NEW HANOVER HEALTH NETWORK PRODUCES THE *TRAUMA LINK* NEWSLETTER QUARTERLY THROUGH ITS PUBLIC AFFAIRS AND TRAUMA SERVICES DEPARTMENTS

New Hanover Health Network
Wilmington , North Carolina

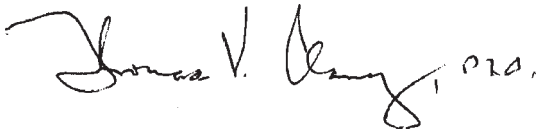
TraumaLink

*Welcome to **Trauma Link**, a quarterly publication of the New Hanover Regional Medical Center Trauma Service. This edition begins with a letter from Dr. Thomas V. Clancy, Medical Director of Trauma Services.*

Dear Readers,

The trauma center is having its busiest year ever. Trauma admissions are anticipated to approach 1,500 patients in 2002. Motor vehicle crashes serve as the leading cause of major injury and falls remain the most common reason for geriatric trauma admissions. Alcohol and other drugs continue to represent major risk factors for life-threatening injury, lifelong disability and premature death among the younger members of society. More than 25 percent of the trauma population test positive for drugs. Patients arriving with gunshot and stab wounds constitute a steadily increasing percentage of the trauma population. Industrial development, population growth, university/college expansions, and tourism combine to drive a vibrant level of regional activity. As in most communities, demands on local health care resources rise in proportion to growth rates. The Trauma Center is no exception. As one of the four state-designated Level II trauma centers, we are a major resource for injured patients throughout Southeastern North Carolina.

Trauma Link will acquaint you with Trauma Services and its many components. In this issue, we will describe areas in which we play a vital role in the region and state, introduce you to members of the team and present a case study. It is a pleasure working with you to improve health outcomes among the injured in our region and in maintaining trauma prevention as an integral part of our mission.



Many services are part of trauma care

Several major initiatives designed to address the many facets of trauma care are currently underway at the Trauma Center. Because many trauma patients arrive from situations which were entirely preventable, t**rauma prevention** is an integral component of the Trauma Service. It is now taught at grade school and high school levels. Educational activities address seat belt safety, bike safety, playground safety, home safety, water safety, weapons awareness, and drug-alcohol driving risk. **Think First**, a nationally recognized spinal cord injury prevention program, and geriatric fall prevention programs represent two areas of particular interest and relevance to our population. **Safe Kids** is a nationally recognized program supported by both the Trauma Service and New Hanover County Health Department. Our **Trauma Program Specialist**, Tina D'Amico Poole, oversees the Injury Prevention section of the Trauma Service.

Another major effort that began in 1998 and expanded after Sept. 11 has been the creation of regional trauma advisory committees (RACs). Our RAC, the **Southeastern Regional Advisory Committee (SERAC),** serves as the trauma care liaison organization for all hospitals in Southeastern North Carolina. All hospitals and EMS units across the state are mandated by law to participate in a RAC. The purpose of the RAC is to optimize and coordinate regional trauma care. The RACs meet quarterly at regional and state levels. Christy Hollis, RN, is the **Outreach Coordinator** for the RAC. She serves as an educator, performance improvement liaison, and reference person for all regional EMS units and hospitals within SERAC. Our RAC is made up of members from Pender, Brunswick, Columbus, Bladen, Duplin, and Onslow counties. The purpose of the state's seven RACs is to serve as the framework for the statewide trauma system. Since Sept. 11, the N.C. Office of Emergency Medical Services has charged all RACs with serving as its bio-terrorism response coordinating body.

Consistent with the goals of the Regional Advisory Committee initiatives has been our recent acquisition of a $354,840 grant to improve regional emergency services. The **SERTEN (Southeastern Regional Trauma and Emergency Network) grant**, awarded through The Duke Endowment, was given to SERAC to develop and employ educational programs to enhance medical education and care. A regional needs assessment of EMS providers and hospital Emergency Departments identified education and data analysis/management as critical areas for development. This three-year grant will allow the creation of progressive, evidence-based, regionally integrated clinical and system management pathways.

AirLink, New Hanover Health Network's air ambulance service that began flying in September 2001, is already recognized throughout the region as a highly competent component of the Trauma Center. Sick patients have benefited from expeditious transport to a higher level of care and regional hospitals are most appreciative of this service. Although some of our referring hospitals have specialists, they do not define the resources of a trauma center. Injured patients require timely investigations and very often the

Through the Egg Derby, children learn the value of wearing a seat belt. They watch an egg roll down a track and crash, first while the egg wears a seat belt, then without the belt.

Through AirLink, the region was connected to air ambulance for the first time. The service provided many patients trauma care within the "golden hour."

Trauma staff, including emergency physicians and nurses, illustrate the effects of drunken driving at a presentation for teenagers at New Hanover High School

therapeutic integration of a variety of specialists in addition to the primary trauma surgeon. **VitaLink,** the ground transport division, continues to play a significant role in the pre-hospital care and rapid transport of seriously injured patients. **New Hanover Regional EMS,** the only EMS service in the county, transports the large majority of trauma patients entering the Trauma Center. The Trauma Center and all of its pre-hospital components will be featured this year in the *Journal of Emergency Medical Services* magazine.

The **13th Annual Trauma Symposium** attracted more than 300 participants who gathered for an exciting educational program covering many facets of trauma care inside and outside of the hospital. The response to this meeting has been enormous and audience evaluations play a large role in the annual planning process. Planning for next year's event on Feb. 8, 2003 at the Wilmington Riverside Hilton is in progress and promises to be another successful program. Register early!

We hope that *Trauma Link* will provide you with the information you would like about the Trauma Center and the many activities with which it serves the community. We will feature other components of the Trauma Service in our next issue. Look forward to reading *Trauma Link* on a quarterly basis and we'll look forward to your suggestions and general feedback.

Blunt Abdominal Trauma: A Case Study

Case studies are presented each month .... The following is a recent case study

A 20-year-old woman involved in a motor vehicle crash was airlifted to New Hanover Regional Medical Center from Camp Lejuene via a Pedro helicopter. A brief history provided by pre-hospital personnel indicated that the patient was an unbelted passenger who was found partially ejected from her vehicle. She also was said to have had a temporary loss of consciousness. Upon arrival to the Trauma Center, the Advanced Trauma Life Support protocol was implemented, beginning with a primary survey. The primary survey means evaluating the patients' airway, breathing status, circulation, and neurologic status. Included in the survey is the need to rapidly expose the patient (clothes removal) for optimal diagnostic evaluation and therapeutic interventions.

The patient complained of difficulty breathing and left upper abdominal pain. On examination she was noted to be disoriented and restless. Her vital signs demonstrated a rectal temperature of 94.9F, heart rate 146, respirations 20, and blood pressure 71/46. A cervical collar was in place without evidence of facial trauma. The heart sounds were clear with a rapid regular rhythm. By monitor, the patient was in sinus tachycardia. Although breathing appeared to be non-labored, auscultation revealed decreased breath sounds over the left lung fields. Inspection of the abdominal wall revealed bruising of the left upper quadrant and palpation demonstrated tenderness in the same region. Extremity examination revealed bruising on both thighs anteriorly but no gross deformities. Pulses and sensation were normal in all four limbs. Tenderness was noted in the left upper and lower extremity. The patient was able to move all four extremities. Complete spinal immobilization was maintained in the ED.

Resuscitation was begun by the Trauma Team while the primary survey was being employed. Oxygen was administered via non-rebreather mask at 100 percent while a warming blanket was applied to the torso. Fluids were administered through a peripheral IV that had been inserted prior to arrival and two additional lines, including a left subclavian (8.5Fr) cordis. All IV fluids were warmed via Hotline fluid warmers. Although the nasogastric tube did not reveal blood in the aspirate, hematuria was noted after Foley catheter insertion. FAST exam (focused abdominal sonography for trauma) demonstrated free fluid within the abdominal cavity associated with a ruptured spleen. CT scan of the abdomen was not performed because the patient was in shock and the ultrasound already identified a cause of shock.

During the early resuscitation a rapid sequence induction (RSI) was initiated using the following intravenous agents: lidocaine (100mg), Etomidate (20mg) and Succinylcholine (140mg). A #7.5 orotracheal tube was placed after which bilateral breath sounds were readily audible. Sedation was maintained with intravenous versed (midazolam) and morphine sulfate as indicated. Ventilator support was maintained by the Respiratory Therapist. Bedside blood analysis was performed using the I-stat, portable machine which yields results within two minutes. It demonstrated a hemoglobin of 5. Other parameters measured by I-state include serum electrolytes, pH, and glucose. Packed red blood cell transfusions were begun immediately while the Operating Room team scrubbed in and set up the room. The patient's vital signs remained critical as demonstrated by cardiac arrhythmias on the monitor and a blood pressure that did not readily respond to the standard 2 to 3 liters of crystalloid solution. While trauma surgeons transported the patient to the OR, attempts to locate family members were made by the Clinical

Coordinator in the ED. None were home. Later, law enforcement located the patient's grandmother in New York at which time she was informed about the crash and the status of her granddaughter.

The operation consisted of an exploratory laparotomy and total splenectomy. Operative findings revealed a hemoperitoneum (blood throughout the abdominal cavity) and a grade 5 (completely shattered) splenic injury. The remainder of the abdominal examination was unremarkable. The patient had a satisfactory post-operative course. Vaccination for pneumoccus, meningococcus, and hemophilus influenza was provided prior to discharge. As the patient was uninsured at the time of her crash she was referred to the Charity Assistance Program at NHRMC to assist with financial arrangements. Through the efforts of the Trauma Case Manager she was eventually discharged to continue convalescence with her grandmother.

Splenic injury is the most common reason for abdominal operation after blunt trauma. The injury is produced by compression or deceleration force to the abdomen. The spleen receives 5 percent of the cardiac output and when totally shattered may rapidly place a patient into hemorrhagic shock. The recommended therapy for this clinical presentation is splenectomy. Otherwise, spleen injury is graded on a 1-5 scale where non-operative management is often employed in the low grades and operative management for the high. A smaller number of patients will undergo surgery and have their spleens partially removed or totally preserved depending on the magnitude of the injury. Devices which resemble hair nets may be used for that purpose. Vaccination is provided because upon spleen removal, a small number of patients are at risk for developing "post-splenectomy sepsis," a systemic infection that although uncommon may be fatal. Patients are advised to see physicians early when they do not feel well and to receive antibiotic prophylaxis when they are undergoing dental work or other routine operative procedures.

This case is typical of a standard blunt trauma scenario. She is a young patient in a car crash who amazingly avoided brain and orthopedic injury and who would have died were a rapid diagnosis and entry to an operating room not possible. The trauma center is equipped for this type of patient. Teamwork and coordination constitute essential prerequisites for successful trauma management and optimal outcomes.

Case study contributed by Shannon Mays, RN, BSN, Christy Hollis, RN, BSN, CEN (ED) and Sheila Gonda, RN (Trauma Case Manager).

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What is SERAC?

By Christy Hollis, RN, BSN, CEN
Community Trauma Coordinator, SERAC

In August 1998, North Carolina passed a law making New Hanover Regional Medical Center responsible for the development and maintenance of a coordinated trauma system in Southeastern North Carolina. The legislation is designed to promote and enhance the state trauma system through a new set of rules. These rules establish and define Regional Advisory Committees, or RACs, that are responsible for establishing and maintaining a coordinated trauma system in selected regions of the state.

As the Level II Trauma Center for this region, New Hanover Regional is the site of the Southeastern Regional Advisory Committee (SERAC). Lead RAC agencies provide staff support and serve as the coordinating entity for trauma planning in their region. All hospitals in the state must be members of a RAC.

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Primary hospitals included in SERAC include Bladen County Hospital, Brunswick Community Hospital, Columbus County Hospital, Dosher Memorial Hospital, New Hanover Regional Medical Center, and Pender Memorial Hospital, with secondary membership by Camp Lejuene Naval Hospital, Onslow Memorial Hospital, and Duplin General Hospital. SERAC is responsible for:

Developing trauma guidelines for care including

- Dispatch
- Triage and treatment at the scene and in the ED
- Transport and treatment
- Transfer agreements
- Promoting education and prevention
- Enhancing communication among trauma providers
- Conducting trauma research
- Evaluating the system's progress

SERAC is also a means of organizing emergency preparedness efforts in the region, related to chemical and biological terrorism. SERAC meets quarterly at New Hanover Regional Medical Center at the Canterbury Annex. For further information about this important initiative, please contact Christy Hollis at (910) 342.3252 or email christy.hollis@nhhn.org.

The Trauma Service Vs. Trauma Services

Trauma Services is a department that includes much more than the care of an individual patient who has suffered a trauma.

The **Trauma Service** is a clinical service established by the medical staff that has oversight of and responsibility for the care of the trauma patient. **Trauma Services** is an administrative department that includes the Trauma Service and supports the integration of services of the hospital into the continuum of care for the trauma patient. This integration includes injury prevention, pre-hospital care, Emergency Department care, critical care, perioperative services, rehabilitation, case management, substance abuse, and therapies. Trauma Services also coordinates other trauma-related activities, including public education and CME, and ensures trauma care that is consistent with state and national trauma standards.

The **trauma team** is a group of health care professionals organized to provide care to the trauma patient in a coordinated and timely manner. This multidisciplinary team approach to the care of trauma patients is critical to the success of the trauma program. Through collaboration, every member of the trauma team supports an important component of trauma care that contributes to successful patient outcomes.

Trauma Services also maintains the **trauma registry,** a national database that focuses on information management with the purpose of promoting research, best practice, financial management, injury prevention and performance improvement. The Trauma Performance Improvement Program is unique to the trauma patient population and is developed and directed by Trauma Services.

The **trauma center** is the regional referral site for Southeastern North Carolina and the lead agency for the Southeastern Regional Advisory Committee. SERAC is charged with establishing and maintaining a coordinated trauma system in the region. Trauma Services is responsible for providing the leadership and staff support for SERAC.

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Key Players In Trauma Services:

Thomas V. Clancy, MD,
Medical Director,
Trauma Services

Thomas V. Clancy, MD, Medical Director: The role of the Medical Director is to organize and manage the overall physician/surgeon component of the trauma service and to pursue the development of the trauma center in terms of quality of care, volume, scope of services and cost-effectiveness.

Sue Ballato, RN, MBA,
Administrative Director,
Trauma Services

Sue Ballato, RN, MBA, Administrative Director, Trauma Services: The role of the Administrative Director is to collaborate with the Medical Director on all aspects of the Trauma Program to include all services/systems required for an organized multidisciplinary team approach to the care of the critically injured trauma patient through the continuum of care. The Administrative Director strives to promote smooth functioning of the trauma system and optimal care of the trauma patient on both a local and regional level.

Mary Ellen (Mel) Wilson, RN,
MSN, CEN, FNP Trauma
Coordinator

Mary Ellen (Mel) Wilson, RN, MSN, CEN, FNP Trauma Coordinator: The role of the Trauma Coordinator is to manage the Trauma Performance Improvement Program and to identify those areas where quality or efficiency of care may be improved. This includes facilitation of review processes, collection and analysis of data, identification of trends and benchmarking opportunities. The Trauma Registry database is used as an integral part of this effort.

Sheila Gonda, RN, Trauma
Case Manager

Sheila Gonda, RN, Trauma Case Manager: The role of the Trauma Case Manager is to maximize the efficient use of available resources, formulate a discharge plan, anticipate discharge barriers and adjust the plan of care as needed. The Trauma Case Manager develops case monitoring processes to identify practice and outcome variances and track patterns where improvement is needed, while promoting the optimal allocation of health care dollars.

Christine Schmitz, CPC,
Trauma Registrar

Christine Schmitz, CPC, Trauma Registrar: The role of the Trauma Registrar is to maintain the Trauma Registry Database, which provides for the collection, storage and reporting of information about trauma patients to include the facts related to the patient's injury event, severity, care, and outcome. Obtaining, coding, and sorting this information for analysis and reporting individual and aggregate results are the expressed purposes of the trauma registry.

Tina Poole, MPH, Trauma
Program Specialist

Tina Poole, MPH, Trauma Program Specialist: The role of the Trauma Program Specialist is to coordinate and present developed trauma and safety programs to the youth and adults of our community. The Trauma Program Specialist collaborates with other regional injury prevention professionals to further the mission of injury prevention and safety and assists in the development of a cadre of volunteers to assist with community programs.

Christy Hollis, RN, BSN, CEN,
Community Trauma
Coordinator

Christy Hollis, RN, BSN, CEN, Community Trauma Coordinator: The role of the community trauma coordinator is to organize outreach efforts to improve trauma care in Southeastern North Carolina, and oversee functions of SERAC. The coordinator collaborates with area hospitals, EMS, and community services to provide education to health care providers, maintain state trauma care requirements, and increase injury prevention awareness among the public. This position is grant-funded by the Duke Endowment.

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