

EMS Update

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Police officer defibrillates, saves mother

Successful resuscitation depends on a series of critical interventions known as the Chain of Survival: early access into the EMS system; early CPR; early defibrillation; and early Advanced Cardiac Life Support. All of the links in the Chain of Survival were present for Mrs Wenman.

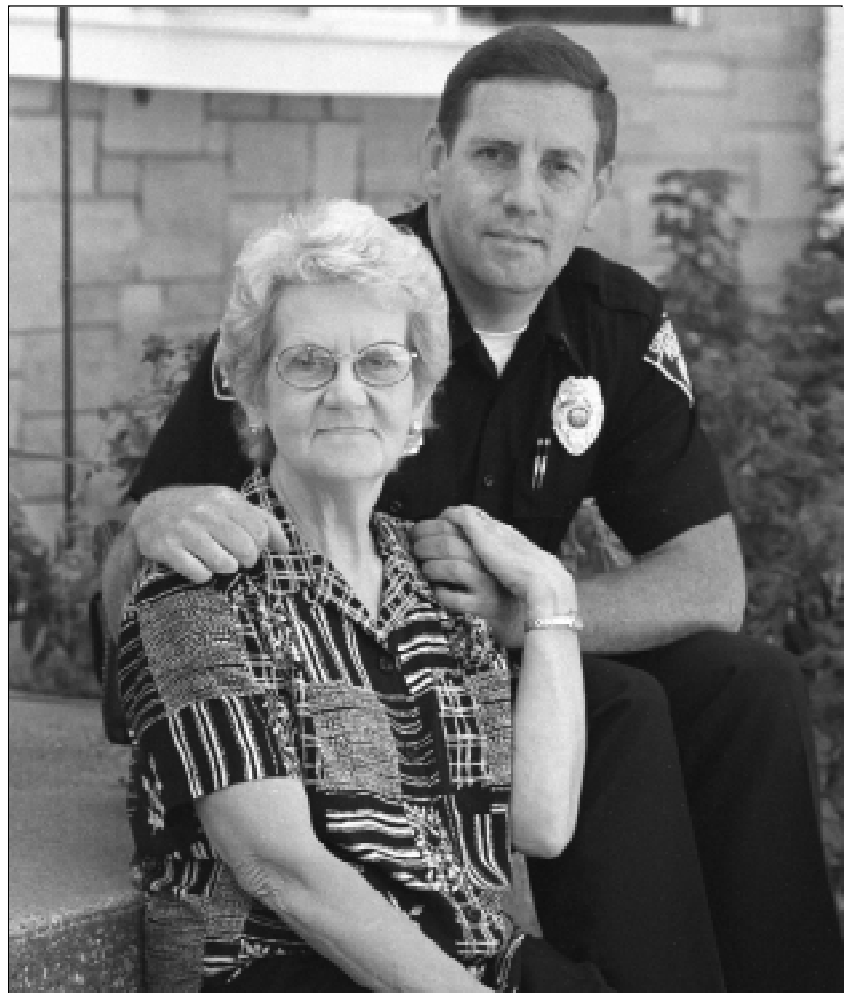
Since 1990 Lieutenant Ron Wenman has had a defibrillator in the trunk of his police car in case he needed to resuscitate someone in cardiac arrest.

Wenman, has been an EMT-Basic since 1980 and a Coralville, Iowa, police officer for more than 19 years. He has defibrillated several patients and about half have survived. He never imagined he would use his training to save his own mother's life.

Lieutenant Wenman's mother, Frances, 61, had been in good health until experiencing chest pain last January. The diagnosis was a heart attack and bypass surgery was performed in February. Since she lived alone, Wenman invited his mother to spend some recovery time after surgery with him and his family in their Coralville home.

On the second day of her recuperation, his mother had been doing well so Wenman and his wife left for the evening to attend the annual Coralville City Employee Appreciation dinner.

"When we arrived home, I watched some TV with mom until she said she was going to go to sleep," says Wenman. "We said good night, I turned off the light and continued watching TV with the volume down."



It was advantageous the volume had been turned low. Wenman then heard what he describes as a deep snore.

"It was not a normal breathing response. It was that last agonal or involuntary breath or gasp I had heard before in my years of responding to

medical assistances," says Wenman. "It was not normal respiration."

Wenman called to his mother, then shook her. He says he knew right away what was happening and shouted for

continued on page 2

Police officer

Police Officers Ron Wenman, top right, and Bill Clarahan, lower right, resuscitated Wenman's mother after she went into cardiac arrest.

his wife to call 911.

"I moved mom from the bed to the floor and started CPR immediately," says Wenman.

Coralville Police Department officers are medical first responders on a 911 call and usually arrive approximately five minutes before the ambulance.

Bill Clarahan, patrol officer with the Coralville Police Department, arrived in less than five minutes with the defibrillator. "When I arrived I notified the Johnson County ambulance en route that it was a code blue with CPR in progress, not an unresponsive patient.

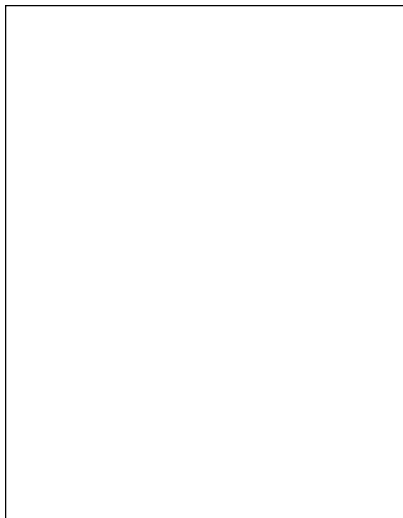
"It was right during a shift change when I heard the call," says Clarahan. "Since I recognized the address and knew where it was, I responded. Ron was performing CPR when I arrived. I gave him the defibrillator because he had much more experience with defibrillation. I got the oxygen going on his mother and took over the CPR. Since she just had bypass surgery, the incision was there so I had no doubt where to place my hands."

Wenman picked up the defibrillator immediately. "I reacted as I would normally in a code. My instincts kicked in," says Wenman. "I hooked up the defibrillator and followed the standard protocol. We cleared, got 'shock advised', delivered one shock, then got a 'no shock advised'. She still had no pulse, so we continued CPR. After several minutes I began to notice some spontaneous respirations, and shortly thereafter detected a pulse."

When the ambulance arrived, Mrs Wenman had not regained consciousness. Officers Wenman and Clarahan continued to assist and supplement her respiratory efforts as the paramedics began advanced life support measures. Mrs Wenman regained consciousness as the paramedics wheeled her out of the house; she was able to talk to the paramedics on the way to the hospital.

"I rode with her in the back of the ambulance—usually family doesn't get that privilege," adds Wenman.

University of Iowa Health Care cardiology staff determined Wenman's



mother required an implanted defibrillator. Mrs Wenman is back to work and living a normal, productive life. One shock of the defibrillator returned her heartbeat to normal.

Successful resuscitation depends on a series of critical interventions known as the Chain of Survival: early access into the EMS system; early CPR; early defibrillation; and early Advanced Cardiac Life Support.

Mrs Wenman was very fortunate to receive CPR and defibrillation so quickly. All of the links in the chain of survival were present for Mrs Wenman. Her family called 911 and she received CPR immediately followed by defibrillation. She then was transported by ambulance with Advanced Cardiac Life Support-trained paramedics to definitive care in the Emergency Treatment Center at the University of Iowa Hospitals and Clinics.

The automated defibrillators, like the one Wenman used, tape record what is said during a defibrillation call. Lori Hartley, RN, nurse evaluator in the EMS Learning Resources Center at the University of Iowa Hospitals and Clinics, reviews cardiac arrest tapes from ambulance services across Iowa.

Hartley says Wenman was regimented during the defibrillation. "He acted very professionally as if he were responding to an ordinary person in a parking lot. He gave all the necessary information calmly and completely."

Iowa law requires medical directors verify first responders' and EMTs' defibrillation skills quarterly.

"Officer Wenman was very calm, competent and sure of what he needed

to do," Hartley says.

Ventricular fibrillation (VF) is the most frequent initial rhythm in sudden cardiac arrest. It is a sudden short-circuiting of the heart's electrical system, resulting in chaotic twitching of the heart without effective pumping.

"Mrs Wenman's heart was in VF upon hook up of the defibrillator," says Hartley. "Lieutenant Wenman delivered one shock which converted her to a normal heart rhythm."

Defibrillation is the treatment of choice for VF. Studies show the probability of success diminishes rapidly over a short period of time with survival rates decreasing as much as 10 percent with each passing minute. Cardiac arrest survival rates are markedly higher when rapid defibrillation is used.

"The incident with my mother reinforces the idea that you always

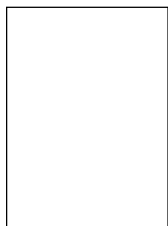


wonder if it could happen in your own backyard," says Wenman. "You could put your training to use at home. . . literally in the living room.

"The timing was a miracle," he says. "We had been gone all evening and in another few minutes I would have been in bed upstairs too far away to hear my mom's breathing rhythms and identify a problem."

"We're lucky to have defibrillators and be able to provide that service to the public," adds Clarahan. "You are just in awe that you could do something that changes someone's life so quickly.

"It's important that everyone learn CPR. Like in this situation, the CPR was done quickly and bought time until we got the defibrillator."



Lori Hartley

Emergency medical services join the computer age

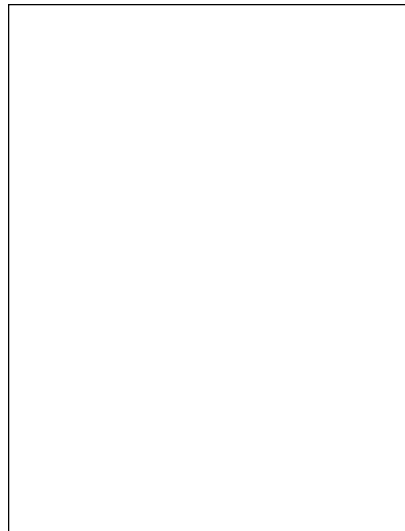
One anatomy and physiology computer software program, shown at right, is a self-instructional multimedia course designed to teach college-level concepts in human anatomy and physiology. The interactive course offers emergency medicine providers an overview of each system of the body via 3D color illustration.

Tim Luloff

Instead of completing traditional run reports, paramedics and EMTs can now enter patient data directly into wireless, tablet-sized, pen-based computers. These are designed to meet the challenges of the rugged EMS environment and include an on-scene data collection software system that quickly generates a medical patient care report.

EMS can use computer technology to save time, thus improving patient care. Computers are used for dispatch, scheduling, electronic mail, inventory control, vehicle-maintenance and training records, billing and general office management.

Tim Luloff, EMT-P, assistant EMS coordinator, Des Moines Fire Department, Des Moines, Iowa, helped



implement an EMS computer software program a year and half ago.

"We generate very brief handwritten run reports for the emergency department to identify the patient's history, care given, and social security number," says Luloff. "It is adequate information for the hospital emergency physician.

"Then we return to the station and enter the data and details on the computer using the Firehouse EMS software. We developed a form with

check boxes. When completed, the crew faxes the more detailed report to the emergency room."

Ambulance services are required to complete a form for each patient treated or transported and a copy must be left with the receiving facility at the time of patient delivery.

This procedure helps to ensure continuity of patient care by making available to the emergency physician, a detailed, accurate record of the patient's prehospital condition, treatment and response to the treatment provided.

"There are many positive aspects to the computer software," says Luloff. "There is consistency from individual to individual on run reports; the computer reports are very similar in appearance. The form and boxes to check simplify the process and assist those whose penmanship, grammar and spelling may be difficult to interpret.

"We see the computer generated run reports as the trend of the future," says Luloff. "With the number of runs we have each year at approximately 12,000, it will improve the amount of information we have to enter."

There is a computer dedicated to EMS in each Des Moines Fire Station. If the crew is two to three calls behind in documentation and gets backlogged, they can check off the boxes for basic information and return to it later. Paramedics then provide details and extra information in the narrative portion of the form.

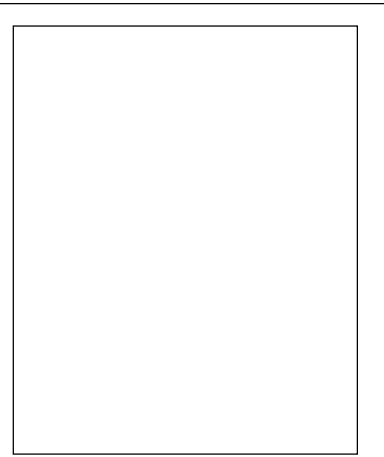
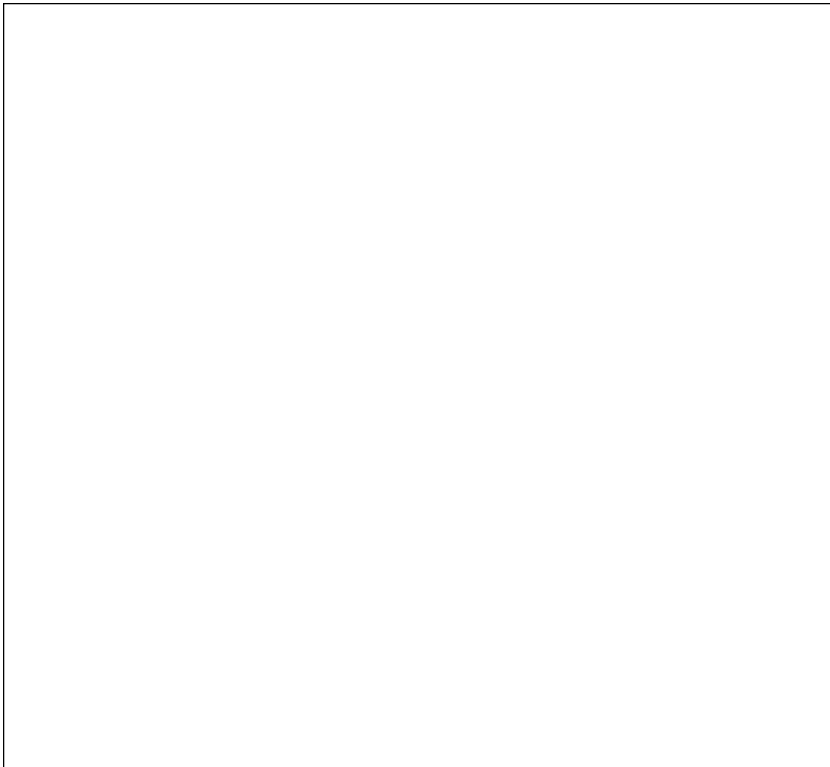
"The form can capture more information for quality assurance and quality improvement," adds Luloff. "We can look at skills of paramedics and present demographics to the city council for additional equipment or staff. It also allows us to provide information for the Trauma System data collection at the Bureau of EMS in Des Moines."

Computers are also used for EMS education. Particular internet sites provide online EMS continuing education for EMTs and paramedics. The site delivers multimedia curricula through the use of high-quality graphics, full-color layout, human-voice pronunciations, interactive exercises and online testing.

The Mass Casualty Incident (MCI) Simulator software can run MCIs of up to 200 patients. This computer simulation permits up to 50 remote computers to participate in an MCI exercise. Virtual patients can be triaged by a triage officer then clicked and moved to awaiting ambulances by the transportation officer. The program logs and reports all activities carried out by each station.

An anatomy and physiology software program is a way to supplement classroom education or as a stand-alone self-study course. Each illustration is accompanied by basic text as well as pop-up text "balloons" which provide detail and actively involve the student in the learning process.

The Advanced Medical Life Support (AMLS) course is an indepth study of medical emergencies. AMLS offers an advanced practical approach to adult emergencies using live victims in place of manikins.



EMSLRC first in Iowa to present new paramedic curriculum

Last July 6 the EMS Learning Resources Center staff introduced to students the new national paramedic training program curriculum developed for the National Highway Traffic Safety Commission.

The Iowa Department of Public Health, Bureau of EMS, asked the EMSLRC to initiate the training in Iowa because of their access to a diverse group of students enrolling in its program.

"The new curriculum is an opportunity to expand the knowledge level of the paramedic," says Doug York, REMT-P, director of the EMSLRC and the paramedic training program.

"EMSLRC staff developed new teaching materials and wrote new lesson plans to follow the new curriculum guidelines."

The 15-week didactic portion includes eight divisions focusing on: preparation, airway management and ventilation, patient assessment, trauma, medical, special considerations, assessment management and operations.

In addition, human anatomy and physiology are new prerequisites for the program and 90 hours of practical experience has been added.

New course offered in Iowa: Advanced Medical Life Support



Rosemary Adam



Twink Dalton

The EMS Learning Resources Center will introduce to Iowa a new, two-day Advanced Medical Life Support (AMLS) course beginning in January. This 17-hour indepth study of medical emergencies is intended for paramedics, registered nurses or physicians involved in care of the emergency medical patient.

"The AMLS curriculum is designed to allow for a minimal amount of lecture and an ample amount of actual hands-on physical assessment of patients," says Rosemary Adam, RN, EMT-P, nurse instructor, EMS Learning Resources Center, and AMLS course coordinator.

"This course, developed by the National Association of Emergency Medical Technicians and the National Association of EMS Physicians, emphasizes a very practical approach and format based on teaching providers what they need to know.

"We are excited to offer the

Advanced Medical Life Support course here. There is a need in Iowa for this type of course because the content is usually glossed over in initial EMS education," says Adam.

"This course is unique because it emphasizes critical thinking skills in managing the most common type of emergency medicine patient."

Alice (Twink) Dalton, RN, MS, NREMT-P, EMS education coordinator, Omaha Fire Department, Omaha, Nebraska, has been in the emergency care field since 1974 and teaches Advanced Medical Life Support.

"Twink was one of the authors of the AMLS textbook and aimed it directly at paramedics, EMS nurses and physicians with time-tested education strategies," says Adam.

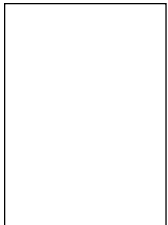
The AMLS course goal is to present an integrated, practical approach to the care of the adult patient in a common medical emergency. The course content moves from assessment- and complaint-based initial assessment (identifying and controlling immediate life threats) to field diagnosis and management of immediately treatable underlying diseases.

For more information contact Rosemary Adam at (319) 356-2599 or adamr@uihc.uiowa.edu

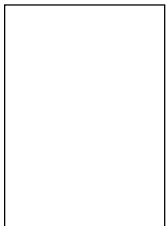


EMS responds to sports injuries

The exposure rate is so high in contact sports, it makes it very likely that players will be injured.



Greg Morris



Mike Godfrey

Although contact sports, such as football and wrestling, provide exercise and a variety of health benefits, they can also produce severe injury.

While most injuries in organized athletics are not catastrophic, the potential is there. The on-site first responder or EMT has the responsibility to keep abreast of advances in the management of acute sports injuries.

Greg Morris, certified athletic trainer, is the athletic equipment manager with the University of Iowa Hawkeye football team, and the athletic trainer at Prairie High School, Cedar Rapids, Iowa. Morris conducts sports injury training and renewal programs to ambulance crews.

"I have the crews practice sports injury skills. It is important to do that every fall before the football season begins," says Morris.

Football athletic trainers most often see head and neck, lower extremity orthopedic, and musculoskeletal injuries because of the forces exerted. If a collision leads to unconsciousness, neurologic deficit or lowered level of orientation, the player should be evaluated by hospital emergency staff.

"Unless the player is breathless and pulseless, there is no need to remove a football helmet," says Morris. "When the helmet is off, we have to worry about C-spine injuries. If you leave the helmet on, you have a perfect sphere and it is easier to handle the patient. A combitube, to assist with breathing, fits through the helmet's face mask."

There is a strong desire by coaches and players alike to return to the game. However, until a head and cervical spine injury can be ruled out, prehospital emergency personnel should discourage such action. In addition, injuries that display minimal pain may be significantly worsened by the stress of further competition.

Heat related injuries occur early in the football season. Morris says some players will shed 10 pounds during

practice. Responders should ask what the athlete weighs. If the current weight is much less than the week prior, then it is water loss. Kids compensate well and don't respond to low fluids quickly. They may develop flulike symptoms."

Morris says exercise induced asthma attacks can come on very quickly. Those athletes need oxygen and help relaxing. He suggests athletic directors have each athlete's current medications, dosages, etc on file.

"I recommend that EMS personnel quiz the 14 to 18-year-olds thoroughly and often," says Morris. "Players need to know that if they are in a wheezing situation, they must get out of the game so we can manage it."

Mike Godfrey attends Morris' sports injury inservice each fall. Godfrey, EMT-P, RN, a 1990 graduate of the EMS Learning Resources Center paramedic training program, is a staff nurse in the cardiovascular lab, Mercy Hospital, Iowa City. He is also a paramedic with Iowa County Ambulance and director of the First Responder Service, Williamsburg, Iowa.

"The Iowa County staff is scheduled with a treatment vehicle at Friday night football games for four area high schools: Williamsburg, English Valley in North English, Iowa Valley in Marengo, and HLV (Hartwick, Ladora, Victor) in Victor.

"We review with Greg the pros and cons on removing helmets, pads and how to manage other equipment," says Godfrey. "We are taught to observe for concussions, injured shoulders, and fractured arms and legs.

"One night we were called back to the high school after the game. A player didn't want to disclose his injury. He thought he had cold symptoms, but actually had a chest injury and fractured ribs.

"We have good communication with the high school athletic trainers. They define expectations for us," adds Godfrey. "Without a doubt, this type of response is necessary. I also would like to see coverage at wrestling tournaments where there is the potential for dislocations and fractures. It's good for us to be involved in the community this way too."

New two-day course offers 12-lead ECG certification

12-Lead ECG course participants will interpret cardiograms urgently and accurately.



Patti Lounsbury



Mike Hartley

The two-day 12-Lead Electrocardiography (ECG) Interpretation Course for Emergency Care Providers has been designed for physicians, physician assistants, nurses and paramedics who provide emergency cardiac care in the acute setting. The EMSLRC offers the course October 19-20 in Iowa City.

"This course expands on many of the questions and confusing issues challenging anyone who must interpret an ECG urgently and accurately," says Patti Lounsbury, BSN, MEd, RNC, CCRN, and 12-Lead ECG Interpretation course instructor.

Lounsbury is an advanced practice nurse and program director of Iowa Cardiovascular Health Assessment Management and Prevention Services, UI Heart Care, a part of University of Iowa Health Care.

"Health care providers who must make an accurate and quick interpretation of an ECG in an acutely ill patient will welcome this aspect of electrocardiography," says Lounsbury.

For the course, Lounsbury will be using materials developed by Henry J. L. Marriott, MD, FACP, FACC. Marriott has authored numerous books and articles about electrocardiography and Lounsbury has given conferences with him in the past. The Marriott Foundation offers ECG proficiency

examinations in four categories: emergency, basic level, intermediate, and advanced. Course participants will receive a copy of Marriott's *Emergency Electrocardiography*.

For more information, please contact Mike Hartley, EMT-P, course coordinator at (319) 353-6857.

EMS Update

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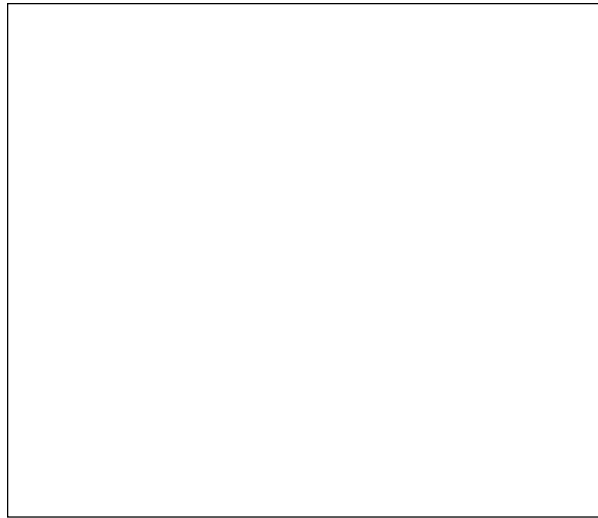
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Annual conference offers three tracks to meet diverse needs

It's time to register for the 22nd annual Topics in Emergency Medicine Conference to be held Thursday and Friday, October 21 and 22, 1999 again in Iowa City at the Radisson Highlander Plaza.

"For the first time, the conference offers three tracks each afternoon to attempt to meet the diverse needs of all emergency care providers," says Clark Christensen, EMT-P, EMS Learning Resources Center instructor and conference coordinator. "We reviewed the comments and evaluations following last year's conference to select topics of interest for this year."

Thursday afternoon Rick Sywassink, chief deputy with the Des Moines County Sheriff's office, will speak on school violence. Also on Thursday, Terry Foster, RN, a critical care nurse specialist from Hamilton, Ohio, will present three lectures: *Life in the ER—Been There, Done That, Love it; The Use of Intuition in Emergency Care; The Bizarre and the Spectacular! Unique Cases in Emergency Care.*

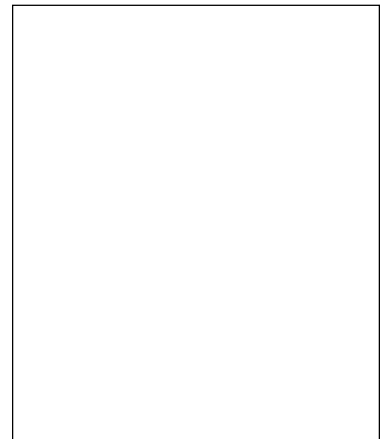
Friday offers lectures on abuse, abdominal pain in the female, mnemonics and methamphetamines.

If you would like more information on the conference, please call the EMS Learning Resources Center at (319) 356-2597.

Clark Christensen



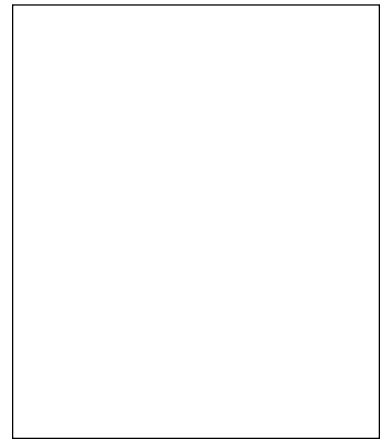
Jerry Browne, MD



Andrew Nugent, MD



Teri Jo Miller



Kerrie Scott

New staff join UI Health Care emergency teams

Two emergency physicians joined University of Iowa Health Care Emergency Treatment Center medical staff in July.

Jerry Browne, MD, most recently had been a staff physician in the emergency department at Allen Memorial Hospital in Waterloo.

"Dr Browne has demonstrated his clinical excellence in the practice of emergency medicine for several years," says Fred Hansen, MD, director of the Emergency Treatment Center at the University of Iowa Hospitals and Clinics. "We are fortunate to have recruited him."

Andrew Nugent, MD, recently completed his residency training at Texas Tech University, El Paso.

"Dr Nugent combines his skills with an enormous enthusiasm as a teacher. He is a wonderful role model for all those who care for patients in the emergency department," adds Hansen.

Teri Jo Miller, RN, BSN and Kerrie Scott,

RN, BSN, also joined the UI Health Care emergency staff as AirCare flight nurses last April.

Miller has been a critical care nurse since 1992 and in the UIHC Emergency Treatment Center since 1996. She is certified in Advanced Cardiac Life Support (ACLS), Pediatric Advanced Life Support (PALS), Neonatal Resuscitation Program, Prehospital Trauma Life Support, Trauma Nursing Core Course (TNCC), and Emergency Nursing Pediatric Course (ENPC).

Scott joined the UIHC Emergency Treatment Center in 1995. She has been a nurse since 1994 and has five years of critical care experience. She is an ACLS provider and instructor, a Basic Cardiac Life Support provider and a PALS provider. She also has received Emergency Nursing Pediatric Course and Trauma Nursing Core Course certifications.

"Kerrie and TJ have expanded their emergency nursing practice to the realm of emergency transport by joining the AirCare flight team. Their skills and expertise will complement the current exemplary flight team," says Barbara Schuessler, RN, nurse manager of the Emergency Treatment Center, UI Health Care at the University of Iowa Hospitals and Clinics.

EMSLRC course calendar

MD RN EMS

1999

Oct 18-28	Iowa City: Critical Care Paramedic Program	—	—	54
Oct 19-20	Iowa City: PreConference Workshop: 12-Lead ECG Interpretation Course	14	1.35	12
Oct 21-22	Iowa City: Annual Topics In Emergency Medicine Conference	12	1.35	7
Oct 25-26	Davenport: Pediatric Advanced Life Support Provider	16	1.5	15
Oct 28-29	Davenport: Pediatric Advanced Life Support Instructor Program	9	.95	9
Oct 29	Davenport: Pediatric Advanced Life Support Instructor Renewal Program	3.5	.25	3
Oct 30	Iowa City: PreHospital Trauma Life Support Instructor	—	0.7	7
Nov 1, 3, 8	Iowa City: Pediatric Advanced Life Support Provider	16	1.5	15
Nov 4-5	Iowa City: Advanced Trauma Life Support	19	—	—
Dec 2-3	Iowa City: Advanced Trauma Life Support	19	—	—

2000

Jan 8-9	Des Moines: Pediatric Advanced Life Support Provider	16	1.5	15
Jan 12, 19, 26	Iowa City: Basic EKG Interpretation	—	0.9	9
Jan 24	Iowa City: Advanced Cardiac Life Support Provider Renewal	4	0.4	4
Jan 29	Iowa City: Basic Life Support Instructor Trainer			
Jan 31- Feb 2, 7, 9	Iowa City: Advanced Cardiac Life Support Provider	16	1.5	15
Feb 4	Davenport: Advanced Trauma Life Support Refresher	5	—	—
Feb 12-13	Carroll: PreHospital Trauma Life Support Basic and Advanced	—	1.6	16
Feb 18-19	Ottumwa: Advanced Cardiac Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Feb 18-19	Ottumwa: Pediatric Advanced Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Feb 24-25	Iowa City: Advanced Trauma Life Support	19	—	—
Mar 2-3	Dubuque: Advanced Cardiac Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Mar 2-3	Dubuque: Pediatric Advanced Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Mar 3-4-5	Iowa City: EMS Refresher Course	—	—	24
Mar 6	Iowa City: Advanced Cardiac Life Support Provider Renewal	4	0.4	4
Mar 16-17	Cedar Rapids: Advanced Cardiac Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Mar 16-17	Cedar Rapids: Pediatric Advanced Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Mar 17-19	Iowa City: EMS Refresher Course	—	—	24
Mar 23-24	Iowa City: Trauma Nursing Core Course	—	1.4	16
Apr 6-7	Creston: Advanced Cardiac Life Support Instructor/Instructor Renewal	TBA	TBA	TBA
Apr 6-7	Creston: Pediatric Advanced Life Support Instructor/Instructor Renewal	TBA	TBA	TBA



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