

EMS Update

An Emergency Medical Services Learning
Resources Center Publication

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*University of
Iowa men's
tennis team
members
discuss their
next match
and drink
fluids between
games.*



Heat illness lurks in summer's hot and humid days

“**S**ummer is a fun season and it’s healthy for people to enjoy themselves out of doors,” says Andrew Nugent, MD,

assistant professor (clinical), Department of Emergency Medicine, University of Iowa Health Care. “For most of us, being aware of when we might be overdoing it is the most important step in preventing heat illness.”

Exposure to high temperatures for a sustained period can cause heat-related illness (hyperthermia) or death. The two most serious types of heat-related illness are heat exhaustion and heat stroke.

Heat exhaustion is characterized by paleness, fatigue, muscle cramps, dizziness, headache, nausea or vomiting, and fainting. The skin is typically cool, and moistness and sweating might occur. The pulse rate is fast and weak, and breathing is fast and shallow. If untreated, heat exhaustion can progress to heat stroke. Heat stroke is a serious, often fatal

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Heat illness cont'd



Andrew Nugent, MD

condition characterized by red, hot, and dry skin; rapid pulse; throbbing headache; dizziness; nausea; confusion; and unconsciousness.

“Heat stroke is a life-threatening condition and represents severe dehydration, high body temperature and a shut-down of the cooling mechanisms,” says Nugent.

The patient may be delirious and many victims stop sweating. The pulse is rapid and weak, the blood pressure is low and body temperature can be greater than 103 F. Damage to the brain, heart, lungs, kidneys and other organs may occur. This stage is life-threatening and requires immediate medical attention.

“When it’s hot and humid the heat is trapped in the body,” says Nugent. “Humidity is a major component of heat stress, sometimes even more than air temperature.

“Sweat evaporates and cools the body. However, in extreme heat and high humidity, evaporation is slowed and a person’s body temperature rises rapidly,” adds Nugent.

People sweat more in humid conditions, but because the air is already saturated with water, sweat can’t evaporate. Sweat that beads up and rolls off doesn’t function in the cooling process. Deaths have occurred when the air temperature was less than 75 F, but the humidity was above 95 percent.

		Relative humidity (%)													
		40	45	50	55	60	65	70	75	80	85	90	95	100	
Air temperature (F)	110	136													
	108	130	137												
	106	124	130	137											
	104	119	124	131	137										
	102	114	119	124	130	137									
	100	109	114	118	124	129	136								
	98	105	109	113	117	123	128	131							
	96	101	104	108	112	116	121	126	132						
	94	97	100	102	106	108	114	119	124	129	136				
	92	94	96	99	101	105	108	112	116	121	126	131			
	90	91	93	95	97	100	103	105	109	113	117	122	127	132	
	88	88	89	91	93	95	98	100	103	106	110	113	117	121	
	86	85	87	88	89	91	93	95	97	100	102	105	108	112	
	84	83	84	85	86	88	89	90	92	94	96	98	100	103	
	82	81	82	83	84	84	85	86	88	89	90	91	93	95	
	80	80	80	81	81	82	82	83	84	84	85	86	86	87	

Heat Index/Heat Disorders	
Heat index	Possible heat disorders for people in higher risk groups
Extreme danger 130°F or higher	Heatstroke/sunstroke highly likely with continued exposure.
Danger 105°F to 130°F	Sunstroke, heat cramps, or heat exhaustion likely and heatstroke possible with prolonged exposure and/or physical activity.
Extreme caution 90°F to 105°F	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity.
Caution 80°F to 90°F	Fatigue possible with prolonged exposure and/or physical activity.

“Heat stroke and heat exhaustion can be tough to differentiate during the early phases of heat stroke,” says Nugent. “The treatment for both is the same: Cool off the patient and replace lost fluids.

“EMS responders need to get the victim’s temperature down as quickly as possible. They should throw a bucket of water on the person if possible and turn on a fan to blow the heat off of them.”

Bystanders can apply cool, wet cloths to the skin or ice packs in the armpits, wrists, ankles and groin.

“If prehospital personnel suspect heat stroke, they can apply ice to the patient before inserting the IV. If the patient begins seizing, that is one step closer to death,” adds Nugent.

“If the patient is transported, EMS personnel should open the windows in the ambulance, and blow a fan on the patient who has been drenched with water.”

Most heat disorders occur because the victim has been overexposed to heat or has overexercised for his or her age and physical condition. Older people don’t sweat or conduct heat out of their bodies very well. Even young and healthy individuals can succumb to heat if they participate in strenuous physical activities during hot weather. Those who exercise outdoors, and are not accustomed to hot and humid weather, may develop exertional heat stroke.

Air conditioning is the strongest protective factor against heat-related illness. Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath or moving to an air-conditioned place is a much better way to cool off. Periodically checking on neighbors who do not have air conditioning is recommended.

AirCare I helicopter flies three million miles in 25 years

The first AirCare emergency helicopter in 1979, at right.

When the AirCare emergency helicopter service was established at the University of Iowa Hospitals and Clinics 25 years ago, it was the first hospital-based emergency aeromedical program in Iowa and one of the first programs in the nation.

The service was an expansion of the emergency helicopter flights formerly provided only by the Iowa National Guard.

Besides the rapid transport of seriously ill or injured patients, emergency helicopter services provide highly trained, skilled flight nurses and paramedics at the patient's side during transit.

The current AirCare helicopter on a scene flight, at right.

The Iowa City-based AirCare service combines with a second AirCare helicopter stationed in Waterloo. The AirCare program averages nearly 900 missions per year and is available for both scene and inter-facility transports.

“AirCare’s most important benefit to patients is its speed,” says Diane Lamb, RN, assistant nurse manager, AirCare. “People who are severely injured survive more often if they receive care for their injuries during the ‘Golden Hour’, the 60-minute period immediately following their accident.”

AirCare I, based at University of Iowa Hospitals, is operational 24 hours a day and flies with a crew of two registered nurses. AirCare II is based at Covenant Medical Center in Waterloo, Iowa, and flies 7am to 11pm with a crew of one registered nurse and one paramedic. The Waterloo location provides a more rapid response to calls from north central and northeastern Iowa.

Since its first flight in the spring of 1979, AirCare I has transported more than 20,200 patients from throughout Iowa and the Midwest and flown three million miles.

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AirCare cont'd



**Diane Lamb,
RN**

Dr Andrew Nugent says the AirCare helicopter is often the fastest way to transport critically ill and injured patients to the specialists in the Emergency Treatment Center and the Level I Trauma Center at UI Hospitals and Clinics.

"We have experts in every possible discipline and we can bring those people in on every possible problem," says Nugent, assistant professor and medical director of UI Emergency Treatment Center and AirCare. "We are pleased to be able to offer these emergency services to patients and their families, community physicians and hospitals.

"Iowa has a lot of people who live a long way from any of the large hospitals. There are smaller hospitals, but if there's any way we can get those folks to a major trauma center quickly, then we've done those people a service."

"Occasionally due to inclement weather, some missions cannot be launched," says Lamb. "We follow very strict guidelines to ensure that our patients' and crews' safety are not compromised.

"The AirCare emergency helicopter is a fast, effective way for Eastern Iowans to receive critical care when they need it most during life-threatening injuries or illnesses," adds Lamb.



Original AirCare flight team member retires

Chuck Wendler, RN, flew 2,620 flights before he ended his 25-year AirCare career April 30. Wendler joined the original AirCare crew in April 1979.

"When I joined AirCare they wanted a one-year commitment," says Wendler. "It has been 25 years now!"

Wendler spent five years as a critical care nurse with University of Iowa Health Care before becoming a flight nurse.

"I also was a flight engineer in the Navy back in the '60s so I knew a lot about flying," says Wendler. "The AirCare program was beginning and they asked me to join. I thought my flying and nursing experience would go together and accepted the flight nurse position."

Mike Dillard, RN, has been a flight nurse at University of Iowa Hospitals for 24 years and worked closely with Wendler.

"Chuck is very talented technically and very knowledgeable," says Dillard. "His gift of gab helps the patients feel more at ease."

"He is a good team member and is one of those who really loves coming to work . . . and it shows. I have a great deal of respect for Chuck. I have never met a more compassionate person," adds Dillard.

Originally flight nurse schedules were 24 hours on and two or three days off.

"It was like working part-time and I could spend a lot of time with my kids," adds Wendler.

Wendler says he has very much enjoyed nursing, helping patients and working at University of Iowa Hospitals and Clinics.

"I like the excitement of emergent patient care. We perform advanced skills and make decisions in a ditch.

"Through the years, I was most touched by a patient from West Branch, Iowa," adds Wendler. "He had a heart attack and I defibrillated him before and during the flight. He fully recovered and I received a Christmas card from him every year. That was when we flew with one flight nurse and I was caring for him alone."

Wendler looks forward to enjoying his many hobbies during retirement: master gardening, traveling, painting, and building museum quality ship models.

Wendler can be reached at mwen1616@aol.com

The new patient simulators provide an interventional learning tool. They can encompass more skills in patient care scenarios such as airway management and vascular access skills.

The simulators are maintained in the EMSLRC so course participants, in addition to the emergency medicine residents, can learn hands-on techniques for emergency care.



EMSLRC trains Emergency Medicine physician residents

Hans House, MD, director, Iowa Emergency Medicine Residency program, looks forward to the new emergency medicine residents learning from the EMS Learning Resources staff.

“The most significant role of the EMS Learning Resources Center in the residency is teaching during the orientation month,” says House. “Throughout July the residents and some medical students get an overview of life-saving skills and management of critical patients.”

Since 1978, the EMS Learning Resources Center has taught educational programs in emergency medicine for physicians, physician assistants, nurses, EMTs, and paramedics and now will play a major role in the education of the emergency medicine residents.

Hans House, MD, at right

“I see the current EMSLRC, 6-South, General Hospital hallway becoming the future headquarters for the education arm of the Department of Emergency Medicine, Division of Education,” says House.

“By tying the training of paramedics into resident training, we can create a stronger connection between the emergency doctors and the emergency personnel working on the streets,” he adds.

New patient simulators are maintained in the EMS Learning Resources Center, so paramedic students and other EMSLRC course participants, in addition to the emergency medicine residents, can learn hands-on techniques for emergency care.

“Residents spend the introductory month learning the principles of emergency medicine, including certifications in Advanced Cardiac Life Support, Advanced Trauma Life Support, Pediatric Advanced Life Support, and APLS: The Pediatric Emergency Medicine Course. They also learn about EMS radios and communication,” says House.

Through the EMS Learning Resources Center, specialists in emergency and critical care education provide a variety of EMS-related programs locally for University of Iowa Health Care staff and on an outreach basis throughout Iowa and the nation.

Emergency medicine residents are given the opportunity to teach any of the various programs offered by the EMSLRC.





**Fred Hansen,
MD, PhD**

We appreciate his contributions to Iowa and the EMSLRC



**Rosemary
Adam**

“People from across Iowa appreciate and respect the work that Fred Hansen did for emergency medicine in the five short years he was here,” says Rosemary Adam, RN, PS, nurse instructor, EMSLRC.

Fred Hansen, MD, PhD, former professor, and vice-chairman for Emergency Medicine Education, Department of Emergency Medicine, UI Health Care, was also medical director of the EMSLRC since his arrival in January 1999.

As medical supervisor for Johnson County, he conducted run reviews and education for the ambulance service. He also played a significant role in establishing the University of Iowa Health Care Emergency Medicine residency program — Iowa's first — which began July 1.

On a state level, Hansen served on various committees and as medical liaison for the Iowa EMS Association. In addition, he is the immediate past president of the Iowa Chapter, American College of Emergency Physicians.

On a national level, he advises the American College of Surgeons in trauma center designation site visits.

Hansen relocated to Lexington, Kentucky in June.

Werner named new EMSLRC medical director

Roy Werner, MD, joined University of Iowa Health Care July 1 as assistant professor, clinical, Department of Emergency Medicine and medical director, Emergency Medical Services Learning Resources Center.

As medical director, Werner will present lectures, review the course participant evaluation methods, and serve as an important resource to students and staff. In addition, Werner will work in the Emergency Medicine Research Laboratory.

Werner is a certified nuclear medicine technologist and EMT-Basic. He also is certified to provide



and teach Advanced Trauma Life Support, CPR, Advanced Cardiac Life Support and Pediatric Advanced Life Support.

“We look forward to working with Dr. Werner and learning from him in the EMSLRC,” says Doug York, PS, director, EMSLRC.

Werner recently completed his emergency medicine residency training at Sinai-Grace Hospital of the Detroit Medical Center.

EMS Update

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Iowa's first emergency medicine residency class begins training

From left: Michael Schwemm, MD; Chris Russi, DO, assistant director, Emergency Medicine Residency Program; Michael Miller, MD; Rhonda Sowards, MD; Chris Buresh, MD; Eric Dickson, MD, director, Emergency Department; Pooneh Hendi, MD; James Steen, MD; Joanne Eggert, coordinator, Emergency Medicine Residency Program; Chandler Caves, MD; Travis Brownell, MD; and Hans House, MD, director, Emergency Medicine Residency Program.

The Iowa Emergency Medicine Residency is the first and only emergency medicine residency for the state of Iowa. The first residents to participate in the new program began their duties July 1.

“We are thrilled to be the primary training site for Iowa’s first Emergency Medicine residency. This is a critical step in improving emergency care for all the citizens of Iowa,” says Eric Dickson, MD, director, Emergency Treatment Center and the Department of Emergency Medicine, University of Iowa Health Care.

This program was developed because of a heightened student interest in emergency medicine (EM) as a career. The initiative also stems

from a statewide interest to increase Iowa’s residency-trained, board-certified emergency specialists.

“We have assembled a diverse group of clinical educators that have trained at some of the country’s most prominent Emergency Medicine programs,” says Dickson. “Our faculty members have a broad range of expertise including research, forensic medicine, ultrasonography, international medicine, flight and ground-based EMS transport systems, toxicology, hyperbaric medicine, and pediatric emergency medicine. This wide range of interests will assure that individual resident interests can be fostered and supported.”

The residency program is a progressive educational experience with increasing patient responsibilities over the three years of training.

“The Emergency Medicine curriculum seeks to take full advantage of the remarkable resources offered at UI Hospitals and Clinics,” says Dickson. “Residents rotate

through many services to be exposed to the best clinicians and most effective teachers possible. Managing critical and complicated patients provides a solid base of knowledge that can be drawn upon in any emergency room setting.”

Mike Miller, MD, chose Iowa to complete his emergency medicine residency training.

“The quality faculty and commitment to education brought me here,” says Miller. “The Midwest also has a quality working environment and friendly people. In addition, Iowa is a fine place to raise children.”

“The priorities of the program are to continue to provide the best possible emergency care while training future emergency physicians for the state of Iowa,” Dickson adds.

For more information on the Iowa EM Residency program visit the web site www.uihealthcare.com/emergencymedicine, or contact Joanne Eggert, residency coordinator (319) 384-6511, joanne-eggert@uiowa.edu

EMSLRC course calendar

2004		CMEs	CEUs	CEHs
Aug 23,25 30, Sep 1	Iowa City: Basic EKG	—	1.26	12
Sep 7	Iowa City: Iowa Paramedic Outreach Training Program class begins	—	—	—
Sep 9-10	Iowa City: Pediatric Education for Prehospital Professionals	—	1.45	—
Sep 9-10	Iowa City: Trauma Nursing Core Course	—	1.4	—
Sep 13, 15, 20, 22	Iowa City: Advanced Cardiac Life Support Provider	—	1.53	—
Sep 16-17	Iowa City: Geriatric Education for Emergency Medical Services	—	Varied	Varied
Sep 27-28	Iowa City: Advanced Medical Life Support	—	1.4	16
Oct 7-8	Creston: Advanced Cardiac Life Support/ Pediatric Advanced Life Support Instructor and Instructor Renewal	Varied	Varied	Varied
Oct 7-8	Iowa City: Advanced Trauma Care for Nurses Course	—	1.82	19
Oct 8	Iowa City: Heartsaver First Aid	—	—	—
Oct 9-10	Mason City: Geriatric Education for Emergency Medical Services	—	Varied	Varied
Oct 11-12	Iowa City: Prehospital Trauma Life Support Basic and Advanced Provider	—	1.6	16
Oct 21-22	Iowa City: APLS—The Pediatric Emergency Course	17	1.8	18
Oct 25	Iowa City: Advanced Cardiac Life Support Provider Renewal	—	.45	—
Oct 28-29	Iowa City: Advanced Cardiac Life Support/ Pediatric Advanced Life Support Instructor and Instructor Renewal	Varied	Varied	Varied
Nov 2	Iowa City: Advanced Cardiac Life Support for the Experienced Provider	7.5	.78	8
Nov 4-5	Sioux City: Advanced Cardiac Life Support/ Pediatric Advanced Life Support Instructor and Instructor Renewal	Varied	Varied	Varied
Nov 8	Iowa City: EMT-Basic Training Program begins	—	—	—
Nov 15	Iowa City: Pediatric Advanced Life Support Provider Renewal	—	0.4	—
Dec 3	Iowa City: Heartsaver First Aid	—	—	—
Dec 8	Iowa City: Neonatal Resuscitation Program Provider/Renewal	—	.58/.33	—
Dec 9	Iowa City: Prehospital Trauma Life Support Instructor/Coordinator	—	.7	7
Dec 10	Iowa City: Advanced Cardiac Life Support Provider Renewal	—	.45	—
Dec 16-17	Iowa City: Pediatric Education for Prehospital Professionals	—	1.45	—



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