

Can You Make the Diagnosis?



**Art Proust,
MD, FACEP**

Last winter, paramedics were dispatched to the scene of a MVC involving a 21-year-old male driver in a vehicle that t-boned a tree. There was 2-foot intrusion in the passenger door, and the patient was found

lying outside 30-35 feet away. The length of downtime was unknown, as the patient was amnesic for the event. He was responsive to noxious stimuli, cold to touch and shivering. He had fractured teeth (Figure 1), and was c/o only of facial and left lower extremity pain. V.S. P 78 R16 BP 136/78. What is your approach and diagnosis?



Figure 1

The scene noted only a single patient. Full c-spine immobilization was applied and the initial assessment of the primary survey revealed a cold, confused male with an intact airway (despite his appearance in Figure 1), and adequate ventilation and circulatory status. The Rapid Trauma Survey was significant for LLE paralysis. A cardiac monitor was applied but the rhythm showed artifact due to shivering. Warm packs, blankets, and warmed IV NS were initiated; dexstick revealed a blood sugar of 161.

Upon arrival to the ER, he was now alert, and oriented to person and place. His vital signs were significant for a temperature of 84 °F. Pertinent findings on exam revealed an open lower mandible fracture through the alveolar ridge with fractured lower central incisors; airway was open without stridor. Neck was immobilized and non-tender with a midline trachea and no JVD. His chest was non-tender and clear. Abdominal exam was benign. There was no obvious deformity of his LLE. Neurologically, however, he had an inability to plantar and dorsi-flex his left foot. Sensation was grossly intact to touch and pinprick; left patellar reflex was absent.

The patient was continued to be re-warmed with a warming blanket and warmed IV fluids. His diagnostic workup revealed a displaced fracture of his mandible at the left mental protuberance into the floor of



Figure 2



Figure 3

his mouth (Figure 2) and a fracture at the angle of the mandible (Figure 3).

Further work-up with a CT scan revealed a fracture at T1, a displaced fracture of T2 with displaced bone fragments causing central canal stenosis and a compression fracture of T3 (Figure 4). CTs of his head, cervical spine, and the remainder of the chest, abdomen, and pelvis were unremarkable.



Figure 4

The patient's temperature returned to baseline. After consultation with the trauma surgeon and spine surgeon on call, it was

Continued on Page 2

Inside

Rush Makes ITLS Training a Part of Program for Military *pg. 3*

Loss of ITLS Affiliate Faculty Felt Throughout Community *pg. 3*

Chapter Develops Process for Instructor Extension Cards in 2011 *pg. 5*

Can You Make the Diagnosis?

Continued
from Page 1

Case Study Examines Mandibular Fractures, Hypothermia, Thoracic Spine Injury

decided to transfer the patient to a Level I trauma center with spinal cord capabilities.

High dose steroids were initiated and the patient was transferred by ground ALS, as there were no helipad capabilities. The patient ultimately did well with surgical stabilization of his thoracic and mandibular fractures. One year later, he had regained movement of his left leg, but still had residual weakness and paresthesias.

Discussion

This presentation serves as a great teaching case as there is visual distraction of the open mandibular fractures, presence of hypothermia, and a thoracic spine injury. The mandible is the third most fractured bone of the face. The fractures usually occur in 2 or more locations because of its "U" shape and articulations at the temporomandibular joints. The most common sites are the condyle, ramus and angle followed by the symphysis and alveolar ridge. They are commonly open because they often fracture between teeth and communicate with the oral cavity (alveolar ridge). Fractures at the symphysis and angle of the mandible are considered high-impact injuries; 100 and 70 times the force of gravity are required to fracture the symphysis and angle, respectively. Therefore, the incidence of other major injuries may be as high as 50% for high-impact mandibular fractures.

Airway, breathing, and circulation are the first priority. The airway may be held open by a jaw thrust or other airway adjuncts, including oral intubation. Repeated airway assessment is mandatory with mandibular fractures. Isolated fractures rarely require intubation, but often require frequent suctioning. Emergency department treatment may include a Barton bandage (gauze wrapped over the crown of the head and around the jaw to provide support) and IV antibiotics if the fracture is open. Consultation with either an ENT or oralmaxillofacial

surgeon is required for definitive surgical treatment.

Hypothermia is a state in which the body's mechanism to regulate temperature becomes overwhelmed from a cold stressor. Hypothermia is classified as accidental or intentional, primary or secondary, and by the degree of hypothermia.

Accidental hypothermia results from an unanticipated environmental exposure to an unprepared individual. Intentional or therapeutic hypothermia is an induced state directed at neuroprotection such as after cardiac arrest.

Primary hypothermia is from environmental exposure with no underlying medical condition disrupting temperature regulation; secondary hypothermia, however, is a low body temperature from a medical illness causing temperature regulation to be interrupted, such as in a diabetic coma.

Mild hypothermia is defined as a temperature of 32-35 °C (89.6-95 °F) in which signs and symptoms may include shivering, tachypnea, altered judgment, dysarthria, and amnesia.

Moderate hypothermia is a temperature of 28-32 °C (82.4-89.6 °F). At these temperatures, oxygen consumption and renal blood flow decrease, and CNS depression increases. Most patients with a temperature below 32 °C (89.6 °F) are stuporous. Below 31 °C (87.8 °F), patients lose the ability to generate heat by shivering. At 30 °C (86 °F), patients develop a higher risk of arrhythmias such as atrial fibrillation. Pulse rate slows and cardiac output decreases. Between 28 °C and 30 °C (82.4-86 °F), pupils may become markedly dilated and minimally responsive to light.

Severe hypothermia is a temperature below 28 °C (<82.4 °F). Findings may include un-

responsiveness, fixed pupils, apnea, pulselessness, severe bradycardia, hypotension, rigidity, and increased susceptibility to ventricular fibrillation.

Prehospital management focuses on preventing further heat loss, rewarming the body core temperature, and attempting to prevent ventricular fibrillation or other malignant cardiac rhythms. Paramedics need to avoid inadvertent jerky movements of severely hypothermic patients; indeed, hypothermia-induced ventricular dysrhythmias in the field may be beyond resuscitation.

Initiate rewarming by placing the patient in an environment favorable to reducing further heat loss, removing wet clothing and replacing with dry blankets. Initiate active external rewarming with warm packs placed in the axillae, groin and on top of the abdomen. Also, warmed IV fluids to 43 °C (109.4 °F) may be utilized. Obtain a core temperature if possible, continue to monitor ECG and GCS, assess for local thermal injury (i.e., frostnip or frostbite), and minimize movement to decrease myocardial irritability.

Thoracic spine fractures, especially those from high-energy mechanisms, often result in neurologic injury. Vertebrae T1-10 are fixed because of the articulation with the thoracic cage. Therefore, large forces are required to fracture thoracic vertebrae. Neurologic deficit is encountered in 15-20% of all thoracolumbar injuries. With complete neurologic injury, very few patients regain useful motor function. The vast majority are due to motor vehicle crashes (45%), followed by falls (20%), sports (15%), and acts of violence (15%). The principles of prehospital immobilization remain unchanged. Operative stabilization of unstable thoracic fractures is standard.

— Art Proust, MD, FACEP
ITLS Illinois Chapter Medical Director

Rush Makes ITLS Training an Integral Part of Trauma Program for U.S. Military

LT. Matt Moyes,
NREMT-P I/C, RN
*Affiliate Faculty & ITLS
Military/Tactical Task
Force Member*

Gunfire erupts! Bomb blasts echo as air-raided sirens sound! The screams of wounded soldiers and civilians calling out "Medic!" or "Doc!" are heard with a deafening tone. These sounds are all too familiar to combat

medics serving in Iraq and Afghanistan, but for one day every few months, these sounds permeate downtown Chicago, signaling the culmination of a week of intense trauma training of soldiers and airmen taking part in the Rush University Medical Center Department of Emergency Medicine Advanced Trauma Training Program (ATTP).

The Rush Department of Emergency Medicine has been working with the U.S. Departments of Justice & Defense for a number of



Soldiers load a "patient" into a waiting Army ambulance as part of an exercise from Rush's Advanced Trauma Training Program (ATTP).

years on grant-funded projects. Rush was approached again by the U.S. Dept. of Defense and the Illinois Army National Guard to develop a program and curriculum to address the need in the field for combat medics to come better trained in acute trauma response, as well as to develop desensitization to the graphic nature of trauma injuries witnessed during combat.

Recognizing the necessity of a solid, internationally recognized trauma curriculum as a foundation for this endeavor, emergency medicine physicians at Rush contacted ITLS to help with this project. The combined ITLS Provider course has served as the cornerstone of what is fast becoming one of the premier trauma courses offered in the military.

In May 2007, the hard work and determination by Rush's staff paid off with the first offering of their Advanced Trauma Training Program to soldiers of

Continued on Page 4

Loss of ITLS III. Affiliate Faculty Felt Throughout Community

The ITLS Illinois and EMS communities recently lost a valued member. Ginger Worlds, NREMT-P, CCEMT-P, of Woodridge, passed away on November 2 following complications after surgery.



Ginger Worlds

Ginger was involved in EMS in Illinois for more than 20 years. Ginger was an EMS educator at Loyola University Medical Center, where she was the lead ITLS instructor and course coordinator. She served various communities of the western suburbs through Superior and Metro Paramedic Services.

Ginger introduced Pediatric ITLS to Loyola, where it is now an integral part of the paramedic training program. She also served as ITLS affiliate faculty for Illinois and frequently attended Advisory Committee meetings.

On the international level, Ginger was a member of the Chapter Support and Conference Planning Committees. She attended several International Trauma Conferences, including traveling to Guanajuato, Mexico, in 2008.

Ginger is survived by her husband of 25 years and their 19-year-old daughter.



Two soldiers prepare to start an IV during an ITLS Provider course that is part of the military training program coordinated by Rush University Medical Center in Chicago.

ITLS Course an Integral Part of Rush's Military Trauma Training Program

Continued
from Page 3

the Illinois Army National Guard's 708th Medical Company (Ground Ambulance), as they prepared to deploy to Kuwait. In addition to the ITLS Provider course, Rush incorporated into the curriculum a simulation skills lab, cadaver/procedures lab, shadowing of a trauma surgeon at an area Level 1 trauma center, and a field experience on one of the Chicago Fire Department's busy ambulances. The feedback from this first offering was tremendous, and word quickly spread throughout the military community of Rush's commitment to training military trauma care specialists.

As with any course, participant feedback has driven change. According to program co-director and attending emergency medicine physician Mamta Malik, MD, Rush's ATTP has expanded from the ITLS Advanced certification and skills labs to include Basic Disaster Life Support certification and a highly realistic mass casualty exercise.

Dr. Malik noted another important and popular module that has been added based on the injuries and situations plaguing the troops. Early identification and prevention of traumatic stress disorder and traumatic brain injury training is offered to equip medics with a "more than baseline" understanding of these debilitating issues that are commonly seen throughout the military medical community. Students are taught to start the treatment process earlier than has been seen before in modern warfare injury.

When asked what the most rewarding thing for the Rush instructors was and why they continue this course offering, Dr. Malik said, "Without a doubt, it is seeing the confidence in the skill sets the soldiers exhibit by the end of the grueling week of training, and especially when we hear back from the participants once they are back working in their military and civilian jobs; knowing these students are actually utilizing the components received at RUMC."

SSG Johnny Strapp, a medical NCO with the 708th Medical Company (GA), Illinois Army National Guard, took the original course offering in 2007. He came back to repeat the course this past July.

"This is the best medical training I've ever received in the Army," SSG Strapp said. "The instructors take extra time to make sure every soldier understands what they are learning, and that they have a solid handle on the skills learned. The course is by far better now with all the advanced offerings than the first class. I hope to see every soldier, active, Guard, and Reserve, go through this training."

Like their civilian counterparts, Army medics are required to have continuing education every two years in order to renew their professional certification. The Army requires its medics to obtain 70 hours during a certification cycle, and the Rush ATTP can provide 55.5 hours of credentialed training to assist this process. EMS providers receive CE from CECBEMS and the Illinois Department of Public Health, and the course has also been approved for continuing education credit by the American Nurses Credentialing Center's Commission on Accreditation, and American Academy of Physician Assistants' CE Review Panel. This broad offering of CE credit is what has led the National Guard Bureau and Army Reserve to send not only combat medics to the course, but also emergency medicine nurses and PAs.

Rush temporarily lost federal funding in 2008, but with help from Senator Dick Durbin and Congressman Danny Davis, the funds were restored, and the course is continuing stronger than ever. According to the program's military liaison/advisor Colonel (Ret.) David Leckrone, the federal earmark was awarded to Rush through full and open competition. This funding has trained approximately 400 soldiers and airmen to date, and while not officially rec-

ognized by the Army Medical Department yet, Col. Leckrone said the Army EMS Department is looking to certify this course as official continuing education training for its 68W – Healthcare Specialists.

In fiscal year 2011, Rush has planned eight more course offerings, each one training about 40-50 students.

As the wars in Iraq and Afghanistan continue and uncertainty of military actions elsewhere around the world looms, it can be said that thanks to the hard work and dedication of the Rush Emergency Medicine Department physicians and ITLS instructors, the U.S. military has some of the finest trained trauma care providers the world has ever seen.

LT. Moyes is a 24-year veteran of the U.S. Army Reserve & Army National Guard whose last overseas tour of duty was in Iraq serving as a combat medic. He currently serves as a platoon leader & nurse with Det. 1; Co. A; 801st Combat Support Hospital and in his civilian career is the EMS Education Coordinator for Will-Grundy EMS System / Silver Cross Hospital in Joliet, IL.



Two Illinois Air National Guard Airmen work on a patient during the mass casualty exercise at Rush. Photo courtesy of Staff Sgt. Stephanie McCurry, Illinois National Guard Public Affairs Office

20% Discount on ITLS eTrauma Course Available Now Through December 31

ITLS is working to make its newest training tool, ITLS eTrauma, even more accessible and affordable.

A special discounted price of \$105 has been negotiated and is now available through December 31, 2010. Save more than \$25 off the original purchase price and get started with this powerful program today.

ITLS eTrauma sets a new standard with online education that's interactive, flexible, accessible, and affordable for all. ITLS eTrauma presents the eight hours of ITLS Provider classroom instruction in a self-paced format that fits the non-stop lifestyle of trauma care providers.



To fit students' diverse needs, ITLS eTrauma is a multifaceted solution that can be utilized in two different ways:

1. For continuing education only

The ITLS eTrauma package includes 8 hours of continuing education credit from

CECBEMS upon the student's successful completion of the program.

2. For ITLS Provider certification Students who wish to become certified as an ITLS Provider can use ITLS eTrauma as the didactic part of a flexible alternative to the traditional 2-day in-person ITLS Provider course as a method for earning ITLS certification.

The ITLS eTrauma package includes the 6th edition *ITLS for Prehospital Care Providers* textbook to accompany the online course material.

Get started with eTrauma today online at www.itrauma.org/etrauma.

ITLS Illinois Develops Process for Instructor Extension Cards to Be Distributed During 2011

The new 7th edition ITLS provider manual will be published in August 2011. Many ITLS Illinois Instructor certification cards will expire starting in November 2010. The ITLS Illinois Advisory Committee decided after discussion at its September meeting that Instructor renewal/extension cards will be issued and mailed to instructors as their current cards expire, provided they have met the requirement of teaching 3 times in the 3-year certification period.

No instructor update/refresher course will be required until the new manual and teaching materials are available in 2011. The expiration date of the renewal/extension card will be February 2012, which allows a six-month time frame for the updates needed to the 7th edition.

In the past, an instructor renewal form was

mailed to each instructor asking them to indicate the dates and locations of courses they had instructed at and to return the form to ICEP. Through the Course Management System (CMS), ITLS Illinois is able to check faculty data and a history of the courses each faculty member is linked to. If instructors have not met their teaching requirements by the time their card expires, their renewal card will be on hold.

ITLS Illinois will announce more information about Instructor Update options closer to the date of the manual's publication.

If you have questions about this process or have not received a renewal/extension card and your card has already expired, please contact ITLS Illinois Chapter Coordinator Sue McDonough at 630-495-6400, ext. 201, or suem@icep.org

2011 Meeting Dates for ITLS Illinois Advisory Committee

The Advisory Committee approved a decrease in the frequency of committee meetings in 2011 to three meetings instead of four. All meetings will be held from 10:00 AM to 12:00 PM, and videoconferencing will be available at ICEP or Belleville. Affiliate faculty are required to attend one meeting per year but encouraged to attend more if they wish.

Friday, April 8, 2011

ICEP Office, Downers Grove

Friday, September 30, 2011

Memorial Hospital, Belleville

Wednesday, December 14, 2011

ICEP Office, Downers Grove

Highlights from 2010 International Trauma Conference in Reno, Nevada

The 2010 International Trauma Conference on November 3-6 in Reno, Nevada was a success, attracting 240 physicians, nurses, physician assistants, and EMS personnel from 17 countries and territories worldwide.

Representatives from Argentina, Australia, Brazil, Canada, Croatia, Hong Kong, India, Ireland, Italy, Japan, Palestine, Russia, Slovenia, South Africa, Puerto Rico, U.S. Virgin Islands, and the United States were in attendance.

ITLS Illinois was well represented with ten providers, instructors and course coordinators from the chapter in attendance. Thank you to Tony Cellitti and Rockford Health System, whose sponsorship of the conference allowed an additional Illinois voting delegate to attend.

The keynote lecture featuring Bryan Bledsoe, DO, FACEP, NREMT-P and special guest Randolph Mantoath examined health and safety considerations for EMS providers, exploring the effects of carbon monoxide (CO). Mr. Mantoath, a professional actor, director, producer and screenwriter best known for his portrayal of paramedic Johnny Gage in the long-running television series "Emergency!", travels with Dr. Bledsoe to pres-

ent this popular lecture because of a personal connection to the issue: he spoke about his own near-death CO experience as part of the session.

2010 ITLS Competition

The North Carolina team from Surry County was selected as the winner of the 2010 ITLS Competition during the International Trauma Conference in Reno, Nevada. This is the second year in a row the North Carolina team has taken the award.

ITLS Awards

ITLS presented its annual awards at the 2010 International Trauma Conference to honor seven individuals for their ongoing commitment to ITLS.

- Jackie Campbell Award: Donna Hastings, MA, EMT-P, Alberta, Canada
- Medical Director of the Year Award: Antonia Baranovic, MD, Croatia
- ITLS Ambassador Awards: Roberto Rivera, RN, EMT-P, Manati, Puerto Rico, and Enrico Corsi, RN, Italy
- Coordinator of the Year Award: Darby Copeland, M.Ed, RN, EMT-P, West Virginia



Randolph Mantoath (center) poses with ITLS President John Campbell and ITLS Editorial Board Chair Donna Hastings.

- Instructor of the Year Award: George Murphy, EMT-P, Massachusetts
- Harvey Grant Memorial Award: Jacky Chan Chun Kit, RN, Hong Kong

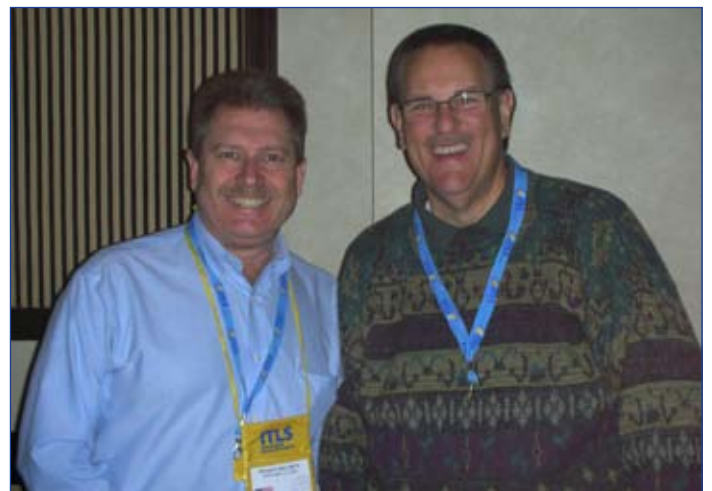
Trauma Case of the Year Competition

Four presenters delivered emotionally charged presentations of their real-life trauma cases during the inaugural "Trauma Case of the Year" competition held at the conference.

Hiroyuki Tanaka, MD, of Japan, was selected as the winner for his presentation, "A Case of Cultivator Trauma." The case described a patient with severe injuries after an agricultural accident.



LEFT: The North Carolina team works on a patient during the Competition. BELOW: ITLS Illinois Course Coordinators Mike Dant (left) and Greg Scott at the conference. This is the first time each served as voting delegates for the chapter.



ITLS Introduces Blue Instructor T-shirt

New Shirt Sells for \$14, Available Online at ITRAUMail.org Bookstore

A new ITLS T-shirt was rolled out at the International Trauma Conference in November and is now available for sale online at the ITLS Illinois Bookstore (www.itraumaIL.org).

The dark blue T-shirt features the ITLS color logo screenprinted on the front left chest and "INSTRUCTOR" screenprinted across the back shoulders in large yellow lettering.

The shirt sells for \$14 and is available in sizes Small through 3XL. To place an order, log on to the ITLS Illinois website and select the link for "ITLS Books and Specialty Items" from the Additional Information box. The Instructor T-shirt is the last item on the bookstore's Apparel page.

Or order your T-shirt by calling ICEP staff at 630-495-6400. You can also download an order form and fax it to 630-495-6404. There's still time to place your order before the holidays!



The blue ITLS instructor T-shirt is 100% cotton.

Upcoming ITLS Illinois Courses in 2011

For the most updated list of upcoming courses in ITLS Illinois or to find registration information for one of the below courses, please visit <http://cms.itrauma.org/CourseSearch.aspx>. You do not need to log in to access this page.

To return the most results, enter Illinois as the Chapter and leave other criteria fields blank. This will return all ITLS courses in Illinois currently entered into CMS.

If you need additional help, please contact Sue McDonough at suem@icep.org or 630-495-6400, ext. 201.

JANUARY 8-9, 2011
Combined Provider Course
Coordinator: Douglas Sears
Sauk Valley Community College
Dixon, IL

JANUARY 11-12, 2011
Combined Provider Course
Coordinator: Kerri Bates
Greenville Regional Hospital
Greenville, IL

JANUARY 28-29, 2011
Combined Provider Course
Coordinator: Laura Dagdick
McHenry County College
Crystal Lake, IL

FEBRUARY 18-19, 2011
Combined Provider Course
Coordinator: Deb Ward
Delnor Hospital
Geneva, IL

FEBRUARY 25-26, 2011
Combined Provider Course
Coordinator: Jill Pendegrass
Memorial Hospital
Belleville, IL

MARCH 1, 2011
Advanced Provider Re-Cert
Coordinator: Julie Childers
Arch Air Medical Headquarters
St. Louis, MO

MARCH 3, 2011
Advanced Provider Re-Cert
Coordinator: Julie Childers
Arch Air Medical Headquarters
St. Louis, MO

MAY 3-4, 2011
Combined Provider Course
Coordinator: Karen Wilson
Trinity College
Rock Island, IL

SEPTEMBER 16-17, 2011
Combined Provider Course
Coordinator: Jill Pendegrass
Memorial Hospital
Belleville, IL

the Illinois Chapter of International Trauma Life Support

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Two New ITLS Textbooks Slated for 2011 Release

The ITLS Editorial Board, under the direction of editor John E. Campbell, MD, FACEP, is at work on the 7th edition of the ITLS Provider manual, *ITLS for Prehospital Care Providers*. The release date for the 7th edition is scheduled for August 15, 2011.

As with the 6th edition textbook, the 7th edition will combine the ITLS Basic and Advanced curricula into one manual. The new manual will also feature updated photographs, illustrations, and more.

More information about the new edition will be published in future editions of the ITLS Bulletin and on ITRAUMA.org.

A revision of the ITLS Military Provider manual is also in progress, under the

leadership of lead editor Andy Kagel, MD, and senior editors William Pfeifer III, MD, FACS and Dr. Campbell. Dr. Pfeifer, a member of the Editorial Board and the Board of Directors, and Dr. Kagel are co-chairing the ITLS Military Task Force and 2nd Edition Military Planning Group.

The revised 2nd edition Military Provider manual will be released in the spring of 2011. The textbook is being produced as part of a collaboration between ITLS and Pearson Custom Publishing.

The new Military Edition will include five new chapters as well as new military-based scenarios and illustrations. Instructor slides to accompany the Military text will also be available. The prices for the Military materials have not yet been set.

Save the Date for Nashville in October 2011

The 2011 International Trauma Conference will be held in Nashville, Tennessee, on October 26-28, 2011 at the Nashville Airport Marriott Hotel.

Note that the conference day pattern will be changed slightly in 2011. Pre-conference workshops will be held Wednesday, October 26, as will the Opening Reception to kick off the conference. Day 1 of the conference will be Thursday, October 27, and Day 2 will be Friday, October 28. The conference social event will be held on Thursday evening.

We hope many ITLS providers and instructors from the Illinois chapter will make the trip and join us in Nashville!