

# EMS Update

An Emergency Medical Services Learning  
Resources Center Publication

Fall 1997  
Vol. 18, No. 3

*The University of Iowa Hospitals and Clinics AirCare II emergency helicopter, based at Covenant Medical Center, Waterloo, responded to the Clayton County mine shaft fall.*



## Teenager survives 80-foot fall down mine shaft

**T**he 14-year-old boy who fell down an old mine shaft in northeast Iowa was very lucky, says Dan Brown, EMT-P, chief, Dubuque Fire Department, Dubuque, Iowa.

The boy fell about 80 feet last

May 20 while trying to reach an iron cart at the bottom of the shaft. He broke both wrists in the fall, and rescue workers had to pull him out.

"It's amazing that the youngster is alive. He is a very fortunate individual to survive that fall," says Brown. "He was lucky to have the rescue personnel and proper rescue equipment available to help him that night." Brown was incident commander at the site.

The mine was on a farm near North Buena Vista, Iowa, in Clayton County. Abandoned mines are not uncommon in the area, which was part of the

center of the lead mining industry in the mid-1800s.

The Holy Cross Fire Department received a 911 call about 7:30 pm for a mine shaft fall, and was the first on the scene. They had verbal contact with the victim and reassured him that more help was on the way.

The Dubuque Fire Department mutual aided at the scene. "The boy was trying to explore with a rope that was not qualified," says Brown. "It broke and he fell 80 feet into the mine shaft."

The hole was approximately 10 feet

*continued on page 2*

# Mine shaft



**Dan Brown**



**Dave Schuster**



**John Hutchcroft**



**Pat Kutsch**



**Gary Arensdorf**



**Steve Fuller**

in diameter on the edge of a bluff with other shafts coming off of it horizontally and semi-vertically. He hit a down slope which broke his fall.

Dave Schuster, EMT-B, assistant chief, Dubuque Fire Department, was operations director and ran the rigging plate, and set up and controlled the haul system to pull up the rescuers and the victim. "We set up an extensive haul system at the top of the hole. Fortunately there was a large tree growing on the edge that we attached some rigging to," says Schuster.

John Hutchcroft, RN, EMT-P, assistant chief and training officer, Dubuque Fire Department, and scene safety director that day, had to make sure it was strong because eventually it supported three people.

Pat Kutsch, EMT-B, lieutenant, and Gary Arensdorf, EMT-B, fire equipment operator, Dubuque Fire Department, repelled down into the hole, made contact with the teenager, and communicated via a two-way radio with Brown at the top of hole. The boy said his arms and legs were hurting but that he was okay otherwise. They immobilized the patient in a stokes basket to take him out vertically.

Brown, Schuster, Hutchcroft, Kustch, and Arensdorf are all members of the High Angle Rescue Team. The High Angle Rescue Team is a specialized team, within the Dubuque Fire Department, trained to rescue victims from bluffs and in confined spaces with specialized equipment.

Once Kustch and Arensdorf immobilized the patient they started to ascend, although it took about an hour to get him out. They were concerned about possible spine or internal injuries and had paged AirCare for the scene flight.

The University of Iowa Hospitals and Clinics AirCare II, located at Covenant Medical Center, Waterloo, provides rapid aeromedical transport of patients from accidents in the Waterloo area and northeast Iowa. They had been on their way to Oelwein, Iowa, to a ground safety program and were diverted to Clayton County.

Steve Fuller, EMT-P, flight paramedic with AirCare II, is a 1988 graduate of the EMS Learning Re-

*Rosemary Adam, RN, EMT-P, has 17 years of paramedic experience and has been a nurse since 1975. She joined the EMS Learning Resources Center in 1992 as nurse instructor and became a part-time flight nurse with the University of Iowa Hospitals and Clinics AirCare team three years later.*

## Adam honored as Iowa's 1997 emergency care volunteer

Rosemary Adam, RN, EMT-P, and nurse instructor with the EMSLRC, was recently named Iowa's outstanding emergency care volunteer.

Adam received the Outstanding Emergency Cardiovascular Care Volunteer Award at the annual state meeting of the American Heart Association, Iowa Affiliate, held August 1-2 in Des Moines.

This prestigious award is presented to a volunteer who works above and beyond



expectations to ensure quality American Heart Association education and training is provided throughout Iowa.

Adam has dedicated 15 years to the Iowa Affiliate Advanced Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS) faculties. She has also served as vice-chair of both the ACLS and PALS faculties for the past four years.

Adam's leadership in all levels—from working hands-on in the emergency room to developing and coordinating a statewide system for courses—has moved Iowa forward as a leader in emergency cardiovascular care.

Doug York, EMT-P, director of the EMS Learning Resources Center, praised Adam. "Rosemary is a tireless advocate for Emergency Cardiovascular Care (ECC) education. ECC education and training across Iowa has improved thanks to her efforts.

sources Center paramedic training program. He responded with AirCare to the mine shaft accident that evening.

The accident was near the Mississippi River so it was easy for the pilot to locate the farm and land in a cornfield about a half mile north of the mine shaft.

The flight crew walked down a sloped, winding trail about 200 feet to the mine shaft in the woods. Several other mine shafts nearby had been taped off so no one else would fall in.

Darkness was setting in so AirCare and Holy Cross Fire Department staff set up portable lighting for the rescuers.

The rescuers cleared the top of the hole with the patient at about 9:30 pm.

"We assessed the patient again; he was conscious, alert, oriented, and talking," says Fuller. "We started an IV

of saline. Because he had vomited in the hole twice, we were concerned about a possible head injury. We had called Dubuque Mercy Health Center on the flight over inquiring about the availability of a neurosurgeon."

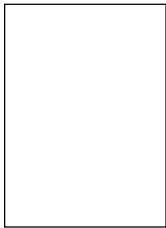
The flight crew immobilized the boy for transport through the woods to the helicopter. The Holy Cross firefighters had cleared bushes and trees to make a path for them to walk three-wide.

The rescue was in a very rural area with a 30-40 minute drive time to Dubuque Mercy Health Center. The flight time was only eight minutes.

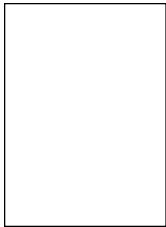
"The Dubuque Mercy Emergency Department had everyone there to evaluate him," says Fuller. "The patient did well. Extremity fractures were the major problem and he required surgery to his right forearm."

# Eight-year-old initiates chain of survival

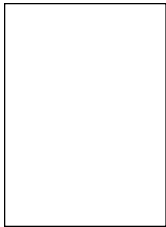
*Zachary Monthei (far right) received a Governor's Life Saving Award on August 8 for his calm and quick action to get help when 79-year-old Florence Walker (right) collapsed during a reading session.*



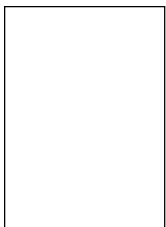
*Vicki Olthoff*



*Ellen Hagen*



*Rich Lee*



*Russell Hockman*

**E**ight-year-old, Zachary Monthei, remained calm and initiated the chain of survival perfectly last May 1 when his reading teacher collapsed at school. Monthei was reading with 79-year-old Florence Walker when she fell from her chair to the floor at South Hamilton Elementary School, Jewell, Iowa.

Vicki Olthoff, RN, the Jewell school nurse, just happened to be at the elementary when Walker collapsed.

"Zachary and Mrs. Walker, a school volunteer, local resident and Jewell school cook for many years, were reading one-on-one alone in the basement," says Olthoff. "The child came upstairs to the office and told our secretary that the lady fell down. The secretary called to me to follow. After the secretary found Mrs. Walker on the floor, she told the nearby custodian to call 911."

Olthoff rushed to Walker's side, turned her over and discovered she was blue, not breathing, and pulseless. Olthoff began CPR and Paul Hemphill, principal, joined her within a minute and took over ventilations while Olthoff continued compressions.

Ellen Hagen, EMT-B, with Jewell Fire and Rescue (an EMT-D service) was working at Hagen Welding—her family's business—when she received a page at approximately 9 am that Thursday. A 79-year-old woman was unconscious and not breathing in the basement reading room at South Hamilton Elementary School.

Hagen, along with Rick Mortenson, EMT-I, and Nathan Staples, EMT-B, arrived soon after Olthoff and Hemphill had begun CPR.

They called the Mary Greeley Medical Center Mobile Intensive Care Services (MICS), in Ames, Iowa, and requested assistance.

"Since the child directly witnessed the arrest, and the school nurse and principal had CPR in progress when we arrived, we estimated the time elapsed between the arrest and initiation of basic CPR to be near five minutes," says Hagen.

After Hagen attached the defibrillator pads, the patient was analyzed. The defibrillator indicated one shock.



"This was the first time I was able to shock anyone," says Hagen. "It has always been too late before."

Mary Greeley Medical Center MICS tiered with the Jewell Fire and Rescue team on Highway 69 approximately 12 miles north of Ames.

Joe Downing, EMT-P, and Rich Lee, EMT-P, paramedics with MICS took their equipment and got into the Jewell ambulance.

"The patient had a tachycardic pulse and was unresponsive, but had

spontaneous respirations," says Lee. "While in transport, we monitored her vital signs and started an IV of normal saline. We cardioverted three times to achieve a regular sinus rhythm."

Walker is active at home and doing well with an internal defibrillator.

"Mrs. Walker is living proof that witnessed cardiac arrest and the chain of survival works. She sparked our interest to buy a second defibrillator," says Russell Hockman, director and fire chief, Jewell Fire and Rescue Service.

## EMSLRC web page debuts: [www.uihc.uiowa.edu/pubinfo/EMSLRC/](http://www.uihc.uiowa.edu/pubinfo/EMSLRC/)

The Emergency Medical Services Learning Resources Center's World Wide Web home page is designed to provide easy access to information for health care providers. It includes EMSLRC course applications, descriptions, schedules and news.

We also offer EMS employment opportunities at no charge, as well as links to other University of Iowa Hospitals and Clinics information and services. The home page will be constantly evolving as new information becomes available.

The Web Page is accessible by [www.uihc.uiowa.edu/pubinfo/EMSLRC/](http://www.uihc.uiowa.edu/pubinfo/EMSLRC/) or by using any search engine and typing in EMSLRC.

The EMS Learning Resources Center welcomes your input. If you have ideas regarding services or information you would like to see made available through our home page, please contact Mike Hartley at [mike-hartley@uiowa.edu](mailto:mike-hartley@uiowa.edu) or by phone at (319) 353-6857.

You also may now voice/video conference with us on the World Wide Web using Microsoft NetMeeting [mils.business.four11.com/emslrc@uiowa.edu](http://mils.business.four11.com/emslrc@uiowa.edu).

In addition, you can always contact the EMS Learning Resources Center during our normal business hours, Monday-Friday, 8 am - 5 pm, (319) 356-2597.

# UIHC initiates inhospital automated external defibrillation

*Mike Hartley  
(above) trains  
UIHC medical  
staff how to use  
automated  
external  
defibrillators.*

*Richard  
Kerber, MD,  
(right) is a  
member of the  
American  
Heart  
Association  
Task Force on  
Automated  
External  
Defibrillation.*

According to the American Heart Association, Sudden Cardiac Arrest (SCA) claims more than 350,000 lives each year. It can strike almost anyone, anywhere, at anytime.

Unlike a heart attack, in which blood flow to the heart muscle is temporarily blocked, the primary cause of SCA is ventricular fibrillation, a life-threatening condition, in which the heart's normal electrical signals become disorganized and erratic, causing the heart to stop pumping blood. When the heart stops beating, the victim immediately loses consciousness, and—without intervention—will die within minutes.

Definitive therapy, however, for Sudden Cardiac Arrest exists—early defibrillation.

Communities provide defibrillators to those emergency responders most likely to be first on the scene of a Sudden Cardiac Arrest.

"Automated external defibrillators (AEDs) are widely used by trained emergency personnel and have proved accurate and effective. They have

become an essential link in the chain of survival," says Richard Kerber, MD, professor, Department of Internal Medicine, the University of Iowa College of Medicine. "For every minute delay in reaching a victim with a defibrillator, their chance of survival decreases by approximately 10 percent."

Kerber, a member of the American Heart Association Task Force on Automated External Defibrillation, says, "Successful resuscitation requires early recognition of cardiopulmonary arrest, early activation of trained responders, early CPR, early defibrillation when indicated, and early advanced life support."

The chain of survival, first developed by the American Heart Association, for out-of-hospital Sudden Cardiac Arrest, applies to in-hospital SCA as well.

The University of Iowa Hospitals and Clinics has a coordinated, multidisciplinary response team trained in basic life support and, when appropriate, in the use of AEDs to treat patients with a cardiopulmonary emergency.

Mike Hartley, REMT-P and EMS instructor with the EMS Learning Resources Center, teaches selected University of Iowa Hospitals and Clinics physicians and nurses to use the automated defibrillators. So far, 35 physicians and 80 nurses have been trained since the program began in

June. The 90-minute training sessions include hands-on application of chest pads and defibrillation function.

The two-button operation and comprehensive voice prompts simple use, letting health care staff concentrate on the patient instead of defibrillator operation.

A highly accurate, computerized algorithm that automatically determines if a shock is appropriate, eliminates the need for the operator to be trained in interpreting an electrocardiogram. The defibrillator advises a shock only when a life-threatening heart rhythm is identified.

The first shock, if indicated, should be delivered within 90 seconds of the defibrillator's arrival at the patient's side. The AED automatically determines the appropriate energy for each shock. The staff simply follows the audible/screen prompts provided by the machine.

"The AED is easy to learn to use," says Jean Hill, RN, nurse manager, Eye Clinic at UIHC. "The visual, as well as the auditory instructions, provide security and confidence to those working in an area with infrequent codes. Many will be expected to deliver care under stressful conditions in which they may be trained, but do not experience very often."

Hill was trained this summer in the use of AEDs for the Pomerantz Family

Pavilion in UIHC.

The semi-automatic external defibrillator, delivers a biphasic waveform shock, which requires less energy than other AEDs to achieve comparable defibrillation results. This low energy waveform allows automated external defibrillators to require less maintenance, be smaller, lighter, more

*continued on page 5*

*Jean Hill, RN, nurse manager of the Eye Clinic at UIHC, checks and documents the battery charge on an automated external defibrillator located in the Pomerantz Family Pavilion. These defibrillators are placed so staff can start defibrillation before a code blue team arrives.*

*continued from page 4*

## Defibrillation

durable and less expensive.

"The AED defibrillation is something staff can do before the code blue team arrives," Hill adds. UIHC staff are able to identify and shock patients in ventricular fibrillation or pulseless tachycardia within the shortest possible interval.

"To reduce the time from collapse to defibrillation, AEDs with shock advisory capabilities, are readily available in strategic areas throughout the University of Iowa Hospitals and Clinics where codes are very rare and at a distance from where code teams are usually located," says Kerber.

UIHC has available personnel with these advanced cardiac life support skills and defibrillation training, not only to patients who occupy a hospital bed but for all patients, including patients in outpatient clinics, diagnostic services areas and outlying facilities.

AEDs are currently placed at: Student Health; a partial hospitalization unit; the Emergency Treatment Center; Pomerantz Family Pavilion; and the Chemical Dependency Center at the University of Iowa Oakdale Campus.

As the University of Iowa Hospitals and Clinics enlarges and spreads out, it may take the code blue teams longer to arrive at a cardiac arrest. R. James Hegeman, MD, JD, former director of the UIHC Emergency Treatment Center, originally pursued the idea of in-hospital AEDs because he had concern for the patients in Pomerantz Family Pavilion.

"In an outlying area such as the Pomerantz Family Pavilion, precious minutes can be lost by the code team crossing the street and getting to the exact location of collapse once inside the clinic," says Hill. "The availability of an AED on site can potentially increase survival chances by decreasing the minutes to defibrillation."

"Every AED here has a data card which records the EKG and voices," says Lori Hartley, RN, nurse evaluator with the EMS Learning Resources Center. "The resuscitation efforts are documented accurately by recording specific treatment, event variables, outcome variables, and hospital variables to collect and review."

She will review the defibrillation recordings, and provide feedback to resuscitation personnel and staff.

Staff members receive their initial training from Mike Hartley and maintain their AED skills with refresher training each year during their CPR renewal in the EMSLRC.

## EMSLRC staff attend national defibrillation conference

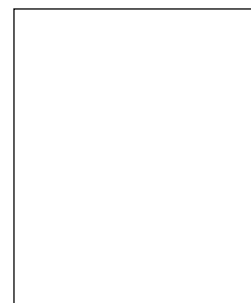
The "Public Access Defibrillation: Strengthening the Chain of Survival" conference, held April 17-19, 1997, announced that automated external defibrillation is one of the most promising methods for achieving rapid defibrillation.

Doug York, EMT-P, director, and Lori Hartley, RN, nurse evaluator, with the EMS Learning Resources Center, attended the conference held in Washington DC.

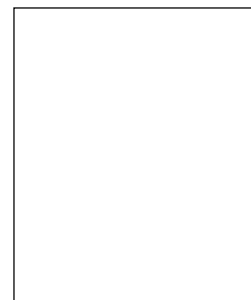
"Dr. Richard Kerber and the other members of the Public Access Defibrillation Task Force reported that early bystander CPR and rapid defibrillation are the two major contributors to survival of adult victims of sudden cardiac arrest," says Hartley.

"In public access defibrillation," adds York, "the technology of defibrillation and training in its use are accessible to the community including laypersons at home, firefighters, police, security personnel, and non-physician health care providers.

"The American Heart Association believes this is the next step in strengthening the chain of survival."



Doug York



Lori Hartley

# New thrombolytic therapy improves stroke outcome

*Harold Adams, MD, (right) professor, Department of Neurology, the University of Iowa College of Medicine, supports the new stroke attack protocol on use of thrombolytics in the emergency department.*

Stroke is the third leading cause of death in the United States and the leading cause of brain injury in adults. Some strokes have very little recognizable effect, while others can quickly cause death.

Strokes can be classified into two major categories: ischemic strokes, which occur because a blood vessel supplying the brain is occluded; hemorrhagic strokes, which occur because a cerebral artery ruptures.

Although both forms can be life threatening, ischemic stroke rarely leads to death within the first hour, whereas hemorrhagic stroke can be fatal at onset. Even among those who survive the first few hours after a stroke, brain injury progresses quickly and can lead to permanent disability.

The classification of stroke as ischemic or hemorrhagic is important because management of the two differs markedly. Approximately 75 percent of strokes are ischemic.

New thrombolytic (clot dissolving) therapies can improve the outcome in stroke patients. Recently the Food and Drug Administration approved intravenous tissue plasminogen activator (TPA) as the first approved therapy for use in selected patients with ischemic stroke.

"Until recently, care of the stroke patient focused on acute complications such as respiratory and cardiovascular complications of the stroke," says Harold Adams, MD, professor, Department of Neurology, the University of Iowa College of Medicine. "Because little therapy was directed toward altering the course of the stroke itself, little emphasis was placed on rapid transport or intervention."

Now, EMS dispatchers play a critical role in the timely treatment of potential stroke victims.

"The dispatchers are responsible for suspecting a stroke when they receive a call for help," says Rosemary Adam, RN, EMT-P, and nurse instructor with the EMS Learning Resources Center. "They must make that call a priority to ensure a rapid response within the

emergency medical services system."

The goals of prehospital management of patients with suspected stroke include rapid identification of the stroke, support of vital functions, rapid transport of the victim to the receiving facility, and prearrival notification of the receiving facility.

The Prehospital Cincinnati Stroke Assessment is now the preferred EMS method of detecting stroke. It is comprised of three parts: arm drift, facial sag and slurred speech.

Once the diagnosis of stroke is suspected, time in the field must be minimized. The presence of acute ischemic stroke is an indication to transport as soon as possible.

Once the patient is transported, there is limited time to institute the new therapy which can be provided only in the emergency department.

"All patients presenting in the emergency department within three hours of the onset of signs and symptoms consistent with an acute ischemic stroke should be considered for intravenous thrombolytic therapy," says Adams.

In the emergency department, the computerized tomography (CT) is the single most important diagnostic test. The goal is to have the CTs obtained within 25 minutes and read within 45 minutes of the stroke victim's arrival at the emergency department. Anticoagulants and thrombolytic agents should be

withheld until the CT has ruled out a brain hemorrhage.

Adam coordinates the outreach Advanced Cardiac Life Support (ACLS) courses for the EMS Learning Resources Center. "The ACLS provider is required to consider specific issues when evaluating patients for thrombolytic therapy," she says.

"Since July 1, all Advanced Cardiac Life Support courses include stroke attack as a standard scenario."

The National Institutes of Health developed a stroke scale as a rating instrument to assess the types and

*continued on page 7*

*Rosemary Adam*

## 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.

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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.

# 20th annual EMSLRC conference fast approaching

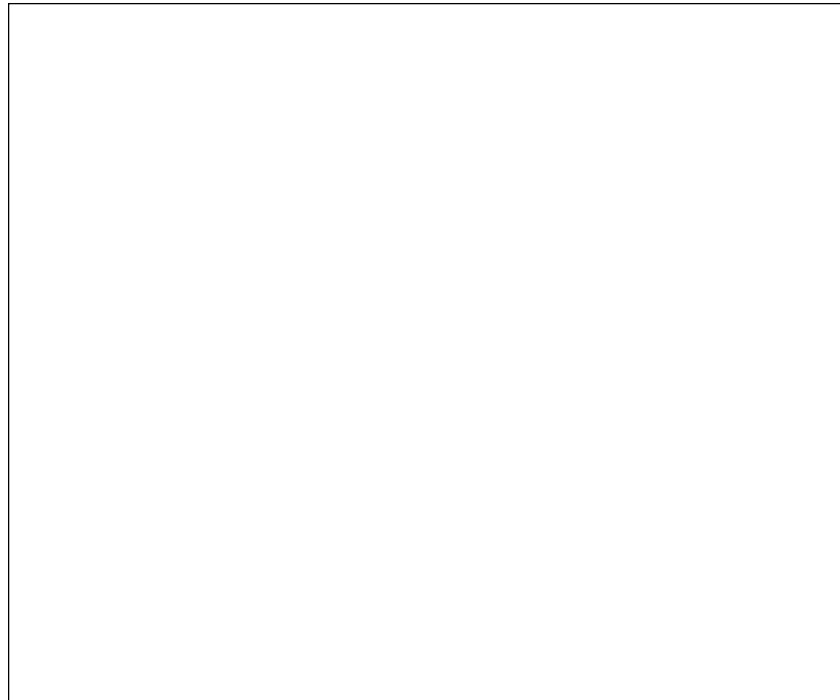
*The EMSLRC celebrates the 20th annual emergency medicine conference. Register now!*

Experts from across the nation will present the latest developments in emergency and critical patient care at the EMSLRC's Twentieth Annual Emergency Medicine Conference on October 16 and 17 at the Highlander Inn Conference Center in Iowa City.

Lecture topics include living with courage and working with determination; new stroke protocols, and assessing the critically ill child. Conference faculty will also provide timely information in other areas, including pediatric orthopedic emergencies, and scene safety.

Judy Kinney, EMT-P, with Henry County Health Center Ambulance Service, Mt. Pleasant, Iowa, has attended 10 EMSLRC annual conferences. "I like to come to the EMSLRC's annual conference to update my training skills. This conference is well organized," says Kinney. "I choose this one each year over others offered in the state, because I work out of a hospital based ambulance service so I appreciate the pre-hospital and in-hospital training in this conference."

Each morning participants attend general track lectures that cover a wide



range of topics. Afternoon lectures are divided into two separate tracks, providing participants with an opportunity to hear information geared specifically to the in-hospital or prehospital environment. An exhibitor area where vendors display new equipment will also be set up throughout the conference.

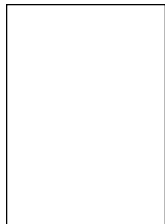
"The conference has something for everyone," says Kinney.

"Besides receiving continuing education credit, you get to compare notes with other EMS personnel, see

new equipment, and hear presentations from leaders in emergency medicine across the country."

The Saturday, October 18, Hawkeye football game is an away game at Michigan; tickets will **not** be available this year for conference attendees.

For more information about the conference, contact the Emergency Medical Services Learning Resources Center, 6-South, GH, the University of Iowa Hospitals and Clinics, Iowa City, IA, 52242, (319) 356-2597.



Judy Kinney

*continued from page 6*

## Strokes

severity of neurological impairments among persons presenting in an emergency department with acute ischemic stroke.

The scale is patterned on the traditional neurological examination and involves rating consciousness, cognitive signs, language, articulation, visual fields, eye movements, motor function, coordination and sensation.

The Stroke Scale can be performed accurately by emergency department physicians, nurses and other medically trained personnel in approximately 10 minutes. After each instruction, health care professionals score the patient's responses.

### **Level of consciousness—**

Observe the patient's best level of consciousness during interactions and in response to external stimuli including pain.

Ask the patient the month and his/her age. The answer to each question must be correct.

Ask the patient to smile and to close the eyes.

### **Motor Function/Strength of the right and left lower extremities—**

The right and left, lower and upper extremities are tested individually. The ability to raise the arm and sustain the posture are rated.

### **Coordination—**

Finger-to-nose and heel-to-shin tests are done with the patient's eyes open. The goal is to rate incoordination out of proportion to weakness.

### **Language—**

The patient is asked to name common objects and spontaneous speech is assessed.

### **Articulation—**

Ask the patient to repeat a series of words such as "caterpillar, huckleberry, fifty-fifty, and baseball player" which involve all components of articulation.

### **Sensation—**

The patient's response to painful stimuli (pinprick) is assessed. The goal is to compare the right and left sides for asymmetry.

### **Neglect/Parietal Lobe Function—**

The persons should be asked to identify objects presented simultaneously in left and right visual fields.

Each item of the scale is scored independently. Scores range from 0 (normal) to 42 (maximum severity). The scale is weighted towards detection of impairments.

# EMSLRC course calendar

		MD	RN	EMS
<b>1997</b>				
Sep 25-26	Iowa City: Trauma Nursing Core Course	—	1.4	16
<b>Oct 16-17</b>	<b>Iowa City: 20th Annual Topics in Emergency Medicine Conference</b>	<b>12.25</b>	<b>1.35</b>	<b>14</b>
Oct 23-24	Davenport: Advanced Cardiac Life Support Instructor	15.75	1.7	17
Oct 24	Davenport: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Oct 30-31	Davenport: Pediatric Advanced Life Support Instructor	11.75	1.1	12
Oct 31	Davenport: Pediatric Advanced Life Support Instructor Renewal	3.5	.25	3
Nov 1	Iowa City: PreHospital Trauma Life Support Instructor	—	.7	7
Nov 5	Humboldt: Drugs in Emergency Cardiac Care	—	.3	3
Nov 5	Humboldt: Tot Trauma	—	.3	3
Nov 12	Iowa City: EMT-Basic Training Program begins	—	—	—
Dec 2	Fort Madison: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Dec 13	Iowa City: National Registry Exam	—	—	—
<b>1998</b>				
Jan 8-9	Des Moines: Advanced Cardiac Life Support Instructor	15.75	1.7	17
Jan 9	Des Moines: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Jan 12	Iowa City: Full-time Paramedic Program begins	—	—	—
Feb 12, 13	Iowa City: Advanced Trauma Life Support Student	19	—	—
Feb 13	Iowa City: Advanced Trauma Life Support Student Refresher	6	—	—
Feb 26-27	Dubuque: Advanced Cardiac Life Support Instructor	15.75	1.7	17
Feb 27	Dubuque: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Mar 5, 6	Iowa City: Advanced Cardiac Life Support Instructor	15.75	1.7	17
Mar 6	Iowa City: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
Mar 14, 15	Iowa City: PreHospital Trauma Life Support	—	.7	7
Mar 19	Iowa City: EMS Refresher Training Program begins	—	—	—
Mar 19, 20	Iowa City: Trauma Nursing Core Course	—	1.4	16
Mar 26-27	Iowa City: APLS—The Pediatric Emergency Medicine Course	17.25	1.95	19
Apr 2, 3	Iowa City: Pediatric Advanced Life Support Instructor	11.75	1.1	12
April 3	Iowa City: Pediatric Advanced Life Support Instructor Renewal	3.5	.25	3
April 4	Iowa City: PreHospital Trauma Life Support Refresher	—	.7	7
April 6	Iowa City: Critical Care Paramedic begins	—	—	54
April 17	Waterloo: Advanced Cardiac Life Support Instructor Renewal	4.25	.35	4
April 17	Waterloo: Pediatric Advanced Life Support Instructor Renewal	3.5	.25	3

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