

# EMS Update

An Emergency Medical Services Learning  
Resources Center Publication

Winter/Spring 2003  
Vol. 24, No. 1

## Effective trauma system helps teen survive ski accident and severe head injury

*A ski patrol member watches closely as a young, inexperienced skier leaves the chair lift.*



**John  
VanGilder,  
MD**



**Michael  
Kelleher, MD**

**A** 12-year-old skier hit an icy patch of snow that sent him head first into a tree. A chair lift operator at Sundown Mountain Ski Resort, Dubuque, radioed the ski patrol that there was an accident on Gun Barrel run.

Teams throughout the EMS system worked quickly to give the youth the best possible chance at survival and a normal productive life.

Sundown Ski Patrol is a member of the National Ski Patrol Association. They are trained as outdoor emergency medical technicians.

"We perform at a level comparable to EMT-Basics without the state certification and an ambulance on the ski mountain," says Mark Murphy, PS, medical officer, Dubuque Fire Department, and a ski patrol member for 10 years. "We usually treat minor injuries, frostbite, or specific ski injuries such as arm or leg fractures."

Murphy reached the patient first and called for assistance. "The boy was breathing on his own and had a pulse, but was unresponsive."



Mark Ludescher, PS, lieutenant, Dubuque Fire Department, and 12 year ski patrol member, located the crossed skis in the snow indicating an accident, and joined Murphy.

"Murphy was stabilizing the patient's head when I arrived at the scene," says Ludescher. "The boy

*continued on page 2*

# Ski injury cont'd

*Just months after a severe head trauma and brain surgery, the patient, at right, was back playing soccer.*



**Mark Murphy**



**Mark Ludescher**



**Jodie Bramel**



**John Evarts**



**Jeff Lipcamon**

had seizure activity and posturing with his arms out straight from his sides—signs there was some degree of head injury."

Jodie Bramel, director, Sundown Mountain Ski Patrol, heard the call in the patrol room. She left immediately with equipment in the all terrain transport unit. The patrol members gave the patient oxygen, immobilized his neck with a C-collar and placed him on a backboard.

"We give the best basic care we can as ski patrol members and get patients to a higher level of care as soon as possible," says Bramel.

John Evarts, EMT-P, Asbury Ambulance Service, arrived at Sundown just as the ski patrol was bringing the patient up the hill.

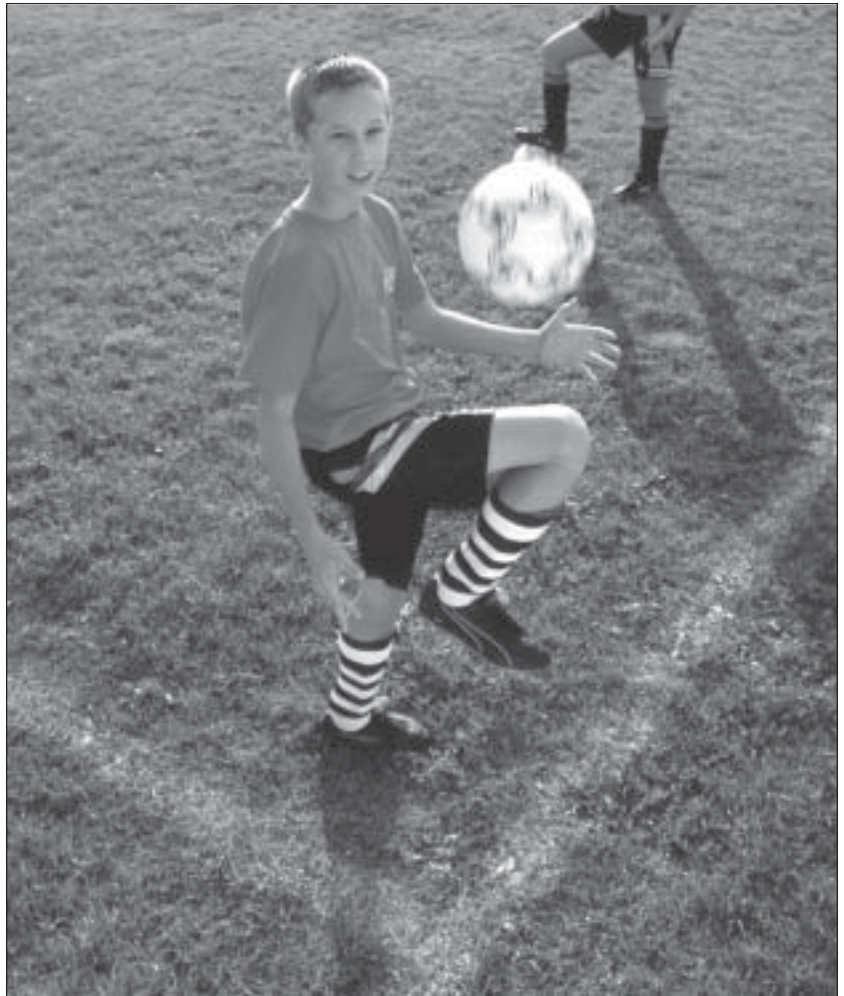
"Everything went well technically on the side of the hill and up to the ambulance," says Murphy. "We started an IV before transferring him into the ambulance."

Evarts continued giving oxygen during transport. "I called Mercy Medical Center in Dubuque and gave a trauma alert so they would be expecting us," says Evarts. "The patient responded to pain and there was no external bleeding or visible skull deformity."

Joan Bittinger, RN, was on duty in the Mercy Medical Center emergency room when the ambulance arrived. "The patient remained unconscious in the emergency room. His brain continued to swell and as a result, he began having seizures in the ER and was intubated."

Mercy Medical Center physicians Michael Zeman, MD, and Keevin Franzen, MD, immediately determined the boy had a serious brain injury and recommended the patient be flown by Air Care to Iowa City for evaluation by University of Iowa Health Care trauma team specialists.

John VanGilder, MD, professor, Department of Neurosurgery, examined the youth in the University of Iowa Hospitals and Clinics Emergency Treatment Center.



"The sooner we can see head trauma patients and evaluate their neurological status, the better the outcome for that patient," says VanGilder. "With a severe closed head injury, the brain reacts by swelling causing pressure on vital centers of the brain and possible death. The patient did not have any hemorrhaging, but there was swelling secondary to blunt trauma."

Despite medications and efforts to reduce the brain volume, the patient's condition continued to deteriorate and surgeons operated the next day.

VanGilder performed a decompressive craniectomy—removing the front quarter of the boy's skull from ear to ear and down to the eyebrows to give his brain the room it needed to continue swelling.

The patient regained consciousness in the Pediatric Intensive Care Unit, and was taken off the respirator. Soon after, he started rehabilitation to learn to speak and walk again.

The patient still had no frontal skull bone and wore a helmet at all times. VanGilder and his team operated again, implanting a permanent, bone-like acrylic skull into his head.

"The boy recovered quite well," says VanGilder. "We knew we needed to repair the skull defect, because it was obvious he was going to be active."

Michael Kelleher, MD, associate professor, Department of Pediatrics, UI Health Care, says, "The young man is definitely the best outcome from the worst case of head trauma I've ever seen."

Jeff Lipcamon, RN, BSN, flight nurse, UI Health Care Air Care, cared for the youth during air transport.

"Everyone within the trauma system from the beginning to the end used their skills appropriately to give the boy the best chance in life," says Lipcamon. "His outcome is a reflection of how well the EMS system works."

# Surgeon and former EMT-Basic joins burn and trauma team



**Lee Faucher,  
MD**

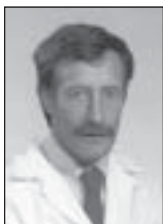
"As a former EMT-Basic and EMS volunteer, I want to assist those who provide prehospital care and continue caring properly for the patients they bring or send to our trauma center," says Lee Faucher, MD.

Faucher joined the University of Iowa Health Care, Department of Surgery, in July as a member of the burn, trauma and critical care teams.

"Dr Faucher is very well trained and brought us the new technique of Integra artificial skin for use on our patients who have very large burns," says J. Patrick Kealey, MD, professor, director, Burn Treatment Center, vice chair, Department of Surgery, University of Iowa Health Care. "We are pleased to welcome this very competent surgeon."

"This is a very reputable medical center where I want to make a difference in medicine," adds Faucher. "I look forward to advancing the already fantastic burn and trauma care here."

Faucher is a graduate of the University of Wisconsin College of Medicine, did his general surgery training at the University of Utah and fellowship in burn trauma at the University of Washington.



**J Patrick  
Kealey, MD**



## EMSLRC American Heart Association training ranks sixth in nation

Under Ginny Henry's direction, the University of Iowa EMS Learning Resources Center trained 27,600 students in Basic Cardiac Life Support, Advanced Cardiac Life Support and Pediatric Advanced Life Support from July 1, 2001 to June 30, 2002.

"This incredible training effort has ranked the University of Iowa EMS Learning Resources Center Training Center as number six in the nation," says Robert Poindexter, Regional Service Center Manager, the American Heart Association (AHA), Emergency Cardiovascular Care Program (ECC), Plains Region.

"The American Heart Association, ECC, Plains Region was proud to award Ginny the Training Center of the Year for her outstanding achievements, support and promotion of our AHA courses," says Poindexter.

"It is a true testament of Ginny's dedication to reducing disability and death from cardiovascular disease and stroke," he says.

Henry, RN, EMT-P, Training Center coordinator, EMS Learning Resources Center, also received the Volunteer of the Year award for the Iowa Region for 2002.

"Volunteers enable the AHA to further our mission and programs that the American Heart Association implements nationwide," Poindexter says. "Ginny Henry exemplifies this by her dedication, thoroughness and creative determination."

As Eastern Iowa Task Force chair, Henry was able to provide excellent leadership by encouraging the area members to increase their local activities, increase the number of instructors for the ACLS Experienced Provider program, and recruit area task force members to the Regional ECC Committee.

Henry also provided support with Operation Heartbeat and Mass CPR training activities and continues to be an advocate of AHA's mission and programs.

Rosemary Adam, RN, EMT-P, has worked with Henry on many state committees. "Ginny is very deserving of these awards," says Adam. "She is a knowledgeable, hard-working ECC volunteer who always has a smile on her face. She is a good resource for all of our ECC Instructors out there."

"We thank Ginny Henry and the University of Iowa EMS Learning Resources Center for providing the time and resources to conduct her programs and volunteer activities," adds Poindexter.



## Child car seat use/installation instructions critiqued

**I**nstruction manuals for installing child safety seats in cars are written in language too difficult for many adults to understand, according to research appearing in the March issue of *Pediatrics* medical journal.

Such manuals are written at a tenth-grade reading level on average, according to the study, while data suggest that nearly a quarter of U.S. adults read at or below a fifth-grade level, and at least 25 percent read at about an eighth grade level.

Conducted by the Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, Bethesda, Maryland, the study says about 80 percent of car safety seats are improperly installed or misused. The findings are cause for concern because motor vehicle collisions are a leading cause of death and injury for infants and children.

"Iowa currently reflects that of the national trend—most child passenger safety seats are not installed properly," says Katrina Altenhofen, PS, state coordinator, Iowa Bureau of EMS. "This is due to a number of factors, one of which is complicated safety seat installation instructions."

According to the Center for Disease Control (CDC) figures for 1999, more than 2,100 children under

age 16 were killed and more than 320,000 were injured while riding in a motor vehicle. Nearly half of children under age five who are killed in motor vehicle crashes in the U.S. are riding unrestrained.

Car safety seats, when correctly installed and used, are extremely effective in saving children's lives, reducing the risk of death by as much as 71 percent for infants. However, they are complicated to install and use, in fact, studies have found that as many as four out of five car safety seats are installed or used incorrectly.

To ensure that the child is securely fastened in the child seat, the buckle should be checked to see that it is fully latched every time the seat is used by:

- i inserting the latch plate fully into the buckle
- i listening for a click; and
- i tugging firmly on the harness to make sure the buckle is latched.

"We hope that parents and caregivers will take advantage of Iowa's child safety seats inspections. This is one more service we hope will contribute to a decline in the number of children who are incorrectly restrained or not restrained at all," adds Altenhofen.

To date over 400 Iowans have received the National Highway Traffic Safety's four-day Child Passenger Safety Technician certification training.

"These individuals conduct child passenger safety seat checkup events as well as permanent 'Fit Stations'," says Altenhofen.

For child safety seat inspection and training information contact Lisa Lutz, injury prevention coordinator at the Iowa Department of Public Health's Bureau of Emergency Medical Services at 1-800-SAVE-EMS.

The Maryland researchers say car safety seat makers plan to rewrite most of their instructions to make them more readable.

"The only way to protect a child in a vehicle is by using a safety seat," adds Altenhofen. "Child occupant protection laws in every state require child safety seats."



**Katrina Altenhofen**

# Children defibrillated in prehospital cardiac arrest

*The "Beyond the Barriers" project is directed toward improving the survival and care of children with cardiac arrest in the prehospital setting.*

**A**EDs now can be used to treat children younger than eight years of age who need emergency care for certain types of life-threatening arrhythmias.

An automated external defibrillator (AED) is an electronic device that recognizes and restores normal heartbeat rhythm through electric shock and is as accurate in recognizing when life-threatening arrhythmias are detected in children as in adults, according to a study completed by researchers in Iowa City, Seattle, Boston and San Diego.

Dianne Atkins, MD, professor, Pediatric Cardiology, University of Iowa Health Care, was an investigator in that study completed in 2000.

"Certain types of abnormal cardiac rhythms are shockable," says Atkins, "while others are not. The AED that was studied proved to be very accurate at evaluating abnormal pediatric heart rhythms."

Atkins is going a step further in her research and is conducting a study to examine prehospital defibrillation. *Beyond the Barriers: Project EQUIP*, funded by a three-year grant through the Health Resources and Services Administration, has a primary goal to develop a quality improvement program on pediatric cardiac arrest for prehospital providers.

"Ventricular fibrillation does happen in children and if EMS professionals look for it, they will see it," says Atkins. "The simple, reliable and fast methods to look for VF are easy to learn. If the EMS personnel have an AED and accompanying pediatric pads, they can defibrillate a child."

The American Heart Association defines ventricular fibrillation (VF) as chaotic electrical cardiac activity where there is no pulse.

"It's important for EMS personnel to check for ventricular fibrillation because they may have the opportu-



nity to defibrillate and save the child," adds Atkins. "If they wait, the child who could have been in VF, may be in asystole by the time they arrive at the hospital. Data nationwide shows a child's recovery is better when ventricular fibrillation is identified and treated early."

Ventricular fibrillation occurs with 10 to 20 percent of pediatric cardiac arrest patients across the country. If a child experiences VF, the only treatment is defibrillation.

With the recent FDA approval of pediatric defibrillator pads for children under the age of eight, prehospital EMS providers can safely treat children with modern, accurate technology.

Melanie Kenney, RN, MA, CPNP, research assistant, Pediatric Cardiology, is the *Beyond the Barriers* project coordinator. Kenney began collecting data last June from all Iowa documented cardiac arrests treated by prehospital personnel.

"Our first focus was to look at pediatric calls, but we are looking at all ages in the state mandated cardiac registry," says Kenney.

The ability to collect the data regarding cardiac arrest cases is

quite high since Iowa requires all EMS cardiac resuscitations be submitted to the state.

"It is important for us to have accurate data to analyze for this study," says Kenney. "We appreciate the EMS providers' efforts to submit the data. We look most closely at CPR, defibrillation and medications on run reports for our study; the time intervals of these are most important. The EMS community can know that their time to submit the data is worthwhile."

Complete documentation of adult and pediatric cardiac rhythms, and accurate birthdates are very important. Kenney says their biggest challenge is incomplete information on the cardiac arrest reports.

Kenney and Atkins hope the nearly 900 ambulance services in Iowa will help them and continue, or begin if they haven't been, submitting complete data to improve protocols and improve the prehospital care of children.

Kenney will analyze the currently used treatment and techniques for managing cardiac arrest in children.



**Melanie Kenney**



**Doug York**



**Lori Hartley**

*continued on page 6*

# Defibrillation cont'd

**Dianne Atkins, MD, right, encourages prehospital EMS professionals to look for ventricular fibrillation in children.**



"The data will help us identify prehospital areas to be offered educational programs," says Kenney. "We are developing a quality improvement system of data collection and result analysis."

The study is an evaluation system that incorporates quality assurance, data collection, and educational tools to help improve the survival and care of children with cardiac arrest in the prehospital setting in Iowa.

Atkins and Kenney will provide information from the collected data and quality improvement program to the Iowa Bureau of EMS and EMS providers. They can then use those results in prehospital quality improvement initiatives.

"Using web-based technology, we want to increase awareness and provide a variety of educational opportunities for EMS personnel across the state," adds Kenney.

"Research is critical for us in the prehospital setting because it tells us if we're effective," says John Baxter, PS, EMS director, Shenandoah Ambulance Service, Shenandoah, Iowa. "When you measure the outcomes and benefits to using AEDs and conclude they are viable, it helps EMS services base their decisions on what type of equipment to buy and training to offer."

"Because EMS responders defibrillate children substantially less frequently than they do adults, our primary goal is EMS education," says Kenney.

Kenney and Atkins are developing a video that demonstrates use and placement of pediatric AED pads. They are also in the process of developing a website to be located at [www.Kidsdefib.org](http://www.Kidsdefib.org)

"We want to encourage the EMS responders to take the seconds to put on the AED," says Kenney. "If the rhythm is not shockable, then the rescuers will follow standard cardiac arrest protocol. If VF is present, they need to document and treat the patient. One responder can be attending to the child's airway while the other is getting the AED."

Kenney and Atkins will submit each year's findings and data analysis to the Iowa Bureau of EMS and ambulance service medical directors. A final report will be completed in 2005.

The Iowa Bureau of EMS provides the data for the *Beyond the*

*Barriers* project and assists with the data analysis. Doug York, PS, director, and Lori Hartley, RN, nurse evaluator, both with the EMS Learning Resources Center, are assisting with the study. Hartley will focus on the cardiac rhythm reviews once data is collected and York gives Kenney and Atkins the paramedic insight on defibrillation.

If you have questions contact Melanie Kenney at (319) 353-6851 or [melanie-kenney@uiowa.edu](mailto:melanie-kenney@uiowa.edu)

*"If the EMS personnel have an AED and accompanying pediatric pads, they can defibrillate a child. We are now able to safely treat children in cardiac arrest with modern, accurate technology."*

*Dianne Atkins, MD, pediatric cardiologist, University of Iowa Hospitals and Clinics*

## EMS Update

*EMS Update* is published three times yearly by the EMSLRC for emergency medical service professionals. Correspondence should be addressed to *EMS Update* Editor, EMSLRC, the University of Iowa Hospitals and Clinics, 200 Hawkins Drive, 6-South, GH, Iowa City, IA 52242.

### Contributing Sponsors:

Acute Care, Inc  
Armstrong Medical Industries  
Emergency Practice Associates  
Iowa Chapter, American College of  
Emergency Physicians  
Laerdal Medical Corporation  
ZOLL Medical Corporation

**Director:** Doug York  
**Writer/Editor:** Jeri Irvine

**Photo:** pg 2, Doug Benton, fisheye, Hiawatha, Iowa

**Printer:** UI Printing Department

**View the *EMS Update* at:**  
[www.uihealthcare.com/emslrc/](http://www.uihealthcare.com/emslrc/)

### CORRECTION:

The University of Iowa Health Care, UI Consult, Integrated Call Center can be contacted at 1-800-322-8442

**FAX (319) 353-7508**  
**Phone (319) 356-2597**

**Do you have an interest in certain EMS topics?**

**Please e-mail your questions and suggestions to**  
[irvinej@uihc.uiowa.edu](mailto:irvinej@uihc.uiowa.edu).

**All e-mails will receive a response.**

The University of Iowa prohibits discrimination in employment and in its educational programs and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information on nondiscrimination policies, contact the Coordinator of Title IX, Section 504, and the ADA in the Office of Affirmative Action, (319) 335-0705 (voice) or (319) 335-0697 (text), 202 Jessup Hall, The University of Iowa, Iowa City, Iowa, 52242-1316.

People with disabilities are welcome at the University of Iowa Hospitals and Clinics where reasonable accommodations will be made upon request. Please contact the UIHC Department of Social Service, (319) 356-2207.



**NATIONAL  
EMERGENCY  
MEDICAL  
SERVICES  
W E E K**



## EMS: When it Matters Most

National EMS Week, May 18-24, 2003



### Jones named Bureau of EMS chief

A long-time paramedic has been promoted to head of the Iowa Bureau of Emergency Medical Services. Ray Jones, a Washington, Iowa native has been department coordinator of EMS services in southeast Iowa for 15 years.

Jones also previously managed ambulance services in Washington and Iowa City. He is a founding member of the Iowa EMS Association and was one of the first paramedics certified in the state when that program began in 1980.

The Bureau provides leadership and support for the EMS and trauma care in Iowa. The Bureau is also part of Iowa's efforts to defend the state in the event of a bio-terrorist attack by working to ensure that the nearly 1,000 EMS service providers across the state have training and equipment they need in case of a major disaster.

"I very much look forward to the opportunities and challenges that face EMS," commented Jones. "Our mission is to protect and promote the health of Iowans. There is a new emphasis on EMS and disaster preparedness since September 11 and we need to do all we can to assist Iowa's generous volunteer EMS providers to enable them to carry on their community commitment."

"We're a team; I want to create the right environment so emergency response managers who have their own areas of expertise, can do their jobs," Jones adds.

## EMS Week 60 seconds of silence will honor and remember

prevent injuries and what to do in a medical emergency.

Each year, ACEP develops and distributes free EMS Week organizational kits to help communities plan and promote activities for the week. Kits are distributed to hospital emergency departments, state EMS offices, fire departments, and EMS services across the country.

The EMS Week kit contains the EMS Week Planning Guide, and contains numerous fact sheets addressing important injury prevention and health topics.

Special days during the week-long observance include:

**Wednesday, May 21 Annual Emergency Medical Services for Children Day** focuses on the essential need for specialized emergency care for children to ensure that every child in the nation receives the highest quality emergency care possible.

**Saturday, May 24 Annual National Moment of Silence** was created to honor the nation's EMS providers who have given their lives in the line of duty. All EMS and communications agencies participating observe 60 seconds of radio silence on this day at 7 p.m. (EDT). Visit <http://nmos.nemsms.org> for more information.

"While many Americans are worried about terrorism and weapons of mass destruction, they can feel great comfort knowing that if an event occurs, a heroic league of EMS professionals will be ready to respond to the medical needs of their community," says George Molzen, MD, president, American College of Emergency Physicians (ACEP), the national organizational sponsor of this annual campaign.

It is important for the nation to celebrate EMS Week and recognize these individuals that give their lives to saving ours.

This year's theme, "EMS: When It Matters Most," underscores the commitment and dedication of the 750,000 EMS providers coast-to-coast who serve their communities.

Emergency Medical Services week honors EMS providers (paramedics, emergency medical technicians, first responders, fire fighters, and the police) and raises public awareness about health and safety issues, including how to



George  
Molzen

# EMSLRC course calendar

		MD (CMEs)	RN (CEUs)	EMS (CEHs)
<b>2003</b>				
Apr 3-4	Iowa City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Apr 5	Ft Dodge: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor Renewal	4.0	0.4	4
Apr 14-15	Iowa City: Prehospital Trauma Life Support Basic/Advanced Provider	0	1.6	16
Apr 17-18	Iowa City: Trauma Nursing Core Course	0	1.4	14
Apr 21-May 1	Iowa City: Critical Care Paramedic Program	0	0	94
Apr 25	Waterloo: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor Renewal	Varied	Varied	Varied
Apr 26-27	Sheldon: Neonatal Resuscitation Program Provider/ Pediatric Education for Prehospital Professionals	0	0	16
May 2	Iowa City: Critical Care Paramedic Refresher	0	0	8
May 3-4	New Hampton: Neonatal Resuscitation Program Provider/ Pediatric Education for Prehospital Professionals	0	0	16
May 10-11	Iowa City: Neonatal Resuscitation Program/ Pediatric Education for Prehospital Professionals	0	0	16
May 12	Iowa City: Neonatal Resuscitation Program Provider/Provider Renewal	0	Varied	0
May 15-16	Mason City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
May 15-16	Iowa City: APLSóThe Pediatric Emergency Medicine Course	16.5	1.8	18
May 17-18	Shenandoah: Neonatal Resuscitation Program Provider/ Pediatric Education for Prehospital Professionals	0	0	16
May 19	Iowa City: EMT-Basic Training Program begins	0	0	0
May 23	Iowa City: Advanced Cardiac Life Support for the Experienced Provider	7.5	.78	8
May 23	Iowa City: Advanced Cardiac Life Support for the Experienced Provider/Instructor	10	1.05	10
May 29-30	Iowa City: Advanced Trauma Life Support Instructor	13	0	0
Jun 7-8	Mt Vernon: Prehospital Trauma Life Support Basic/Advanced Provider	0	1.6	16
Jun 9-19	Mason City: Critical Care Paramedic Training	0	0	94
Jun 12-13	Marshalltown: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Jun 20	Iowa City: Prehospital Trauma Life Support Instructor/Coordinator	0	0.7	7
Jul 7	Iowa City: Paramedic Specialist Full-time Training Program begins	0	0	0
Jul 25	Iowa City: Advanced Cardiac Life Support Provider Renewal	0	.45	0



University of Iowa  
Hospitals and Clinics, EMSLRC  
200 Hawkins Drive, 6-South, GH  
Iowa City, Iowa 52242-1009

Nonprofit Organization  
U.S. Postage  
PAID  
Permit No. 45  
Iowa City, Iowa

RETURN SERVICE REQUESTED