



SAVING LIVES - REDUCING RISK

From The Editor

Welcome to the TSG Spring Newsletter. TSG remains committed to the development of System Solutions that improve the quality of care, improve patient safety, and reduce risk. At times, this mission requires reaching out and partnering with the best and brightest in key strategic areas in emergency medicine. The team approach is critical in taking care of a single patient, and is equally important in

developing a System Solution to ensure our patients' safety.

The two key areas that are the subject of this month's newsletter are Emergency Ultrasound and ED Triage. I want to thank Paul Sierzenski, MD, RDMS, FACEP of Emergency Ultrasound Consultants, LLC, (EUC) and Shelley Cohen, RN, MSN, CEN of Health Resources Unlimited, LLC, (HRU) for their outstanding contributions to the TSG Newsletter. We will continue to invite contributions from both EUC and HRU from time to time.

As always, we invite you to contact us with near misses, crashes, or timely saves in order to continue to provide our readers with excellent case reviews and cutting-edge patient safety issues. Remember that there are many resources available at www.thesullivangroup.com, including every EMTALA document you could possibly need; there are also many resources in the EM Toolbox which you will find under the Risk Resources tab. Thanks, and have a great Summer ■

Emergency Medicine • Ultrasound



I have attended several recent emergency medicine ultrasound presentations and have been absolutely overwhelmed by the quality, safety, and risk reduction opportunities this technology

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provides. The field is utterly exploding, and the list of indications for application of the technology at the bedside seems to grow by the month. Implementation of an Emergency Ultrasound program is a huge opportunity to improve safety and reduce risk in the immediate future. I believe that ED Ultrasound has become one of the pillars of risk and safety in the practice of emergency medicine. Therefore, I felt it was critical to create a partnership with a national champion in this important area.

TSG is extremely pleased to announce its partnership with Emergency Ultrasound Consultants, LLC, led by President and CEO Paul Sierzenski, MD, RDMS, FACEP. Paul is a Board Certified Emergency Physician and works for Doctors for Emergency Services (DFES) at Christiana Care Health System where he serves as the Director of Emergency, Trauma, and Critical Care Ultrasound; the Director of the Emergency Ultrasound Fellowship; and lead research faculty for the Department of Emergency Medicine. In 2002, Dr. Sierzenski co-founded Emergency Ultrasound Consultants, LLC, (EUC), a

national leader in point-of-care ultrasound education and quality assurance solutions. The company includes more than 25 board-certified and fellowship-trained physicians who are nationally certified in ultrasound.

Dr. Sierzenski has represented ACEP on several committees and inter-specialty conferences regarding aspects of healthcare reform in emergency medicine and acute care within the United States. Dr. Sierzenski is a voting member of the Centers for Medicare and Medicaid Services (CMS) and serves on the CMS Medical Evidence Development Clinical Advisory Committee.



EUC and TSG's first order of business is to create an online library of Emergency Ultrasound on the TSG Learning Management System. The first several courses are currently under development and will be available in 2011. The courses will include an overview of the subject area and the

individual applications with numerous case presentations supported by high-resolution ultrasound videos. We will keep you up to date on this important development ■



ED Triage

As the nation's EDs become more crowded and throughput has become front-stage across the country, front-end operations and patient management have never been more important. Which patient comes directly into a stretcher space? Should this patient have rapid triage or full triage? Who can sit safely in the waiting room for an hour? What systems should be in place for waiting room re-evaluation? All of these questions point in one direction – ED Triage. TSG has discovered yet another pillar in the delivery of quality, safe, and risk-managed patient care. EDs must implement a triage system that not only incorporates critical thinking skills, but also includes basic skills certification, ongoing competence evaluation, and updates.

TSG is thrilled to announce our new relationship with Health Resources Unlimited, LLC, (HRU) under the leadership

of President and CEO Shelley Cohen, RN, MSN, CEN. Shelley has been a national champion in ED triage for years; she has trained thousands of nurses in basic and advanced skills for triage and train-the-trainer programs, and has developed an ongoing toolkit designed to maintain skills and competence. Shelley is a practicing ED nurse and author of 12 books and numerous articles on ED triage practices and leadership solutions. Shelley has created an excellent hands-on program that makes it easy for EDs to incorporate a systematic approach to maintaining the highest level of triage competence.

TSG is currently working on two major projects with HRU. Shelley is incorporating all of her triage training into a library of course offerings on the TSG Learning Management System. Also, we have a 'first of its kind' freestanding Triage Training and Evaluation software program currently in beta in 8 emergency departments around the nation. We will keep you up to date on the fruits of this new partnership ■

Watch this 3-Minute Movie to Learn More about
The Sullivan Group & their EMRI Program.



Don't Get Burned! Hypotension With Fever May Be More Than Just Sepsis. Emergency Ultrasound Helps An EP Avoid "Anchoring" In A Critically Ill Patient.

*Paul R. Sierzenski, MD, RDMS, FACEP,
President and CEO, Emergency Ultrasound
Consultants, LLC*

KT is 54-year-old tax attorney who complained of fever, chills, productive cough, lower left anterior chest pain, and pain with cough. He had a history of chronic obstructive lung disease (COPD) and atrial fibrillation (AFIB), and was taking albuterol MDI, warfarin, and a calcium channel blocker. He had no history of travel abroad, obtained yearly vaccines for influenza, and occasionally smoked cigars.

On arrival by auto, his vital signs were a T 39°C (102.2°F) P 105, BP 97/55, RR 21, RA Pox 89%. Exam revealed moderate respiratory effort, coarse breath sounds with rhonchi, and an irregular tachycardia. There was no rash or lower extremity edema noted.

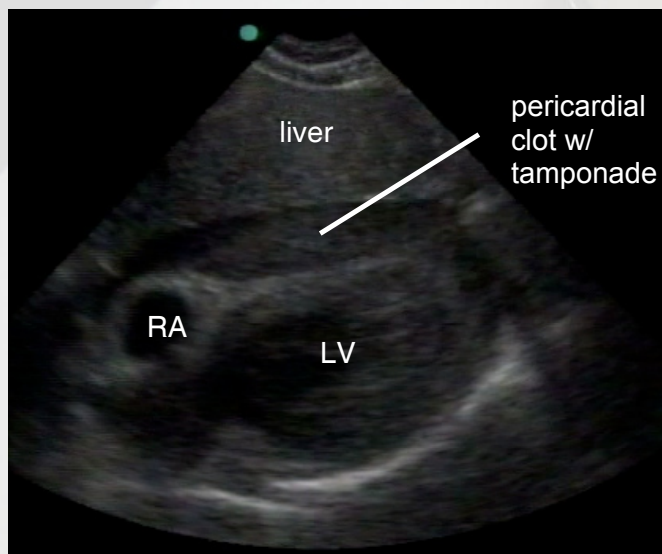
The physician ordered a portable chest radiograph (shown below) along with IV



access, normal saline bolus at 30 ml/kg, and labs with a clinical impression of pneumonia with potential sepsis. ECG was negative for ischemic changes. The physician then ordered broad-spectrum antibiotics and Tylenol pending further laboratory evaluation for pneumonia with potential empyema.

Approximately 30 minutes after IV antibiotics, the ED physician (EP) was called to the room for the patient's increased work of breathing, dyspnea, decreasing BP (84/50), and a pulse ox reading of 92% on 6L of O₂ by nasal canula. Labs were WBC 22.3, Hgb 13, lactate 4.9, INR 1.8, BUN/Creat 29/1.4, Troponin I 0.02. A "Sepsis Alert" was activated, and BiPAP was initiated with further albuterol.

The EP performed an Extended-Focused Assessment with Sonography in Trauma (E-FAST) exam, an Emergency Ultrasound (EUS) that was originally used in trauma, but is now frequently performed on any critically ill patient. The initial subxiphoid cardiac view (shown below) revealed a pericardial effusion and a pericardial clot with tamponade.



Subxiphoid Cardiac view from the E-FAST exam showing a pericardial clot, hemopericardium and tamponade

The patient received an ultrasound-guided central access via the right internal jugular; he was given fluids wide open and was intubated. He was taken to the OR for a

cardiac window with intra-operative trans-esophageal echo, which was negative for aortic dissection, but showed thickened pericardium, hemopericardium, and pericardial clot consistent with hemorrhagic pericarditis.

The patient tolerated the procedure well, and was extubated and discharged from the CICU within 48 hours. His hospital course was otherwise uneventful, and he was discharged on hospital day 9 without complication.

Discussion

This case illustrates several key points to consider for emergency and critical care physicians. The first is the issue of “anchoring,” which a number of the TSG courses address in great detail as a critical cognitive process. Physicians tend to “fix” their diagnostic and therapy algorithm on a specific pathway to diagnosis. Although often correct, anchoring can lead to a missed or delayed diagnosis and delays in therapy, and in its extreme, can result in an otherwise preventable patient death.

Emergency physicians treat critically ill and decompensating patients during every shift. Not only is the incidence of sepsis increasing, but the demands to rapidly identify and initiate therapy to meet departmental, institutional, and national quality measures for



sepsis continue to intensify. For this reason, EPs will often anchor on the diagnosis of “sepsis” in the febrile, hypotensive patient. However, there are several critical conditions that can cause hypotension and shock. Recent studies have shown that in both pediatric and adult patients with pneumonia and parapneumonic effusions, up to 50% may have concomitant pericardial effusions!

Emergency Ultrasound Reduces Risk

This case demonstrates how the EP can use EUS to differentiate patients with hypoten-

sion using the E-FAST exam and potentially other protocols such as scanning the aorta for an abdominal aortic aneurysm (AAA). EUS has been shown to be both sensitive and specific in identifying pericardial effusion/tamponade, thoracic and abdominal free fluid, and AAA, as well as in determining the patient’s preload status.

EUS is a “debiaser”; it is a technology that enhances a systematic approach, which can help avoid biases such as anchoring. The ability to dynamically “see” what is occurring inside the patient can help confirm that the EP is on the right track, or it can help him/her jump tracks and avoid disaster. Through this process, the diagnostic aspect of emergency ultrasound reduces risk and improves patient care ■

About Emergency Ultrasound Consultants, LLC

www.eusconsultants.com

Emergency Ultrasound Consultants, LLC, (EUC) provides physicians, groups, hospitals, and health systems with on-site education, quality assurance, and distance learning to safely integrate emergency and point-of-care ultrasound to the clinical environment, be it the emergency department, ICU, operating room, or inpatient floors; this places contemporaneous diagnostics and therapy responsiveness in the hands of the physician. We are pleased to partner with The Sullivan Group to assist physicians and healthcare systems improve patient care, reduce errors, and minimize risk.

EUC will bring you the most powerful diagnostic tool for patient care ■

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Triage Challenges: "It Only Hurts When I Turn This Way..."

*Shelley Cohen, RN, MSN, CEN, President
and CEO, Health Resources Unlimited, LLC*

An 81-year-old male, Mr. White, presented ambulatory to triage; his wife drove him to the emergency department (ED). He complained of a headache in the back of his head. He was holding the back of his head with one hand as he relayed the events from the previous evening. At about 11:30 the night prior, he got up to go to the bathroom; he misjudged a step, struck his head against a wall, and then fell to the floor. He had no loss of consciousness and went back to bed after the incident.

He told the triage nurse that he had a headache when he awoke that morning, and he pointed to his occiput. The pain was localized without evidence of any wounds. As vital signs were being obtained, he stated, "By the way, my neck hurts, but only when I move it like this." He then moved his head side to side.

The medical history revealed hypertension, arthritis, pneumonia, and TB. Mr. White said his pain level was 8 on a scale of 1 to 10.

Stroke Courses

Stroke program coordinators may want to utilize TSG's library of Medical Error & Risk Reduction courses to satisfy JCAHO's stroke center certification requirements.

- ➔ [Atrial Fibrillation & Stroke](#)
- ➔ [Pharmacology for Stroke Care](#)
- ➔ [Stroke Part 1](#)
- ➔ [Stroke Part 2](#)
- ➔ [Stroke Literature Review: Acute Stroke Management – The Case for Thrombolysis](#)
- ➔ [Subarachnoid Hemorrhage](#)
- ➔ [Thrombolysis](#)
- ➔ [Transient Ischemic Attack](#)
- ➔ [Use of Stroke Scales and Assessing Thrombolytic Eligibility](#)
- ➔ [Warfarin Complications – Case Studies 1](#)
- ➔ [Warfarin Complications](#)
- ➔ [Case 14: Subarachnoid Hemorrhage](#)
- ➔ [Case 16: Stroke Case Studies Part 1](#)
- ➔ [Case 17: Transient Ischemic Attack Case Studies Part 1](#)

click on the course name to see the course description



About Health Resources Unlimited, LLC

www.hru.net

Health Resources Unlimited, LLC, (HRU) is dedicated to delivering reality-based education, consulting, and coaching services for the healthcare industry. HRU is a recognized leader in triage education and promotes development of self-administered triage competency programs within hospital systems utilizing the Emergency Triage Toolbelt® Program. HRU President and CEO, Shelley Cohen, RN, MSN, CEN, has authored twelve books on triage, nursing skills, and leadership, and is a national speaker on these topics ■



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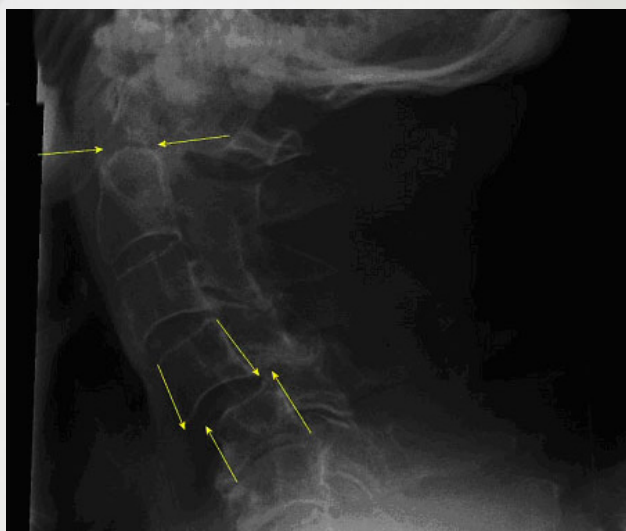
Vital signs were: temp 95.4°F (35.2°C); BP 108/69; pulse 78; respirations 16. Using a 5-level triage system, the nurse selected a level 4, and placed the patient back in the waiting area since there were no open exam rooms. The nurse entered the triage information into the electronic medical record system with the triage complaint of "Headache."

Approximately 2 hours later, the primary nurse called Mr. White into the ED examination area. At that time, the nurse noted that Mr. White had one hand on each side of his head. He told her he did not want to move his head because of the pain. The nurse

noted his fall the evening before and that his headache pain was now a 9 out of 10. She then performed a primary assessment that included a neurologic exam, which was normal. During her deposition, she testified that she assumed the patient had a headache, so her questioning did not go beyond what the triage nurse had asked the patient. With a normal neurologic examination, she felt she had completed her task, and she told Mr. White the physician would be in soon.

The physician evaluated Mr. White. He was concerned about the headache and neck discomfort. On examination, he noted that the patient had limited range of motion,

pain in the occipital area of the skull, and pain over the upper cervical spine. Following his examination, the physician ordered application of a hard cervical collar and placement of the patient on a spine board. The physician initially ordered plain films of the c-spine followed by a CT scan. Imaging revealed an odontoid or C2 fracture (shown below), and the patient was transferred to a trauma and spine center. By the time of transfer, Mr. White was experiencing weakness in his upper extremity. After a 5-day



admission, Mr. White was discharged home with a cervical collar in place and a follow-up plan for rehabilitation. Mr. White suffers from a partial disability with weakness in both arms. He was unable to return to his job as a computer programmer.

Pediatric Courses

Need Pediatric CME? Try these courses:

- ➔ [Neonatal Emergencies](#)
- ➔ [Pediatric Abdominal Emergencies](#)
- ➔ [Pediatric Infections](#)
- ➔ [Pediatric Meningitis](#)
- ➔ [Pediatric Respiratory Emergencies](#)
- ➔ [Case 02: A 15 year-old male with Abdominal Pain](#)
- ➔ [Case 04: A 14 month-old Febrile Child](#)
- ➔ [Case 06: A 23 month-old child with a Fever](#)
- ➔ [Case 13: Pediatric Missed Meningitis](#)

click on the course name to see the course description

Mr. White and his family sued the hospital and the emergency physician. They alleged that the triage and primary nurses failed to recognize the possibility of a cervical spine injury and that the delay in diagnosis resulted in permanent disability. The hospital and nurses were the primary target of the litigation. Early in the proceedings, all experts were critical of the nursing care; that resulted in the hospital adopting an early settlement position. The hospital settled the case for \$250,000.



WHAT'S NEW

Ten Reasons Your Urgent Care May Not Be As Safe As You Think It Is

[→ Learn More](#)

Ten Reasons Your Emergency Department May Not Be As Safe As You Think It Is

[→ Learn More](#)

Discussion

The mechanism of injury was a key factor in this case. Understanding the different mechanisms of trauma and the predictable pattern of injuries that may result assists the triage nurse in validating decisions, particularly when patients present with normal vital signs and/or without evidence of deficits. The ability to anticipate the injuries based on this concept is essential knowledge for triage staff. The history of present illness and the fall with pain in the

occiput should have created a high index of suspicion for cervical spine pathology and should have raised a red flag for the triage nurse.

Immediate intervention should have included complete c-spine immobilization and placement in a bed. When no beds are available for this type of patient, the triage nurse must go to the next person in command and collaborate on options (hallway stretcher, moving another patient from a stretcher to a wheelchair, etc.).

Another key factor in this case is the impact that the decisions made by the triage nurse have on other members of the ED team. For example, once the triage nurse had labeled Mr. White a "headache" patient, that label influenced the thought process of the primary nurse. This is a cognitive bias known as 'diagnostic momentum.' When one provider applies an impression or diagnosis, it sticks to the

patient and gains momentum over time. The primary nurse could have applied critical thinking and broken out of the momentum; but she assumed this was a headache case, thus perpetuating the mistake made at triage ■

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