

*Trauma, Epidural Analgesia  
and Enoxaparin*

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Management Course*

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## **TRAUMA, EPIDURAL ANALGESIA & ENOXAPARIN**

*by Chiedozie I. Udeh, M.D.*

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# TraumaVue



**I**n all of medicine, trauma remains unrivalled in presenting unpredictable and challenging management scenarios. The reasons for this are primarily the diverse etiologies, mechanisms and varying severity of trauma injuries. Trauma affects all age groups and injuries could range from bruises and soft tissue injuries to fractures and penetrating vascular and visceral injuries.

However, once the acute life and limb threatening injuries are all controlled, attention is generally directed to the management of less urgent injuries, control of pain, prevention/treatment of complications, and finally, rehabilitation. Pain control and prevention of complications are important considerations, particularly in patients with major trauma. Indeed the two are somewhat related since inadequate analgesia facilitates the development of certain complications.

Complications, unfortunately, are common in the postoperative period following major trauma. Depending on the severity of injuries, patients may have a prolonged period of immobilization. Associated pain in such patients has dire consequences especially if they have thoracic injuries, rib fractures, or have had abdominal exploration. They would exhibit hypoventilation, impaired cough, and a reluctance to move around. All these would result in retention of secretions, atelectasis, pneumonia, respiratory failure, and possibly sepsis.

Adequate analgesia will help counteract these effects. Narcotics are quite effective analgesics but they may paradoxically worsen these complications because of their sedative and respiratory depressant effects, particularly in the elderly. NSAIDs are often avoided because of their gastric effects, especially in these patients already at risk for stress ulcers. Epidural analgesia with local anesthetics and low dose opioids has been proven to offer unsurpassed analgesia without the side effects of systemic narcotics. Besides, it offers other advantages, including improvements in vital capacity, functional residual capacity, and FEV1. It is also associated with higher vascular graft patency rates in the early postoperative period.

Prolonged immobilization also predisposes patients to venous thromboembolism with a real risk of potentially fatal pulmonary embolism. Other risk factors for the development of DVTs include pelvic fractures, long bone fractures, central vein cannulation, spinal cord injuries, severe head injury, coma, major lower extremity vascular repairs, and age > 40years. Sequential compression devices, elastic compression stockings, anticoagulation, and occasionally prophylactic vena cava filters are commonly used for DVT prevention.

Anticoagulation has been shown in several studies to be the most effective means of preventing DVTs in these high risk patients. If, therefore, there are no major concerns about bleeding, anticoagulation should be the first choice. Enoxaparin, one of the new low molecular weight heparins has been available,

*Duke Trauma Center  
Life Flight/Life Care*

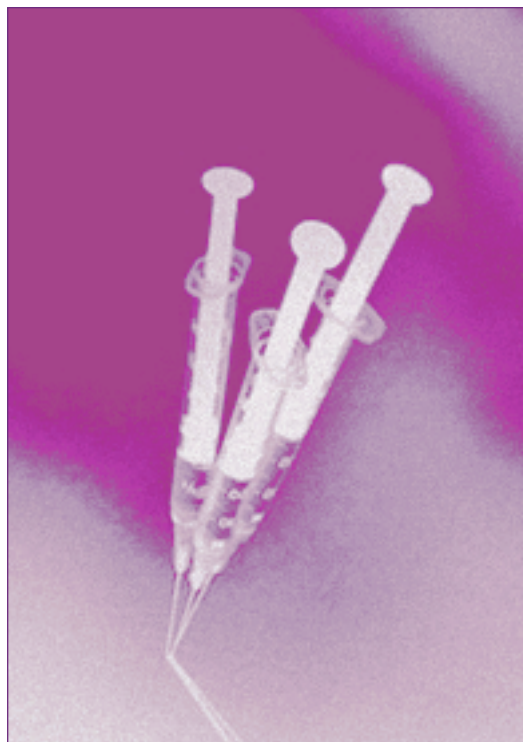
*Duke University Hospital  
Durham, North Carolina*

With the holidays now behind us, we are moving forward at a fast pace for what will prove to be a busy few months. Duke is preparing for its state site visit in March for renewal of its Level I Trauma Center designation. In the accompanying article by Sharon Rhyne, who is the Hospital Programs Specialist for the North Carolina Office of Emergency Medical Services responsible for the development and monitoring of the state trauma system, the process of a trauma site visit is nicely outlined. Needless to say, Duke is taking all the steps necessary to ensure that it meets or exceeds the state's expectations for Level I Trauma Center designation.



Duke's 10th Annual Trauma Conference, scheduled for March 6 – 7, 2000, looks like it will be our best one to date. The format has been changed from previous years, so that there will be parallel sessions to choose from that will appeal to our attendees, who typically include pre-hospital personnel, nurses, ER and OR staff, and physicians. Some of the highlights of the two day conference, to be held at the Sheraton Imperial Hotel in RTP, include sessions on the trauma system in North Carolina, case studies of famous trauma victims, pediatric trauma, and a series of sessions addressing the impact of the recent North Carolina flooding on the state trauma system. The program committee has done a superb job putting together a fine program, so make plans to attend this educational and useful conference. Registration material will be sent out separately, but if you need further information please call (919) 684-4293.

*Steven N. Vaslef, MD, PhD  
Director, Duke Trauma Center*



#### TRAUMA, EPIDURAL ANALGESIA & ENOXAPARIN

and is indicated for use in DVT prophylaxis and treatment. Unlike unfractionated heparin, it acts mainly by inhibiting factor Xa and is given in a fixed 30mg twice daily dose. It is highly effective and has a dose related risk of bleeding.

Enoxaparin however has a number of advantages over regular unfractionated heparin. These include;

- A predictable dose-response effect.
- Decreased likelihood of causing heparin-induced thrombocytopenia and paradoxical thrombosis.
- A long half-life permitting once daily dosing (used in Europe).
- Predictably effective, so eliminating need for lab tests for monitoring degree of anticoagulation.

This last fact helps decrease overall costs of use. On the other hand, there is no readily available test for factor Xa activity. This creates a problem should there be a need to determine degree of anticoagulation or reverse the effects before a procedure or should bleeding occur.

This also impacts negatively on the ability to use epidural analgesia. The epidural space has an extensive venous plexus: In the face of anticoagulation, any instrumentation such as insertion or withdrawal of epidural catheters, can result in the formation of large hematomas. There have been several reports of catastrophic neurological deficits including paraplegia secondary to epidural hematomas in patients on enoxaparin. This led the FDA to issue a public health advisory alerting physicians to the risk of neuraxial instrumentation in patients on enoxaparin. Since then this issue has been reviewed and several recommendations made relating to the timing of enoxaparin administration.

Relevant recommendations pertaining to the use of enoxaparin and epidural analgesia in trauma patients are presented next. These recommendations also apply to other low molecular weight heparins.

## TraumaVue

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1. Clear communication between surgeons, anesthesiologists, and nurses if the use of enoxaparin and epidural analgesia is planned.
2. Avoid epidural catheter insertion if the patient has a history of coagulopathy or is already on other drugs that affect hemostasis.
3. Do not insert catheter until at least **12 hours** after the last dose of enoxaparin.
4. Do not remove catheter until at least **12 hours** after last dose of enoxaparin.
5. Do not administer subsequent dose of enoxaparin until at least **2 hours** after the catheter is placed or removed.
6. Use the minimum concentration of local anesthetics adequate for analgesia but allowing assessment of motor function in patients.
7. Regular and frequent neurological exam for motor function while the epidural catheter is in use and for a few hours at least, after it is removed.
8. Immediately and thoroughly evaluate any unusual findings or patient complaints.
9. If a hematoma is suspected, obtain an MRI at once and arrange for emergent surgical decompression if confirmed. There is approximately an 8-hour window before irreversible neurological injury occurs.
10. Finally, clear communication and instructions are vital. Clarify all orders verbally and make extra effort to return and ensure proper timing of drug administration.



## 4th Annual Trauma Center Management Course

Edward Eroo, AOO Emergency Services, and Claudia McCormick, Trauma Program Manger, attended the 4th Annual Trauma Center Management Course, titled “Take Control of Your Trauma Program With Service Line Management”, put on by Bishop & Associates in New Orleans this past October 14-16th. Trauma center administrators, physicians, and nurses from all over the country attended the program. Other trauma centers from North Carolina were represented by personnel from Baptist Medical Center/Wake Forest in Winston-Salem, Mission St. Joseph’s in Asheville, and New Hanover Regional Medical Center in Wilmington. Sharon Rhyne from the North Carolina Office of Emergency Medical Services and Sharon Schiro, who manages the North Carolina Trauma Registry from the University of North Carolina, were also present.

The course was broken down into four sections titled “Tools for Taking Control”, “Gaining Trauma Program Control”, “Trauma Center Case Presentations”, and finally “Making it Work”. There were a number of talks but some of the highlighted talks included “Using Trauma Data – What’s Driving Your Trauma Program”, “How New ACS Guidelines Impact Your Trauma Service”, “Aligning Physician Arrangements with

Trauma Center Goals”, “Managing Outreach & Referrals”, “The Public’s Right to Trauma Care”, “Getting a Handle on Your Program’s Financial Performance”, and “Create Your Own Service Line Strategy”.

The conference was loaded with information and as always was a great opportunity to network with individuals from other trauma programs from across the country. The Bishop & Associates staff, which keep up with trends in the field had knowledgeable and insightful presentations. We are fortunate to be a member of this group, as there is no other organization that addresses the business side of trauma development.

As an aside, Greg Bishop, President of Bishop & Associates, is working with the other trauma centers in North Carolina to assist in the implementation of trauma activation fees. Duke is in the process of submitting these for approval from Blue Cross / Blue Shield and the money will be used to further the administrative functions of the Duke University Hospital trauma program.

*Edward R. Eroo, CHE, CAE, CMTE  
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## The Trauma of a Site Visit

They'll be here sooner than you realize. They will arrive, fly around furiously and leave before you know it. They will generate a buzz throughout many areas of the hospital and there will be worry (usually unfounded) for days before the occurrence. Is this an attack of killer bees? No, although some fear their sting. However, while we are on the subject of insects, we might mention that these visits occur every four years...sort of like a locust infestation, just as irritating, but more often and with a somewhat different impact than that of a plague.

What are we talking about? This is, very simply, a visit by a state trauma center site team.

In this state, the North Carolina Office of Emergency Medical Services (NCOEMS), responsible for the development and monitoring of the state trauma system, is in charge of initial trauma center designations and renewals. In fact, they have been conducting such visits since 1982, with Duke being one of the first designated centers. The immediate importance of this information to Duke is that their next renewal visit is scheduled for March 14, 2000.

So who makes up these teams that look behind every door, flip through a multitude of patient charts and examine every decision in hindsight? Well, first it is important to realize that NCOEMS carefully selects teams tailored to a hospital's specific profile. A trauma surgeon from a Level I academic facility would rarely be hired to review a Level II, community-based trauma program whose trauma service is staffed solely by surgeons in private practice. Second, certain minimum requirements are met with respect to the composition of any site team. A Level I site team (like the one visiting Duke) will consist of the following: an out-of-state surgeon (who serves as primary reviewer and leads the team the day of the visit) who is a Fellow in the American College of Surgeons; an in-state surgeon who is a member of the North Carolina Committee on Trauma; an in-state emergency physician who is a member of the North Carolina College of Emergency Physicians; an out-of-state trauma nurse; and two staff members from the NCOEMS.

It's probably also important to point out that these teams utilize state trauma center criteria during each visit that closely parallel the American College of Surgeons' document entitled *Resources for Optimal Care of the Injured Patient:1999*. The College's document, recognized by the majority of reputable trauma programs on the national level, has served as a guideline, and been updated repeatedly, since the mid 1970's.

At the risk of stating the obvious, trauma centers begin preparation months before shadows of team members grace their portals. Trauma related issues that have long begged for resolution are suddenly brought

to the table and resolved. Policies are updated. Transfer and treatment protocols are reviewed for necessary changes, and staff are strongly urged to document all their required CEU's or to quickly seek additional ones in order to meet the state requirements. It's sort of like cleaning house before the guests arrive with the white gloves....or perhaps in this case it's latex. In fact, it's probably accurate to say that a number of trauma programs change for the better as much from actions taken prior to a visit as from the visit itself.

Months ahead, the hospital's trauma service is also put to work completing a lengthy Request for Proposal (RFP) from the state that asks a multitude of questions. The objective of an RFP is to familiarize the site team, as much as possible, with the basic machinations of the trauma program prior to their arrival so their time is better spent on chart reviews, assessment of outcomes and staff interactions. As with the visit itself, the questions inquire into everything from hospital organization and trauma service policies to staffing, equipment, credentials and capabilities with respect to the ED, OR, PACU, ICU, radiology, laboratory, blood bank, pharmacy, respiratory therapy, hemodialysis, rehabilitation, and on and on...

Some people tend to forget that it's the hospital that receives the designation, not just the Emergency Department, not simply the Trauma Service or Department of Surgery. Hence, it's the team's prerogative to delve into any aspect of a trauma patient's care. Even the prehospital and aeromedical programs are scrutinized, as are the programs that address quality management, outreach, injury prevention, public education, research, continuing education and organ procurement. The center's participation and/or leadership in the Regional Advisory Committees (RACs) and state trauma initiatives is also considered.

The day of the actual site visit, which takes approximately 8 hours, the site team spends hours combing through medical records that have been requested weeks prior to the site visit. Unlike the past when hospitals were given some leeway in which charts were reviewed, the state now utilizes its own statewide trauma registry to pre-select charts. Care is taken to ensure review of a cross-section of charts related to the following: head injury, pediatrics, burn, penetrating chest trauma, penetrating abdominal trauma, emergency department deaths, in-house deaths, trauma during pregnancy, aortic transections, open tib/fib or femur fractures, severe pelvic fractures and multi-system organ failure. In addition, numerous charts are pulled on patients with an ISS >35; who were admitted between midnight and 6 a.m.; who were transfers; and who represented unusual saves and possibly preventable deaths.

While several charts are from the six month period prior to the site visit, the majority are pulled from the seven to twelve month period prior to that time. Why? Because very recent charts, while important as a reflection of what is occurring today, do not allow the team to follow the quality management process from start to finish. The earlier charts afford the team the opportunity to judge the effective utilization of the trauma registry; death audits; morbidity and mortality reviews, multi-disciplinary conferences, etc. It allows them to determine whether the proverbial "loop" was closed (i.e., when problems were identified were adequate steps taken to fix the problem and were re-audits done to make sure the problem was satisfactorily resolved).

Remember that the team is looking for trends, for patterns of care that would suggest a potential problem. They are discouraged from assuming an exceptional complication is an everyday occurrence (unless, of course, there are a myriad of exceptional complications) and are urged to focus on the larger picture, the things that really matter in ensuring quality patient care. They are discouraged from lecturing or criticizing and, instead, are urged to provide constructive comments from a review ultimately focused on patient outcome.

Before closing, it is only fair to point out that trauma center designation is a voluntary pursuit in North Carolina. Hospitals seek designation at their own initiative and don't receive big bucks for doing so. No one should make light of the fact that our trauma centers are continuously seeking to assure themselves, and the public, that they provide the highest standard of trauma care. To do so, they voluntarily subject themselves to intense reviews time and time again.

Oh, and by the way, if misery loves company, staff at a number of other hospitals will be glad to commiserate with those at Duke. Four additional hospitals are up for renewal this fall or winter including the state's only Level III, Cleveland Regional Medical Center (Shelby); one of the state's four Level II's, Moses H. Cone Memorial Hospital (Greensboro); and two additional Level I facilities, namely UNC Hospitals (Chapel Hill) and Wake Forest University Baptist Medical Center (Winston-Salem).



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North Carolina Office of Emergency  
Medical Services

# Latex Allergy: What Do You Know?

By Bonnie Taylor, RN, BSN, CEN  
Staff and Resource Nurse, Duke Emergency Department

Developing an allergy to something as ubiquitous as rubber can have devastating effects on one's health and well-being. What you as a health care provider know about latex allergy or natural rubber latex protein allergy (NRLPA) could save a patient from having a serious reaction to medical devices and equipment during their care. With this information, you may also be able to avoid becoming sensitized yourself.

## The Basics

Latex is a natural substance derived from the *Hevea Brasiliensis* plant, or rubber tree primarily grown in Malaysia. It is processed and used in the manufacturing of medical equipment, household products, toys, clothing, vehicles, as well as a myriad of other contemporary items. Some synthetic products may be referred to as "latex" but do not contain the proteins that cause latex allergy. The majority of people who encounter natural rubber latex products during general use in every day living have no health problems related to their use. Individuals who repeatedly come in contact with natural rubber latex products, particularly through skin and mucous membrane contact are at risk of developing NRLPA. Those in occupations that have high latex powdered glove use are also at risk for exposure to latex through skin contact as well as inhalation of aerosolized latex proteins bound to a cornstarch medium.

## Those at Risk

Workers in the health care industry, as well as in other occupations that frequently utilize latex gloves, such as hairdressers, day care providers, food handlers, and industry workers that manufacture latex products, are at risk for developing latex allergy. Also at risk are patients who have repeated exposure to latex medical equipment during medical, surgical and dental procedures (particularly children with urogenital diagnoses like myelomeningocele and spina bifida). People who are prone to allergies (atopic), who have health conditions or allergies known to be associated with latex allergy (neural tube defects or fresh fruit allergies) or who have had multiple

surgeries are thought to be at high risk for this allergy.

## Types of Reactions

There are three types of reactions that are associated with the use of latex products. The first is irritant contact dermatitis. Usually located on the hands, dry, itchy skin irritation can be caused by repeatedly using latex gloves. This can also be caused by frequent hand washing and drying, or the use of harsh soaps and chemicals. This is not a true allergy.

Allergic contact dermatitis is a delayed hypersensitivity. This can occur 24 to 48 hours after contact and may result from exposure to chemicals added to the latex during the processing of latex. These chemicals can cause reactions that may disrupt skin integrity, resulting in blisters and breakdown, thus promoting the exposure of latex proteins further.

Immediate hypersensitivity is the most serious reaction to latex. These reactions usually occur within minutes to hours after exposure and cause a variety of symptoms. This is a true allergy, as it is IgE-histamine mediated. Mild reactions can cause skin erythema, hives and itching. Respiratory symptoms can also occur in the form of sneezing, runny nose, itchy eyes, wheezing or coughing as a result of aerosolization of latex proteins. Cornstarch powder, found both on the interior and exterior of latex powdered gloves, binds with latex proteins as gloves deteriorate during use. Cornstarch is very lightweight and it can float in the air longer than its predecessor, talc, giving it more opportunity to be inhaled. This powder then eventually settles and accumulates in dusty areas above cupboards, countertops, equipment and your clothing.

## Routes of Exposure

The routes of exposure include the same routes of administration for medications: topical, inhalation, parenteral/intramuscular and mucosal membrane (including rectal, oral or vaginal).

## Statistics

Studies have demonstrated that between 7 and 17% of the exposed health

# 10th Annual Trauma Conference

March 6-7, 2000  
Sheraton Imperial Hotel  
and Conference Center  
RTP, North Carolina



This conference will focus on a variety of topics related to current trends in trauma care. The conference has been expanded to include concurrent sessions on both days to help you meet your educational needs. Our topics address care of the trauma patient across the continuum from pre-hospital through the rehabilitation phase.

## LATEX ALLERGY (CONTINUED FROM PG. 5)

care workforce has been sensitized to natural rubber latex and that anywhere from 1 - 6% of the general population also exhibit symptoms of sensitization. It is difficult to surmise the exact number of people affected because many people may be sensitized but unaware of it. They are either asymptomatic or don't relate their symptoms to latex. In addition, available statistics may prove to be inaccurate due to underreporting to the FDA.

### Diagnosis

A thorough medical history and immunologic testing is needed to determine whether an individual is truly allergic or not. It is recommended that at-risk populations have regular screening for NRLPA.

### Strategies to Reduce Exposure and Potential Sensitization

The American Academy of Allergy, Asthma, and Immunology and American College of Allergy, Asthma and Immunology issued a joint statement paper in 1997 recommending that latex glove purchase and use should consist only of low-protein, powder-free latex gloves. This may decrease the allergenicity of latex gloves. Also, by providing alternative suitable synthetic gloves as choices for workers can curb sensitization in high risk populations or further reactions for those already sensitized.

Although there are high risk populations identified, it is not known who will develop latex allergy or how much exposure to latex is required. It is thought that low protein, powderless gloves may be less allergenic, but this is no guarantee that health care workers or their patients will not still be at risk for developing this serious condition. In the arena of universal precautions, latex glove use is controversial, however, Occupational Safety and Health Administration (OSHA) has outlined that specific gloves be used for specific activities. Not all glove use requires latex. New gloves are becoming available on the market every year that are low-protein and powder-free or latex-free (synthetic) that conform to the American Society for Testing and Materials Standard (ASTM). This is the standard used by both the FDA and manufacturers.

It is prudent to review your patient supplies and medical devices currently in use and identify products made of latex that could be replaced with non-latex alternatives. The FDA now mandates that all medical devices be labeled as containing natural rubber latex, so this should be relatively easy. By replacing key items, you can protect patients from becoming sensitized or avoid a reaction for the sensitized patient who may not be identified or diagnosed as latex allergic. Some of these items may include but is not limited to:

<b>Gloves</b>	<b>Foley catheters</b>
<b>Nasal trumpets</b>	<b>Splinting devices/ cervical collars</b>
<b>IV tubing injection ports</b>	<b>Pacifiers/nipples/ bulb syringes</b>
<b>Ambu bags</b>	<b>Ace wraps/bandages</b>
<b>Syringes</b>	<b>Wound drains</b>
<b>Blood pressure cuff/ stethoscope tubing</b>	<b>Crutches</b>
<b>Medication vials with rubber stoppers</b>	<b>Band-aids and adhesive tape</b>
<b>ECG electrodes</b>	
<b>Tourniquets</b>	

### Living with Latex Allergy

Individuals who have (NRLPA) are affected in many ways. Depending on the severity of their allergy, they may have difficulty finding latex-safe medical and dental care or may be unable to stay with family and friends during the course of an illness due to a latex-laden hospital environment. They may have severe allergic reactions in stores where many rubber household items are available. They develop many fruit allergies and must be vigilant in the food they eat to avoid eating food that has been handled with latex gloves or packaged using latex based adhesives.

It is recommended that people who are diagnosed with NRLPA identify themselves as such by wearing a medic alert tag. The Medic Alert Foundation reports that as of 1999 more than 10,000 medic alert tags have been requested citing latex allergy.

### The Future

A trend in healthcare is evident that manufacturers are moving away from using natural rubber latex in their products. This October at the Emergency Nurses Association National Scientific Assembly our packets included a list of over 100 companies specifically advertising latex-free products. This demonstrates that health care product companies acknowledge the problems associated with latex and are striving to make their products safer. However, the use of latex products remains the rule and not the exception overall. Until latex-safe health care becomes a standard, how many more people will be sensitized?

Recently the FDA has mandated that all food handlers maintain a "barrier" between their skin and prepared food ready for consumption in order to avoid food borne illness. Many restaurants and food preparation companies are utilizing latex gloves more and more to reduce disease transmission through food handling. Education is greatly needed to promote the use of synthetic gloves rather than natural rubber latex to avoid both the sensitization of

another workforce and delivering latex proteins into food as a "silent ingredient" for consumption by the public.

The key is prevention. We already know this to be true in our daily work with trauma victims. It's simply a matter of education.

To report documented latex allergy contact: Medwatch at the FDA, 1-800-FDA-1088

Websites: Latex Allergy Help ([www.latexallergyhelp.com](http://www.latexallergyhelp.com))

Spina Bifida Association of America  
([www.infohiway.com/spinabifida/latex.html](http://www.infohiway.com/spinabifida/latex.html))

Potomac Latex Allergy Association  
([www.angelfire.com/md/plaa/main.html](http://www.angelfire.com/md/plaa/main.html))

Occupational Safety and Health Administration  
([www.osha-slc.gov/SLTC/latexallergy/index.html](http://www.osha-slc.gov/SLTC/latexallergy/index.html))  
Physicians Against Latex Sensitization ([www.pals.net](http://www.pals.net))

Latex Allergy Resource Page  
([www.familyvillage.wisc.edu/lib\\_latx.ht](http://www.familyvillage.wisc.edu/lib_latx.ht))

Cetra Latex-Free Products ([www.latexfree.com/](http://www.latexfree.com/))

A.L.E.R.T. (Allergy to Latex Education and Resource Team)  
([www.execpc.com](http://www.execpc.com))

References Available Upon Request





## Outreach Corner

### Following Up

By Claudia M. McCormick, RN, MSN

Happy Day Everyone!

This column is dedicated to follow up.

We hope all of our readers in the eastern part of the state are doing better from the hurricanes. What a great job you all did in very trying circumstances. We applaud your efforts.

**EMS Sheets:** This is getting better but we do have a way to go. The system breaks down when a patient is taken from the scene to a local hospital and then transferred to Duke. The EMS report actually becomes part of the local hospital chart. However the scene information is required for the Trauma Registry. Please continue to make sure that the scene information is sent with the patient.

**Trauma Stabilization:** I hope those of you that have had us to your place for the Trauma Stabilization Course have had as much fun as we did. This is a fun day of learning for all. Registered Nurses, EMS Personnel, and Physician Assistants are all welcome to attend. 12 – 16 people can take the course at a time. We can bring this course to your facility at the cost of \$25.00 per person. This will pay for the book (an excellent trauma resource) and a pin. High quality for a low price. Call me if you are interested.



**American Trauma Society:** Come and join the club! ATS - North Carolina division is looking for members. Primarily ATS is a group that focuses on trauma prevention with such programs as TraumaRoo and a variety of pamphlets, brochures, and posters. There is a newsletter, Traumagram that shares information on legislative activities, trauma awareness, and state/EMS activities. The NCATS annual meeting will be in April in Wilmington. Look forward to seeing you there.

**NEXT DUKE RAC MEETING – APRIL 28, 2000.** The same people should try to attend the general meeting each quarter but you do not have to be the person on each of the committees. Assign a committee to someone looking for a project or seeking an advance on a clinical ladder. Share the fun and excitement of the North Carolina Trauma System as it grows.

Guess those about cover it for me.

*Be safe and healthy,  
Claudia*

## Outreach Calendar

### March

- 6-7 Duke 10th Annual Trauma Conference
- 27-29 National Congress on Pediatric Injury Prevention  
Washington, D.C.

### April

- 13 NC ATS Annual Meeting  
Wilmington, NC
- 13 State Trauma Meetings  
Clinicians, Registrars & Physicians  
Wilmington, NC
- 28 Duke RAC Meeting

**March 6-7, 2000  
10th Annual  
Trauma Conference**

Contact John Duskey:  
919-684-2197

# Teamwork

Hello to everyone from Robeson County EMS and Southeastern Regional Medical Center in Lumberton.

We have been very busy lately with a wide variety of trauma ranging from GSW's to MVA's and farming accidents. Several months ago, two other paramedics from RCEMS and I were given an opportunity to take the Trauma RN Stabilization Class with several ER nurses. The class was excellent. My skills have improved as a result. The teamwork between EMS and the ED has been great! We usually quickly assess the patient and mechanism of injury; then, immediately call SERMC ED via cell phone to advise them of our traffic. Upon our arrival, they are usually ready in the trauma room with x-ray and all of the components of care for a critically injured patient. During the early morning hours, they have a surgeon on the way.

An example of this teamwork occurred with a 19 year old male with a GSW to his right upper chest area and an exit wound to his back. There was profuse bleeding caused by a SKS assault rifle round. The patient was pale and diaphoretic but conscious. There was no radial pulse. High flow oxygen was immediately applied. The patient was completely exposed and M.A.S.T. was applied.



I called SRMC and advised the ED of our traffic. En route, we started two large bore IV's, one with large diameter trauma tubing. With further assessment, breath sounds were clear. With aggressive patient care, BP rose to 100 palpatory.

Upon our arrival, the ED staff was well prepared with units of blood for the patient.

The patient was in the OR in 23 minutes and was found to have a liver laceration.

The swift definitive care for this patient was a direct result of the tactics we learned in the RN Trauma Stabilization Course and the harmonious systematic flow of all the components of our EMS and ED together as one.

*Greg Bounds  
Supervisor, Robeson County EMS*

Duke Trauma Center

## TraumaVue

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