

# EMS Update

An Emergency Medical Services Learning Resources Center Publication

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Vol. 20, No. 1

## Hyperbaric Oxygen Therapy promotes healing

*The hyperbaric chamber, at right, is large enough to accommodate up to six patients comfortably in addition to a therapist, who accompanies patients on all treatments. During hyperbaric chamber treatment sessions, patients wear a hood in an oxygen-rich environment. The University of Iowa Hospitals and Clinics has been using HBO Therapy since 1988.*

Carbon monoxide poisoning is just one illness Hyperbaric Oxygen therapy (HBO) can help patients overcome. Hyperbaric Oxygen therapy provides additional oxygen to the body tissues. This is done by placing the patient's entire body under increased atmospheric pressure in a closely monitored air-tight chamber. During HBO therapy, the patient breathes 100 percent oxygen for a restricted time.

"The effects of treatment are due to an increase in surrounding oxygen pressure displacing the poisonous carbon monoxide gas from the tissues," says J. Eric Greensmith, MD, PhD, director of the Hyperbaric Medicine Service, and assistant professor, Department of Anesthesiology, the University of Iowa Hospitals and Clinics (UIHC).

Carbon monoxide (CO) poisoning is of particular interest to emergency personnel since it usually occurs in the prehospital setting and the patients require emergency care.

"This is the time of year we receive most of our requests for information on carbon monoxide poisoning," says Sherry Sparks, senior respiratory therapist, with the Hyperbaric Medicine Service at



UIHC. "These inquiries may be due to the winter season upon us with malfunctioning furnaces or improper exhaust ventilation, but CO poisoning is a year-round phenomenon."

Emergency rescuers should suspect carbon monoxide exposure if the patient is in a CO environment. Common sources of CO include: auto or any engine exhaust; house fires; faulty heating systems; gas-powered saws; and indoor grills.

"Patients with CO poisoning may present with flu-like symptoms

(without fever)," says Greensmith. "In some cases, entire families may present with unexplained symptoms. Abnormal behavior in victims removed from automobiles would raise suspicion of CO poisoning. Drugs and alcohol, which may be present in accidental exposures to CO, may also play a role in self-inflicted injuries."

The decision to transfer unconscious patients with CO poisoning to the University of Iowa Hospitals and Clinics for HBO therapy is made between the

*continued on page 2*

# Hyperbaric

*The UIHC hyperbaric chamber, at right, measures 23 feet long by 7 feet high. Each patient receives 100 percent oxygen in a high atmospheric pressure environment.*



*J. Eric Greensmith, MD, PhD*



*Sherry Sparks*

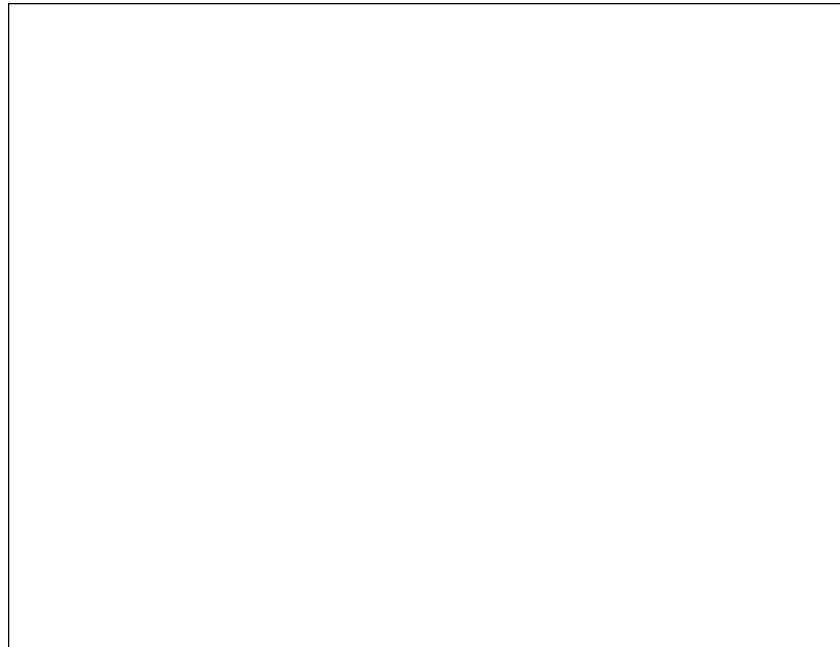
referring and UIHC Hyperbaric Medicine Service physicians. They evaluate the signs and symptoms at the exposure site, at the time when first seen by a physician, and the time the referring physician contacted the Hyperbaric Medicine Service.

Differences in the underlying health status of individuals, level of physical activity during the exposure, the severity as well as the duration of exposure to CO is very important.

Emergency crews should transfer patients with CO poisoning on 100 percent oxygen, through an oxygen mask or ET tube. Unconscious patients should be intubated. Positive pressure ventilation with hyperventilation helps prevent or reduce swelling in the brain. EKG monitoring is also necessary.

The local hospital's quick and appropriate treatment reduces the carbon monoxide level before the patient is transferred to the University of Iowa Hospitals and Clinics for further treatment in the hyperbaric chamber.

"The combination of concentrated oxygen and increased atmospheric pressure causes the blood to carry greater concentrations of oxygen, which patients need to survive carbon monoxide poisoning," says Greensmith. "Not only is oxygen-carrying blood



affected by carbon monoxide, but every cell in the body is dependent on oxygen for life. HBO therapy results in a greatly improved supply of life-giving oxygen to the tissue. For some patients, it is life-saving therapy."

Under normal atmospheric conditions, the air we breathe is composed of 21 percent oxygen and 79 percent nitrogen. During HBO therapy, patients breath 100 percent oxygen at up to three atmospheres of pressure.

"Hyperbaric treatment is painless," says Sparks, "but patients may have the sensation of a fullness in the ears, similar to what is experienced driving up or down a mountain road, or changing altitudes in an airplane. The feeling of

fullness occurs as the eardrums respond to the changes in atmospheric pressure."

Near the end of the treatment, Hyperbaric Medicine Service personnel gradually decrease the chamber pressure. This is the decompression phase, which usually lasts for about seven minutes. During the decompression, patients will experience a similar sensation in their eardrums.

If you suspect carbon monoxide poisoning, have questions or would like to refer a patient, please call the Hyperbaric Medicine Service at (319) 356-8220. Hyperbaric Oxygen Therapy has been proven effective for a number of medical and surgical conditions.

## National EMS Week celebrates "Meeting the Challenge"

**T**he American College of Emergency Physicians (ACEP) announces that National Emergency Medical Services (EMS) Week will celebrate its 25th anniversary in May.

This year's celebration is scheduled for May 16-22, 1999, and the theme for the week is, "EMS: Meeting the Challenge", reflecting the evolution of

EMS and looking forward to a new century of service.

"The Silver Anniversary of EMS Week will provide an opportunity to reflect on 25 years of EMS and to honor the approximately 815,000 EMS providers nationwide who deliver lifesaving emergency care 24 hours a day, seven days a week," says John Moorhead, MD, president of ACEP. "Each year, ACEP provides EMS Week planning kits to help communities plan and promote activities. In addition, National EMS Week is an opportunity for the public to learn about injury prevention, safety awareness, and medical emergencies. State and local

activities honoring EMS providers and educating the public will be held across the nation throughout the week."

The special anniversary theme, "EMS: Ready for the 21st Century," which places a special emphasis on the challenges facing EMS of the future. Dr Moorhead notes "there are a number of new challenges facing EMS — in clinical care, medical oversight, communications, funding, and research."

EMS Week planning kits are designed to help EMS coordinators organize local activities and will be distributed in February to state EMS offices, hospital emergency departments, fire departments and EMS providers.

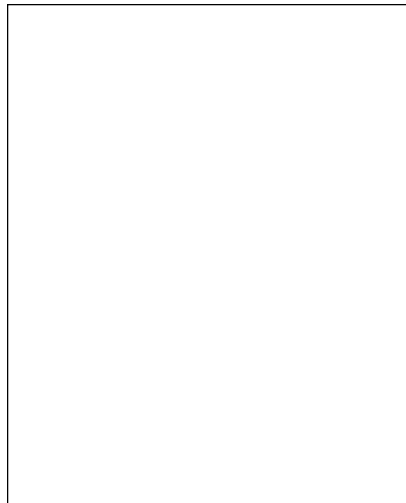
# Eye injuries are common; some are true emergencies

*An ocular trauma photo, at right, shows a traumatic hyphema or blood within the anterior chamber of the eye commonly caused by a blow to the eye.*

**E**ye injuries are common and some are serious. According to Keith Carter, MD, associate professor, Department of Ophthalmology, the University of Iowa Hospitals and Clinics, the most common types of eye injury involve the cornea—the clear, protective "window" at the front of the eye.

"The cornea can be scratched or cut by contact with dust, dirt, sand, wood shavings, metal particles, or even an edge of a piece of paper," says Carter. "Usually the scratch on the cornea is superficial or a 'corneal abrasion'."

A corneal abrasion occurs when the outer layers of the cornea are rubbed off. The injury often results from a foreign body scratching the cornea, and it is also common in those who wear contact lenses. Patients with a corneal abrasion usually complain of pain and foreign body sensation, sensitivity to



*Keith Carter, MD*

light, excessive tearing, and sometimes a decrease in visual clarity.

Because the cornea is extremely sensitive, abrasions can be painful. Tears, blurred vision or redness around the eye can suggest a corneal abrasion. Management of corneal abrasion is gentle irrigation with clear fluid and patching to prevent eye movement and further aggravation.

Eye traumas are also emergencies and often involve blunt and penetrat-

ing injuries.

"Although few eye injuries are truly urgent, all victims of ocular trauma should be evaluated by a physician. Some patients require specialized care by an ophthalmologist," says Carter.

Ocular trauma can occur from motor vehicle accidents, sport and recreational activities, violent altercations, foreign bodies, and animal bites and scratches.

"Dog bites are emergencies which can involve both periocular injury and ocular injury," says Carter. "First, the dog's upper jaw usually hits the middle of the eyebrow or forehead while the lower jaw usually strikes the cheek or jaw of the patient. Often the eye is missed, but physicians still must examine the eyeball to rule out occult injuries to the globe.

"Blunt trauma to the eye may cause leakage of fluid beneath the retina leading to decreased vision," says Carter. "If the trauma leads to blood filling the anterior chamber, the patient requires bed rest to allow the blood to settle and reabsorb. The intraocular pressure could increase rapidly in these patients and thus, they should be monitored closely."

Protruding intraocular foreign bodies in the eye should be stabilized and covered with a styrofoam cup, secured with tape, and the unaffected eye should be covered to prevent

movement. No attempt should be made to remove the object. If necessary, the penetrating object may be shortened carefully to facilitate transport.

With orbital or blowout fractures, the bones and orbital soft tissue blow into the sinus leading to double vision and possible numbness in the cheek or side of nose.

"Blunt injury to the forehead is an injury we see fairly often," says Carter. "This could be due to bruising of the optic nerve or loss of the optic nerve blood supply leading to a marked decrease in vision."

If globe rupture is suspected, ambulance personnel must immobilize the patient's head and spine, elevate the head of the spine board, and instruct the patient to avoid coughing or straining which might increase intraocular pressure.

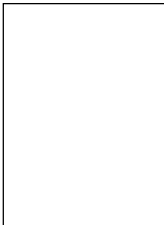
"A 'splash accident' to the eyes with chemicals ranging from antifreeze to household cleaners are true emergencies and require immediate intervention," says Carter. "A chemical exposure generally requires extensive, continuous irrigation of the eyes before the emergency personnel transport the patient and while en route to the emergency department."

For more information on eye injuries, you may contact Keith Carter, MD, in the Department of Ophthalmology at (319) 356-2590.

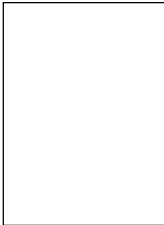
*Rosemary Adam, EMT-P, RN, at right, receives her state Instructor of the Year award in Des Moines. Adam was also named the state Emergency Care Volunteer in 1997.*



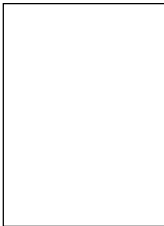
## State honors Adam with 1998 EMS Instructor of the Year



*Doug York*



*Clark Christensen*



*Mike Hartley*

The Iowa EMS Association named Rosemary Adam the 1998 EMS Instructor of the Year November 12 in Des Moines at the Annual Iowa EMS Association Convention and Trade Show. The annual awards honor individuals and services nominated by their peers for outstanding service.

Adam, a paramedic for 18 years and a nurse for 23, has been the nurse instructor with the EMS Learning Resources Center since 1992 and a part-time University of Iowa Hospitals and Clinics AirCare flight nurse since 1995.

Doug York, REMT-P and director of the EMS Learning Resources Center, nominated Adam. Many of the support letters commended Adam's teaching skills and involvement in EMS.

"During the eighteen years I have known Rosie, I have taken courses conducted by her as well as instructed courses with her. Her dedication to her work is unparal-

leled. I have met few instructors who have the ability to instruct the broad range of courses that she can."

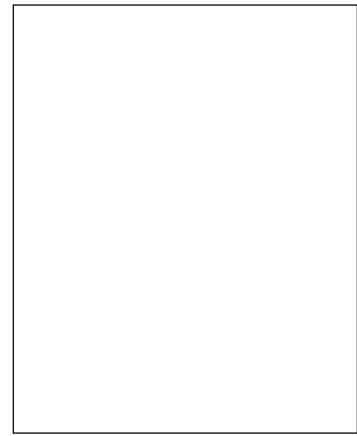
"She has the ability to instruct a variety of courses, in part because of her tremendous knowledge base. She can teach a First Responder course at a local fire department, coordinate an Advanced Trauma Life Support course with surgeons or work with prominent EMS colleagues at the national level."

"Rosie is an instructor who is respected by her students, and admired by her colleagues and peers," says York.

The success of the Emergency Cardiac Care (ECC) programs through the American Heart Association can be directly attributed to Adam's commitment and dedication. Adam has served in many leadership roles at the state level, the most current being that of state ECC Committee chairperson.

Adam is the fourth EMS Learning Resources Center staff member to receive the award. York received the honor in 1991, Clark Christensen, REMT-P, EMSLRC instructor, in 1993 and Mike Hartley, REMT-P, EMS instructor, in 1997.

Adam was also named Iowa's Emergency Care Volunteer in 1997.



## New emergency director joins UIHC

Alfred Hansen, MD, joined the University of Iowa Hospitals and Clinics (UIHC) January 1 as director of the Emergency Treatment Center and medical director of the EMS Learning Resources Center.

Hansen had most recently been professor in the Department of Emergency Medicine at East Carolina University in Greenville, North Carolina.

Hansen succeeds Suehila Smith, MD, who served as interim director of the ETC and Mark Graber, MD, who served as medical director of the EMSLRC.

Carol Scott-Conner, MD, PhD, director of the Department of Surgery, welcomes Dr. Hansen. "Fred Hansen has special expertise in trauma system development through his involvement with the American College of Surgeons. He brings unique academic qualifications that will enhance our research effort and provide additional support to our research interface with the Injury Prevention Center."

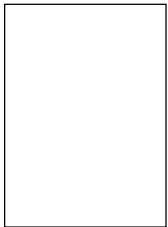
Hansen noted that his decision to come to the University of Iowa was based on many factors, among them the UIHC's reputation as a national leader in health care.

"I've always felt the University of Iowa was among the best in the country, and I'm honored to have the opportunity to work here," says Hansen.

"I think the ER should play an important role in the patient care and service functions of the UIHC," adds Hansen, "and key to that role is an effective interface with prehospital providers."

# Efficient emergency care saves EMS coworker

*An impressive CT (computerized tomography), at right, revealed a 4 x 4 x 6 cm hemorrhage in the right lobe of the brain. It confirmed the suspicion that Jesse Jaurez had suffered a stroke.*



*Jesse Jaurez*

Jesse Jaurez' coworkers became concerned when he didn't arrive for his shift October 21 at Lee County EMS Ambulance Service, Inc in Fort Madison, Iowa.

Two coworkers found the 43-year-old paramedic Jaurez on the floor at his home, semi-conscious and complaining of a headache. They checked his blood sugar level and because of his increase in blood pressure and blood-shot eye, treated him for stroke. They immediately transported Jaurez and arrived at Fort Madison Community Hospital within two minutes.

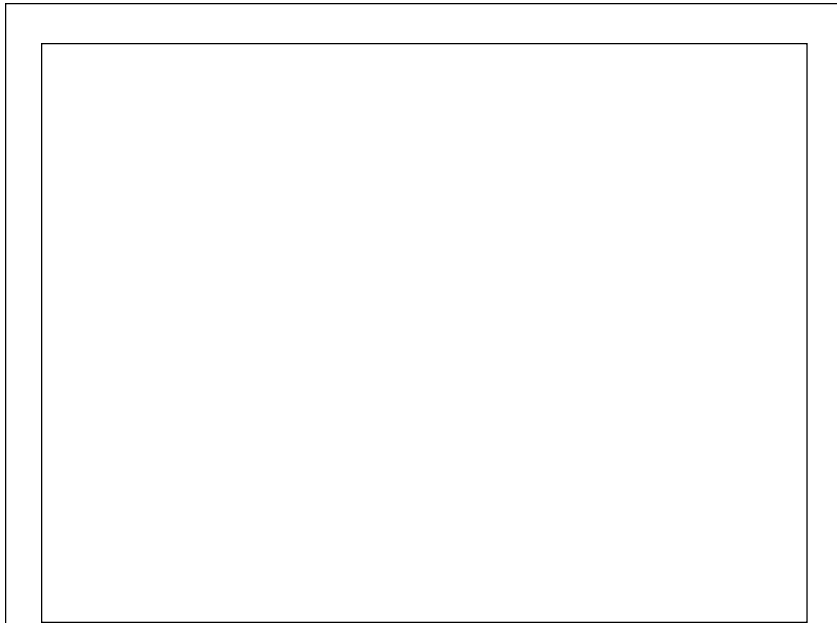
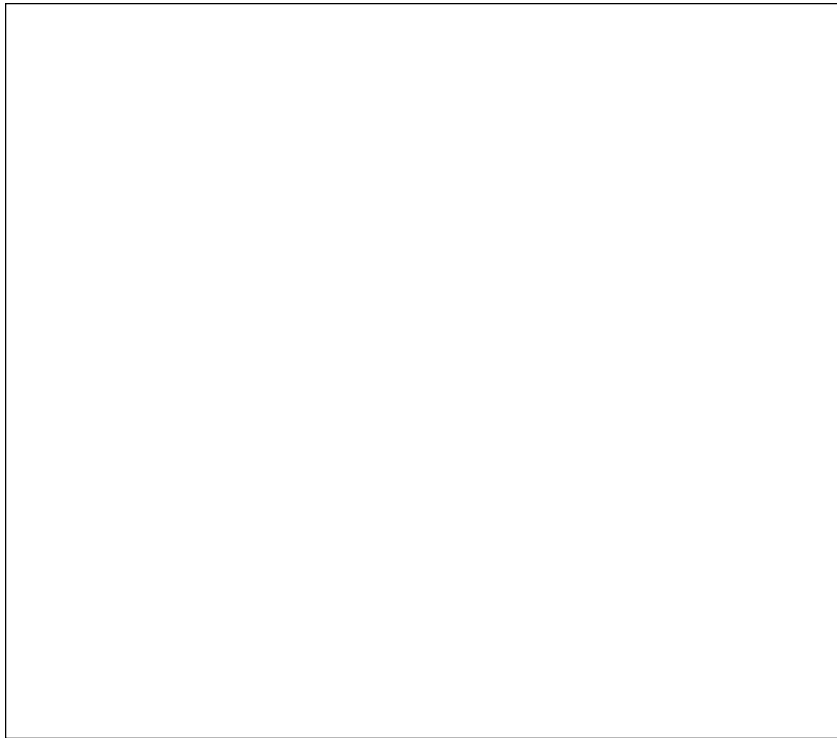
On evaluation at the Fort Madison Community Hospital emergency department, an impressive CT (computerized tomography) revealed a 4 x 4 x 6 cm hemorrhage in the right lobe of the brain. It confirmed the suspicion that Jaurez had suffered a stroke or bleeding in the brain.

William Wetzel, DO, emergency physician at Fort Madison Community Hospital cared for Jaurez. "My initial impression of Jesse was that he had some intracranial activity," says Wetzel. "After receiving the CT results, we gave medications to release fluids and pressure from the brain. After Jesse released 2000 ccs of fluid, we watched him gradually improve neurologically. His ability to talk to us after the Lasix was very significant. He became much more alert after that.

"I appreciate the Fort Madison Community Hospital's ability to act on the needs of the patient," adds Wetzel. "Because of the high standards maintained here, we were able to obtain Jesse's CT within minutes and begin definitive treatment."

Jaurez was then transferred by the UIHC AirCare helicopter to the University of Iowa Hospitals and Clinics for emergency surgery to repair the cerebral artery.

Jaurez is doing well and undergoing outpatient rehabilitation to improve his short term memory.



## Annual conference proves informative

The latest developments in emergency and critical patient care were presented at the EMS Learning Resources Center's 21st Annual Topics in Emergency Medicine conference held October 8 and 9.

Physicians, nurses, paramedics and emergency medical technicians from five states including Iowa, Illinois, Wisconsin, Missouri and Minnesota attended this year's annual conference at the Radisson

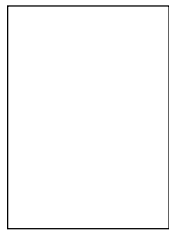
Highlander Plaza, Iowa City.

Conference evaluations revealed such comments as—"Enjoyed the new ideas to old problems—not just same old topics." "Relevant topics with a variety of areas covered, presented in a fast-paced cohesive way." "The prehospital sessions were all quite practical and related well to what we are doing." "The variety and caliber of speakers were impressive; all seemed enthusiastic."

Mark your calendars now and plan to attend the EMS Learning Resources Center's 22nd annual EMS conference next October 21 and 22 to be held again at the Radisson.

# Henry County EMS receives national acclaim

*Henry County EMS staff members who attended the award ceremony include in photo, from left to right: Deborah Knight-Smith, president, NAEMT; Jerry Goetsch; Scott Aanes; Jerry Johnston; Jim Steffen; Paul Hultquist; Pam Buffington; Dan Walderbach; Carl Wickham; Natalie Wissink; Jim Allen, immediate past president of NAEMT. Those not attending include: Cheri Lane; Robbie Blindt; Judy Kinney; Jim Steffen; Brenda Allen; Jerry Shafar; Chris Finnell; Danny Eversmeyer; Brandon Beauchamp; Julie Jennings and Linwood Miller, DO, medical director.*



*Jerry Johnston*

**H**enry County Health Center (HCHC) Emergency Medical Services, Mt Pleasant, Iowa, has received the prestigious National EMT-Paramedic Emergency Medical Service of the Year award from the National Association of Emergency Medical Technicians (NAEMT).

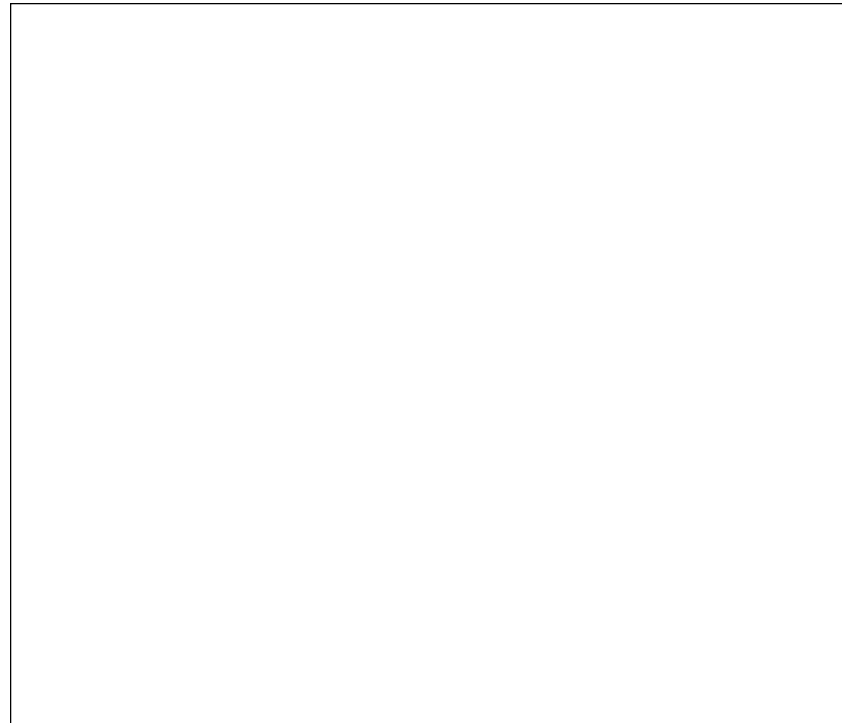
Connie McAdam, member of the NAEMT council presented the award October 10 at the ceremony held in Winston-Salem, North Carolina.

"The award was based on the ability of HCHC's EMS staff," says McAdam, "to be active in the community by providing health education to area residents, churches, businesses and industry; to initiate quality improvement in their operations; and to adhere to a high standard of training requirements for staff—all while showing steady growth in services offered and the number of patients served."

The NAEMT organization established achievement awards to recognize services who have significantly contributed to local, state and national provision, development and improvement of prehospital care, education or administration.

Robert Miller, chief executive officer at HCHC, stated that this recognition is well-deserved. "It has been my privilege over the past several years to have had extensive travels and visit other hospitals, healthcare providers, and ambulance services across the Midwest. I feel very strongly there are few, if any, who can measure up to the standards of excellence adhered to by the Henry County Health Center Paramedic Ambulance Service. Our staff has proven that by earning this national award."

The national association also recognized HCHC's EMS for their ability to maintain an excellent working relationship with first



responder organizations in the area.

Henry County Health Center EMS has been in operation since 1980 and is a hospital-based service which provides full-time paramedic-level emergency service to more than 20,000 residents of Henry County. The service covers approximately 430 square miles in southeast Iowa.

"This award represents years of commitment, dedication, and effort on the part of all EMS providers within Henry County. This not only includes our EMTs and paramedics, but also first responders, fire departments, rescue, and law enforcement personnel," says Jerry Johnston, manager of the HCHC EMS.

## EMS Update

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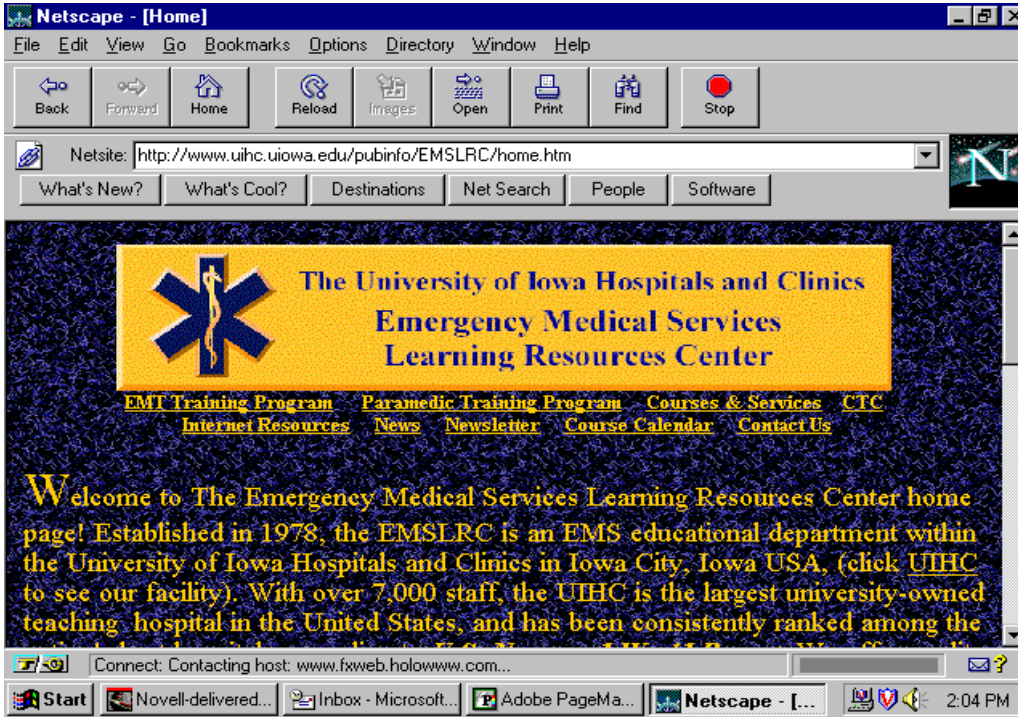
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People with disabilities are welcome at the University of Iowa Hospitals and Clinics where reasonable accommodations will be made upon request. Please contact the UIHC Department of Social Service, (319) 356-2207.



## EMSLRC website brings students to Iowa

*The EMS Learning Resources Center website allows potential students to browse the course offerings at their convenience.*

"While scanning the Internet recently, I came across your website with interest. As an ambulance officer here in Australia, I have a keen interest in emergency services, not only in Australia but also overseas."

"I noticed that UIHC has education facilities. Although U.S. training packages/qualifications are different to here in South Australia, the principles are the same, with patient management/skill the ultimate priority."

These comments were received through e-mail after the two gentlemen viewed the EMSLRC website. Other comments and course inquiries have come from as far away as Saudi Arabia; Turkey; Ireland; England; Venezuela; and Brazil, according to Mike Hartley, EMT-P, EMS instructor, and EMSLRC webpage developer.

Steve Trafford, from Ontario, Canada, is a December 1998 graduate of the EMS Learning Resources Center paramedic program.

"Until recently, most EMS training in Canada was only the basic level," says Trafford. "I wanted paramedic training in the U.S. I found the

EMSLRC through the Internet by typing in 'Paramedic Training' on the search engine. The Iowa webpage caught my attention because it came up quickly. The website was excellent and offered me all the information I needed such as the certifications I would receive, the program schedule, pre-requisites, and tuition. The webpage brought me to Iowa."

Debra Smith, also a December 1998 EMSLRC paramedic program graduate, from Manitoba, Canada, completed a website search using Paramedic + Training + Canada.

"The EMSLRC webpage was the second site that came up out of approximately 1200 I hit that night," says Smith. "I researched about 50 of those sites and focused on the full-time paramedic programs affiliated with hospitals and universities. The webpage did a good job of describing the EMSLRC's EMT-Basic and paramedic programs."

"I appreciated the conciseness of the EMSLRC's EMT-Basic and Paramedic Training Programs. The webpage gave good e-mail information and I would often get instant responses from the EMSLRC," adds Smith.

Visit the EMSLRC webpage at [www.uihc.uiowa.edu/pubinfo/EMSLRC/](http://www.uihc.uiowa.edu/pubinfo/EMSLRC/) or, for more information contact Mike Hartley at (319) 353-6857, and [hartley@m@uihc.uiowa.edu](mailto:hartley@m@uihc.uiowa.edu)



EMT-Paramedic  
National Standard  
Curriculum

## EMSLRC initiates new paramedic training curriculum

The state of Iowa has asked the EMS Learning Resources Center to pilot a new national Paramedic Training Program curriculum. The EMSLRC will develop accompanying teaching materials and evaluate the course.

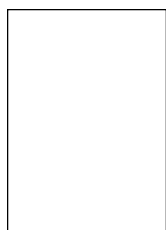
Steve Mercer, REMT-P, education coordinator, Iowa Department of Public Health, Bureau of EMS, says, "The EMSLRC was chosen to pilot this paramedic curriculum because of their access to a diverse group of students."

"The purpose of this program is to pilot the National Testing standards. The EMSLRC will use the final draft version of the EMT-Paramedic curriculum as it was delivered to the National Highway Traffic Safety Administration," adds Mercer.

Beginning with the July 1999 course, the paramedic training program will expand to include a new curriculum with additional field and clinical hours. The program will include 15 weeks of didactic training, an increase over the current 10 weeks.

"There are no new invasive skills for the paramedic student," says Mercer. "The major change is the increase of knowledge. The goal is to educate the paramedic with increased critical thinking skills and help them set a pathway for a career ladder such as a college degree."

"This is a tremendous opportunity for the EMS Learning Resources Center," says Doug York, REMT-P, director of the EMSLRC. "We are excited to be able to participate in this pilot project."



Mike Hartley

# EMSLRC course calendar

		MD	RN	EMS
<b>1999</b>				
Mar 2	Iowa City: Outreach Paramedic Training Program begins	—	—	—
Mar 5-7	Iowa City: EMS Refresher Course	—	—	24
Mar 8-9	Red Oak: Neonatal Resuscitation Program/Pediatric Advanced Life Support	18	1.65	17
Mar 10	Red Oak: Pediatric Advanced Life Support Instructor	9	.95	9
Mar 13-14	Iowa City: PreHospital Trauma Life Support	—	1.6	16
Mar 15-16	Cedar Rapids: Advanced Cardiac Life Support Instructor	15.75	1.7	17
Mar 16	Cedar Rapids: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Mar 18-19	Iowa City: Trauma Nursing Core Course	—	1.4	16
Mar 19-21	Iowa City: EMS Refresher Course	—	—	24
Mar 23-24	Davenport: Advanced Cardiac Life Support Provider	—	1.2	6
Mar 25-26	Cedar Rapids: Pediatric Advanced Life Support Instructor	11.5	1.25	12
Mar 26	Cedar Rapids: Pediatric Advanced Life Support Instructor Renewal	3.5	.25	3
Apr 8-9	Ames: Advanced Trauma Life Support	19	—	—
Apr 9	Ames: Advanced Trauma Life Support Refresher	5	—	—
Apr 15-16	Iowa City: APLS—The Pediatric Emergency Medicine Course	17.25	1.8	19
Apr 15-16	Fort Dodge: Pediatric Advanced Life Support Instructor	11.5	1.25	12
Apr 16	Fort Dodge: Pediatric Advanced Life Support Instructor Renewal	3.5	.25	3
Apr 19	Iowa City: Critical Care Paramedic Program begins	—	—	54
Apr 22-23	Davenport: Pediatric Advanced Life Support Provider	16	1.5	15
Apr 26	Iowa City: Neonatal Resuscitation Program	6	.65	6
Apr 30	Waterloo: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Apr 30	Waterloo: Pediatric Advanced Life Support Instructor Renewal	3.5	.25	3
May 1-2	Cedar Rapids: PreHospital Trauma Life Support	—	1.6	16
May 3-4	Iowa City: Advanced Cardiac Life Support Provider	16	1.5	15
May 6-7	Iowa City: Advanced Trauma Life Support	19	—	—
May 7	Iowa City: Advanced Cardiac Life Support Refresher	5	—	—
May 13-14	Mason City: Advanced Cardiac Life Support Instructor	15.75	1.7	17
May 14	Mason City: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
May 17	Iowa City: EMT-Basic program begins	—	—	—
May 17	Iowa City: Advanced Cardiac Life Support Provider Renewal	4	0.4	4
Jun 4	Iowa City: Advanced Trauma Life Support Instructor	12	—	—
Jun 12-13	Cedar Rapids: PreHospital Trauma Life Support	—	1.6	16
Jul 6	Iowa City: Full-time Paramedic Program begins	—	—	—

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