—be prepared for vomiting.
    - 2) On the side with head down if there is bleeding or mucous so that it can drain.
  - f. Protect patient from hurting himself if he convulses.

**Monitoring the  
Unconscious Patient  
(1:30) 0:10**

1. **Special Management and Evaluation.** Unconscious patients need special management and constant evaluation from contact to delivery at the medical facility.
2. **Airway Support.** First and foremost is airway support. The semi-prone position should improve breathing.
3. **Bleeding Control.** The scalp may be compressed against the skull with the hand if there is no skull fracture. A pressure dressing and roller bandage should be applied.
4. **Cervical Spine Injury Evaluation.** Methods include:
  - a. Observe breathing for paralyzed chest muscles.
  - b. Starting with feet, prick patient lightly with pin and observe face for a grimace.
  - c. Observe positioning of arms.
  - d. Check blood pressure—it may be below 100 systolic without other signs of hypovolemic shock.
  - e. Observe male for possible penile erection.
5. **Maintaining Records**—neural watch chart. Baseline data and constant evaluation can aid hospital personnel in determining whether surgery may be required.

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**Time  
(Elapsed)  
Actual**

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**Contents**

**Injuries to the Face and Neck**  
(1:40) 0:10

1. **Face and Scalp Wounds**
  - a. **General Comments.** The face and scalp are richly supplied with arteries and veins, and wounds of these areas bleed heavily.
  - b. **Emergency Care.** Control by direct pressure. For cheek wounds, it may be necessary to hold a gauze pad inside the cheek as well as outside.
  - c. **Special Considerations**
    - 1) Suspect brain or neck injuries for any wounds of the head.
    - 2) Check the mouth carefully for any loose objects, such as broken teeth that might impair the airway.
    - 3) Check carefully for bleeding into the mouth or throat that might impair the airway.
    - 4) Cover exposed nerves, tendons, or blood vessels with a moist bandage.
2. **Facial Fractures**
  - a. **Danger.** The main danger of facial fractures lies in airway problems. Bone fragments and blood may obstruct the airway—check the airway carefully.
  - b. **Emergency Care.** Emergency care is the same as for soft tissue injuries, that is, maintain the airway, control bleeding, and dress and bandage open wounds.
3. **Neck Wounds**
  - a. **Emergency Care**
    - 1) Control arterial bleeding by direct pressure.
    - 2) If a large vein is torn, apply pressure above and below the point of bleeding to prevent air from entering the circulatory system—the latter could be rapidly fatal.
  - b. **Special Considerations.** Suspect a neck fracture.
4. **Laryngeal and Tracheal Injury**—the voice box and windpipe may be fractured.
  - a. **Signs**
    - 1) Loss of voice.
    - 2) Severe airway obstruction—possibly fatal.
    - 3) Crackling sensation due to air leakage in soft tissue of neck.
  - b. **Emergency Care.** The patient should be kept calm and breathing slowly. Oxygen should be administered.

**Helmet Removal**  
(1:50) 0:10

1. May be necessary to properly immobilize or maintain airway.
2. Should be removed with caution.
3. One EMT maintains in line traction from below.
4. Straps loosened.
5. Second EMT assumes traction.
6. First EMT removes helmet, spreading at the ears.
7. First EMT replaces traction with more stable and conventional methods.

**Ten-Minute Break**  
(2:00) 0:10

**The Eye**  
(2:10) 0:30

1. **Design**—a globe.
  - a. Vitreous humor
  - b. Iris
  - c. Pupil
  - d. Cornea
  - e. Sclera
  - f. Conjunctiva
  - g. Eyelids
  - h. Tear Glands



2. **The Eye Is A Vital Sign.** Pupils can be:
  - a. Dilated
  - b. Constricted
  - c. Unequal
  - d. Fixed
3. **Injuries**
  - a. **Signs**
    - 1) Swollen or lacerated eyelids
    - 2) Bloodshot eyes
    - 3) Scratched cornea
  - b. **Foreign Bodies**
    - 1) Small foreign bodies can be removed by a cotton-tipped applicator. Small bodies on the cornea should not be removed.
    - 2) Impaled objects are not removed. Eye should be covered with a paper cup/cone or eye shield and bandaged. Both eyes should be covered to minimize movement.
  - c. **Burns**
    - 1) **Chemical Burns**—the eye should be copiously flushed with water before bandaging.
    - 2) **Burned Eyelids**—the eye should be covered with a sterile moist dressing.
    - 3) **Light Burns**—the eye should be covered with a sterile moist dressing.
  - d. **Lacerations and Contusions**—pressure may be applied except NEVER to the eyeball itself.
  - e. **Extruded Eyeball**—the eye should be gently covered with a moist dressing; do NOT replace eyeball.
  - f. **Blunt Trauma**—eye should be covered.

**Demonstration and Practice: Immobilization of Spine Injuries**  
(2:40) 0:20

**Note 1:** Included here are procedures for immobilizing patients with suspected spine injuries on short and long backboards.

**Note 2:** Proficiency in these skills is not required in this lesson. Students will have additional opportunities to practice and demonstrate proficiency in these skills in Lessons 15 and 27.

1. **Short Backboard.** Procedures are:
  - a. Support patient's head until final application of device.
  - b. Apply cervical collar.
  - c. Position short backboard behind patient and pad the board as appropriate.
  - d. Attach straps to patient's forehead, chin, thighs and chest.
2. **Long Backboard**—Supine Patient. Procedures are:
  - a. Support patient's head until final application of device.
  - b. Apply cervical collar.
  - c. Straddle patient and lift shoulders slightly (board positioned at patient's head).
  - d. Shove board beneath patient.
  - e. Pad board as appropriate and secure straps.

**Note:** The instructor should use the practice period not only for skill demonstration but also for emphasis of all lesson coverage required for students to achieve the lesson objectives.

(3:00)

***The Virginia Department of Education  
The Virginia Head Injury Foundation  
The Department of Rehabilitative Services***

***and***

***The Traumatic Brain Injury Rehabilitation Research and Training  
Center of Virginia Commonwealth University, Medical College of  
Virginia***

***present***

***MEETING THE CHALLENGE: THE BRAIN INJURED CHILD IN  
THE PUBLIC SCHOOL***

***A Conference for Educators and Families***

***November 4-5, 1988***

MEETING THE CHALLENGE: THE BRAIN INJURED CHILD  
IN THE PUBLIC SCHOOLS  
November 4-5, 1988

Friday, November 4, 1988

- 8:00 a.m. - 7:00 p.m. Exhibits (Foyer)
- 8:15 a.m. Registration and Continental Breakfast (Foyer)
- 9:15 a.m. Welcome (Ballroom B)
- S. John Davis  
Superintendent of Public Instruction  
Virginia Department of Education
- Moderator: Lissa Power Cluver  
Associate Director, Special Education  
Programs  
Virginia Department of Education
- 9:45 a.m. The Nature of Head Injury and Its Differences  
from Traditional Categories of Special  
Education (Ballroom B)
- J. D. Ball, Ph.D.  
Eastern Virginia Medical School and  
Virginia Consortium for Professional  
Psychology
- Moderator: Pamela Waaland  
Children's Neurological Center
- 10:30 a.m. Neuropsychological and Educational Assessment:  
How to Read and Apply Recommendations  
(Ballroom B)
- Vivian Begali  
School Psychologist  
Charlottesville Public Schools
- Moderator: Ronald Savage, ED.D.  
Center of Cognitive Rehabilitation
- 11:15 a.m. Integrating Traumatically Brain Injured  
Students into the Public Schools: The Special  
Education Process (Ballroom B)
- Judith Barnhiser, JCD  
Virginia Department of Education
- Thomas Stuhlmiller  
Cumberland Hospital

Moderator: Lissa Power Cluver  
Associate Director, Special Education  
Programs

12:00 p.m.

Lunch

(Ballroom A)

1:15 p.m.

Workshops

A. **Psycho/Social and Behavioral Sequelae of  
Traumatic Brain Injury**

(Drake)

Ann Deaton, Ph.D.  
Cumberland Hospital

Moderator: Carolyn Killian  
Cumberland Hospital

B. **Information Processing Deficits**

(Georgian)

Peter Patrick, Ph.D.

Moderator: Linda Veldeer, Director  
Developmental Disabilities  
Department of Mental Health, Mental  
Retardation & Substance Abuse Svcs.

C. **Neurophysiologic Injury and Motor  
Impairment: Characteristics and Rehabilitation**

(Elizabethan)

Peter Blasco, M.D.  
Department of Pediatrics

Susan M. Tanis, PT  
Staff Physical Therapist  
Kluge Children's Rehabilitation Center

Moderator: David L. Aldrich, Supervisor  
Severely and Profoundly Handicapped

2:30 p.m.

Break

2:45 p.m.

Repeat of 1:15 p.m. Sessions

D. **Psycho/Social and Behavioral Sequelae of  
Traumatic Brain Injury**

(Drake)

Moderator: Tom Stuhlmiller

E. **Information Processing Deficits**  
(Georgian)

Moderator: E. Y. Brown  
Virginia Department of Rehabilitation  
Sciences

F. **Neurophysiologic Injury and Motor  
Impairment: Characteristics and Rehabilitation**  
(Elizabethan)

Moderator: Vivian Begali

4:00 p.m.

Break

4:00 p.m.

Head Injury Council  
(Hillard Board Room)

4:15 p.m.

G. **Instructional Strategies for the Student  
With Head Injury**  
(Drake)

Patricia Janis  
Maryland Department of Education

Moderator: Martha Ozer, Director of  
School and Community Re-entry  
Medical College of Virginia

H. **Speech and Language Characteristics of the  
Head Injured Child** (Georgian)

Patsy W. Little, M.Sp.CCC-SP.  
Medical College of Virginia

Moderator: Lissa Power Cluver

I. **Primer of Neurological Assessment**  
(Elizabethan)

Donald Taylor, M.D.  
Cumberland Hospital  
Medical College of Virginia

Moderator: Pamela Waaland

5:30 p.m.

Break

6:00 p.m.

Social Hour (Foyer)

7:00 p.m.

Dinner (Ballroom A)

Keynote Address

Ronald Savage, Ed.D.  
National Head Injury Foundation Education  
Task Force

Moderator: Elizabeth Horn  
Executive Director  
Virginia Head Injury Foundation

Entertainment

"Rebound Singers"  
Rebound, Inc., Tennessee

Saturday, November 5, 1988

8:00 a.m. - 1:00 p.m.	Exhibits	(Foyer)
8:00 a.m.	Registration and Coffee	(Foyer)
8:30 a.m.	School - Family Relationships	(Ballroom A)

Linda McKelvy  
Virginia Department of Education

Judy Hudgins  
Virginia Department of Education

Moderator: Carol Tarkington

9:15 a.m.

Workshops

A. **Family Reactions and Needs in Pediatric  
Head Injury** (Drake)

Pamela Waaland, Ph.D.  
Children's Neurological Services

Moderator: Janice Cockrell, M.D.  
Children's Hospital

B. **Integrated Therapy Model (I.T.M.) - A Team  
Approach to a Successful Transition into  
the Public School** (Georgian)

Maureen Corcoran  
Speech-Language Pathologist  
Chesterfield County Public Schools

Brenda Hatcher  
Physical Therapist  
Chesterfield County Public Schools

Moderator: David L. Aldrich

C. Know and Obtain Your Rights  
(Elizabethan)

Pierre Ames  
Department for the Rights of the Disabled

Mr. and Mrs. Tim Higgins  
Parents

Mrs. Janet Gould  
Parent

Moderator: Martha Ozer

10:30 a.m.

Break

10:45 a.m.

D. The Transition from Hospital to School  
(Drake)

Tom Buchanan  
Kluge Children's Rehabilitation Center

Tom Stuhmiller  
Cumberland Hospital

Moderator:: Carol Tarkington

E. Programming in Rural School Districts  
(Georgian)

Ronald Savage, Ed.D.

Moderator: Martha Ozer

F. Transition from School to Work  
(Elizabethan)

M. V. Morton  
Medical College of Virginia

Ray Graesser  
Virginia Department of Education

Moderator: E. Y. Brown

12:00 p.m.

Adjournment

The Steering Committee would like to express its appreciation to the following for their assistance in the development and implementation of this conference:

- Brain injured students and their families
- Department of Education
- Virginia Head Injury Foundation
- Department of Rehabilitative Services
- Virginia Head Injury Council
- The Traumatic Head Injury Rehabilitation Research and Training Center of Virginia Commonwealth University, Medical College of Virginia
- National Head Injury Foundation
- Children's Hospital
- Cumberland Hospital
- Department for Rights of the Disabled
- Kluge Children's Rehabilitation Center
- Rebound, Inc.
- All Presenters
- All Moderators
- All Exhibitors
- The Staff at the Radisson

Lissa Power Cluver  
Elizabeth Horn

Martha Ozer  
Pamela Wealand



MEDICAL COLLEGE OF VIRGINIA  
DEPARTMENT OF PSYCHIATRY  
TRAUMATIC BRAIN INJURY PSYCHIATRIC & BEHAVIORAL  
RESOURCE CENTER  
TRAINING AND TECHNICAL ASSISTANCE PROGRAM

**TRAINING AND TECHNICAL ASSISTANCE TO ENHANCE DIAGNOSTIC AND THERAPEUTIC EFFORTS OF DMH/MR/SAS PERSONNEL FOR DEVELOPMENTALLY DISABLED PERSONS WITH TRAUMATIC BRAIN INJURY.**

Timespan: July 1987 - July 1989

Number of one-day workshops: 6

Number of DMH/MR/SAS professionals trained: 191

Number of family members attending: 7

Number of TBI survivors attending: 5

Number of different agencies participating: 127

Number of requests for consultation after training: 150

Training products developed: Training materials were designed to enhance the diagnostic and treatment skills of DMH/MR/SAS professionals. The development of these training materials was based on the results of a TBI training needs assessment delivered to over 200 DMH/MR/SAS professionals. These materials were disseminated/used at each of the statewide workshops.

1. Annotated bibliography.
2. Resource package: Local, state, & national TBI resources and educational materials.
3. Videotape: "Traumatic Brain Injury: Effective Diagnosis and Treatment". Pre and post tests were administered to participants before & after viewing the videotape to assess its effectiveness.
4. TBI training needs assessment.
5. TBI regional resource contact list. List composed of 20 DMH/MR/SAS professionals from each region of the state who were willing and interested in being a resource to other DMH/MR/SAS service providers in their region.

Conclusion: The vast majority of participants were receiving their first formal training in TBI. The workshop agenda emphasized the topics of diagnosis, treatment techniques, and family and survivor issues as these were the areas of greatest need from the TBI training needs assessment. Case presentations were also discussed at each workshop. The case presentations were given by DMH/MR/SAS professional currently serving individuals with TBI. Evaluations from the workshops were very favorable and 75% of the participants indicated an interest in further TBI training. 70% of the participants demonstrated improved post test

scores after viewing the videotape which indicated a significant change in participants learning.

Need for further training/development: A second training grant was funded by the State Department of Developmental Disabilities to expand the activities of the first two year grant. This second grant offers a TBI Psychiatric and Behavioral Resource Center, housed within the Medical College of Virginia Department of Psychiatry. The activities of this grant include:

1. 4 Clinical consultation training sessions.
2. 4 Family and survivor issues workshops.
3. Special Education TBI training needs assessment.
4. Educational materials and networking contacts related to psychiatric and behavioral issues associated with TBI.

(See enclosed grant activity description)



**MEDICAL COLLEGE OF VIRGINIA  
DEPARTMENT OF PSYCHIATRY  
TBI PSYCHIATRIC AND BEHAVIORAL RESOURCE CENTER**

The purpose of the TBI psychiatric and behavioral resource center is to provide a variety of resources to professionals regarding psychiatric and behavioral factors associated with traumatic brain injury. The resource center will provide the following activities to a statewide audience of both public and private interagency professionals during 1989-1990.

1. Statewide clinical consultation regarding psychiatric and behavioral aspects of TBI. This consultation will occur at 4 different locations throughout the state and will be presented by Gregory J. O'Shanick, M.D. The purpose of the consultations is to enhance the diagnostic and treatment skills of inter agency professionals and improve referral to appropriate services. The one day agenda will include an overview of TBI diagnosis and treatment techniques and an indepth discussion of a case presentation, emphasizing treatment of psychiatric and behavioral issues.

2. Statewide training in family and survivor issues. These one day workshops will occur at 4 different locations throughout the state. The training will be developed and presented by the Virginia Head Injury Foundation's (VHIF) Director of Family Support Services, family members from VHIF local chapters, and TBI survivors. The one day workshops will address long term family and survivor issues following TBI. Family members will address family reactions, effective coping strategies, rehabilitation techniques, and strategies for effective family-professional collaboration in obtaining appropriate services. Survivors will address effective adaptation and compensatory strategies, relearning strategies, behavioral issues, and effective survivor-professional collaboration.

3. Education and networking resources. The resource center will provide educational resources including literature, videotapes, audiocassettes, and a newsletter addressing various psychiatric and behavioral issues following traumatic brain injury. Networking resources will also be available including referral to services and information regarding state and national TBI training opportunities and conferences.

ALL ACTIVITIES/RESOURCES ARE FREE OF CHARGE AND AVAILABLE TO PROFESSIONALS, FAMILY MEMBERS AND SURVIVORS.

For more information contact:

**M.V. Morton**  
Department of Psychiatry  
MCV, Box 710  
Richmond, VA 23298  
(804) 225-4570

**MEDICAL COLLEGE OF VIRGINIA  
DEPARTMENT OF PSYCHIATRY  
TBI PSYCHIATRIC & BEHAVIORAL RESOURCE CENTER**

**DATES FOR UPCOMING TRAINING ACTIVITIES**

**CLINICAL CONSULTATIONS:**

January 26, 1990	Central State Hospital, Administration Bldg. Petersburg, VA
March 30, 1990	Childrens' Hospital, Auditorium Richmond, VA
April 27, 1990	Southwestern State Hospital Marion, VA
June 11, 1990	Eastern State Hospital, Training Building Williamsburg, VA

The purpose of these consultations is to enhance the diagnostic and treatment skills of interdisciplinary professionals and to improve referral to appropriate services. The hours of the consultation are from 9:00 a.m. to 4:00 p.m.

**TBI FAMILY AND SURVIVOR ISSUES WORKSHOPS:**

January 12, 1990	Eastern State Hospital, Training Building Williamsburg, VA
February 16, 1990	Fairfax/Falls Church Community Service Board Oakton, VA
March 2, 1990	Childrens Hospital, Auditorium Richmond, VA
May 25, 1990	Roanoke Memorial Hospital, Auditorium Roanoke, VA

The purpose of these workshops is to enhance professionals' understanding of both family and survivor issues following traumatic brain injury. The hours of the workshop are from 10:00 a.m. to 4:00 p.m.

**REGISTRATION INFORMATION:**      Date(s): \_\_\_\_\_

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Agency/Organization: \_\_\_\_\_

Address: \_\_\_\_\_

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Please complete registration and return to/call:

**M.V. Morton**  
Department of Psychiatry, Box 710, MCV  
Richmond, VA 23298 (804) 225-4570

