University of Iowa Health Care

EMS Update

An Emergency Medical Services Learning Resources Center Publication

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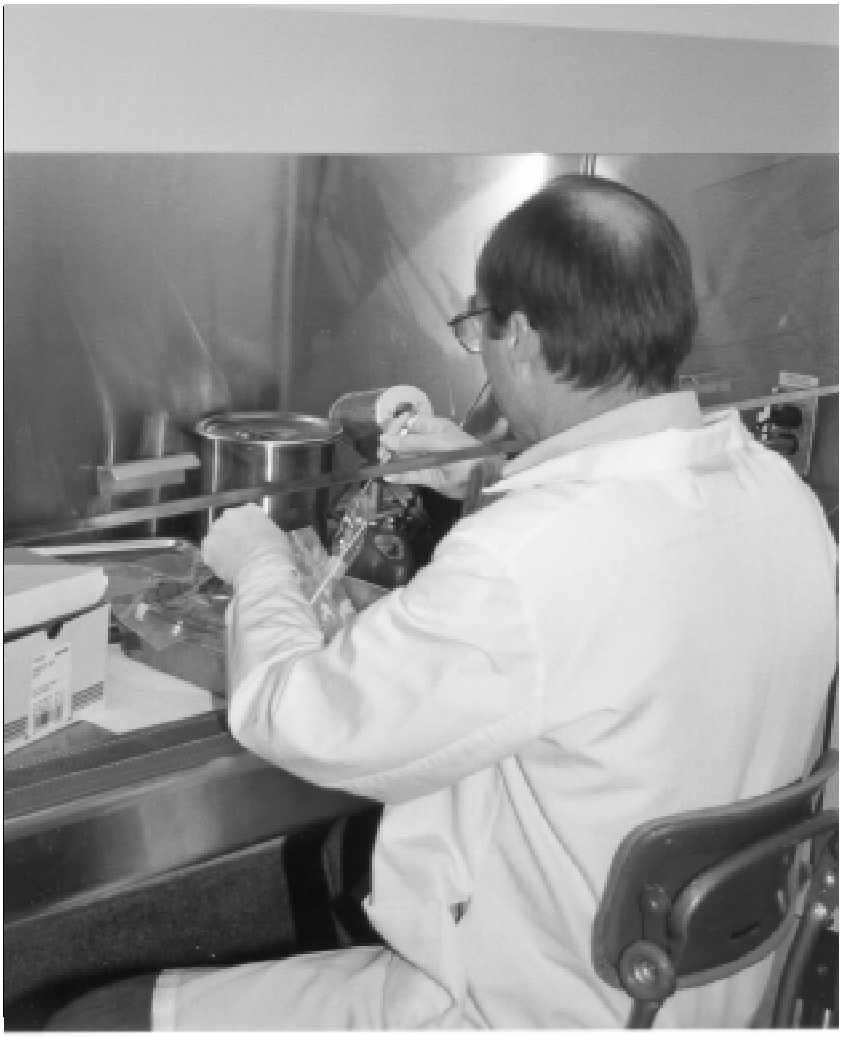
EMS providers prepare response to bioterrorism



The University of Iowa Hygienic Laboratory's role is to help hospitals diagnose illness in humans. The staff is trained to identify organisms used in bioterrorism.

Anthrax, smallpox, plague, botulism. Each of these diseases is caused by an organism that is known to be among the biological weapons that have been developed for terrorist organizations worldwide.

Early detection of and response to biological terrorism are crucial.

The U.S. public health system and primary healthcare providers must be prepared to address varied biological agents, including pathogens that are rarely seen in the U.S. Organisms that pose a risk are those that:

- can easily be disseminated or transmitted person-to-person;
- cause high mortality, with potential for major public health impact; or
- might cause public panic and social disruption.

Hospital and public health laboratory staff across the country are working with the Centers for Disease Control and Prevention (CDC) in evaluating new methods of detecting bioterrorism pathogens.

UI microbiologist and bioterrorism expert Mary Gilchrist, PhD, is director of the University of Iowa Hygienic Laboratory (the public health and environmental laboratory for the entire state of Iowa). She explains that the Hygienic Laboratory's role is to help hospital labs diagnose illness in humans.

"We expect to soon have tests that require only several hours, rather than a day or two, to identify these organisms," says Gilchrist. "The earlier an infected person can be identified, the better the chance to

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Bioterrorism cont'd

The University of Iowa Hygienic Laboratory follows the Chain of Custody documentation procedure, as shown at the right, which could be used in a court of law.

save others who have been exposed to the disease."

Emergency Medical Services and hospitals traditionally have planned for accidents such as plane wrecks or building fires, and for hurricanes or other disasters.

"Bioterrorism requires a different response for EMS personnel," says Gilchrist. "There usually will be no ground zero. There likely will be no envelope as in the anthrax situations.

"If spectators would be exposed at the Olympics, healthcare professionals would see a progression of illnesses," says Gilchrist. "If the incubation period of the illness were short enough, some might fall ill before the events ended. However, with a short duration event such as the Super Bowl, illness would more likely manifest several days to weeks later when the crowd had disbursed.

"The EMS providers would sort out illnesses and the 'worried well'. I would anticipate a lot of support from the EMS teams going to the homes of the very ill," she adds.

Mary Gilchrist

Consequently, the first casualties of a covert bioterrorism attack probably will be identified by physicians or other primary healthcare providers.

"With smallpox, you could give ten martyrs a dose of it and put them on a plane to the U.S. They can go to different parts of the country and every person they give it to is going to cause as many as 20 other people to get smallpox," Gilchrist explains. "This scenario is unlikely, however, because people are very weak by the time they are infected."

Mary Jones

During the period between when the first cases are identified and a second group becomes ill, public health officials will need to determine that an attack has occurred, identify the organism, and prevent more casualties through strategies such as focused vaccination.

There are a number of rapid assay devices that are being sold to consumers and professionals, but their use could be very problematic.

"We urge officials to understand the limitations of onsite handheld rapid technologies, such as the Smartticket," suggests Gilchrist.

"Instant testing causes people to panic," she says. "Instant **accurate** results are not available at this time. When a false positive result is reported, it stresses the infrastructure when we need it for other reasons. And a false negative result could be devastating."

Attacks with biological agents present different challenges and will require response for these types of emergencies in a "non-traditional" manner. The initial call for a bioterrorism incident will most likely not come in by the traditional 911 method or come from a disaster site.

Mary Jones, PS, program director, Office of Medical and Public Health Disaster Preparedness, Iowa Department of Public Health, Des Moines, Iowa, says a bioterrorist disaster would most likely create a gradual progression of illnesses as described by Dr Gilchrist.

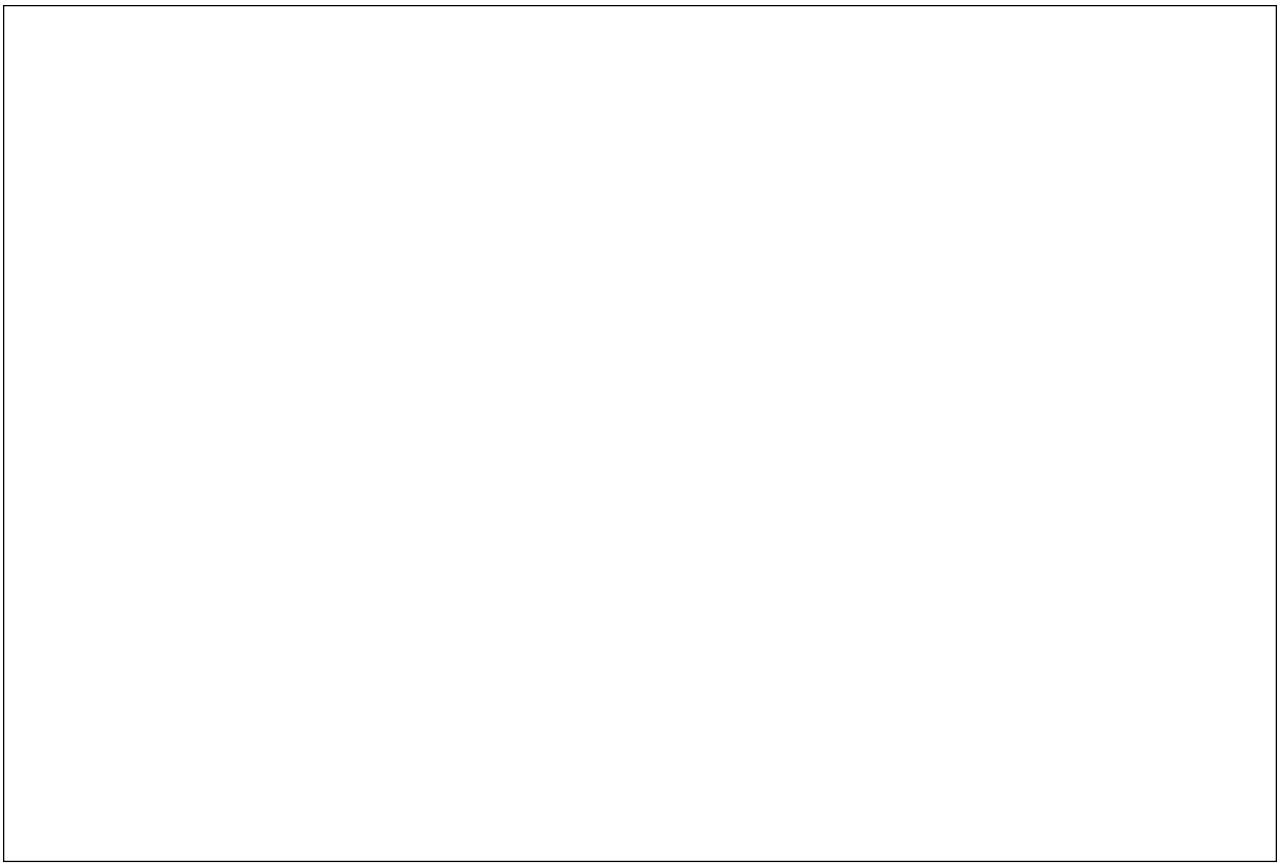
"EMS may see an unexplained increase in ambulance calls. Large numbers of ill persons with similar disease syndromes may present to hospitals or clinics, or we may see an unexplained increase in antibiotic prescriptions," says Jones.

"Once public health is notified, the following four priority health systems is the key: 1) determine an outbreak/attack occurred 2) identify the organism 3) identify those exposed and 4) intervene with precautions, prophylaxis and appropriate treatments."

The Iowa Emergency Plan, developed and implemented by the Emergency Management Division, calls for the Iowa Department of Public Health to take the lead for biological incidents in Iowa that have the potential to or will affect the public's health.

"Additionally, as part of the department's planning process, Iowa Disaster Medical Assistance Teams (IA-DMATs) are being formed across the state to provide medical care and assistance during a disaster," says Jones. "The IA-DMATs will be specially trained to respond not only to the traditional disaster but to the non-traditional bioterrrorism incident as well."

At right, from left to right: Mike Ross, Canada; Dyke Gill, West Indies; Jason Wiltfang, Bahamas; and Rony Estrada, Guatemala. The four left their home countries for one month to participate in the EMT-Basic training program at the EMS Learning Resources Center.



Students from foreign countries choose Iowa EMT-Basic course

Rony Estrada came from Guatemala last spring to Iowa to attend the EMS Learning Resources Center EMT-Basic training program.

"Most ambulances in Guatemala are pick-up trucks with aluminum camper roofs," says Estrada. "The patient is transported to the ambulance on a military stretcher and placed directly on the truck floor.

"The University of Iowa EMT-Basic training course was the only program I found that can be done in one month," says Estrada. "I have to work and study back home, so this program fit perfectly."

Estrada says Guatemala's EMS system has two firefighting departments which also operate the Emergency Medical Services. "My home country doesn't offer EMS courses, other than basic first aid training to all firefighter students."

"The EMS budget in Guatemala is about $400,000 for a country of 11 million people," says Estrada. "Resources are very scarce. Any help in any kind of used emergency equipment is welcomed."

Mike Ross came to Iowa from Canada because he appreciates the accelerated pace of the course.

"EMS training in Canada includes a paramedic program only with two years of college," says Ross. "The Canadian EMS system is very similar to here, except that there are no paramedic levels."

Dyke Gill, from Tobago and Trinidad, West Indies, says his country has an EMS training program, but it is not as good quality or as recognized as the course offered at the University of Iowa.

"The EMS system in my country at this point is mostly just the developing stages of EMT-Basic," adds Gill.

Jason Wiltfang has been an EMS volunteer in the Bahamas since age 12 and received his first responder training there three years ago. "I came to Iowa for my EMT-Basic training because I had heard the instructors were very well qualified," says Wiltfang.

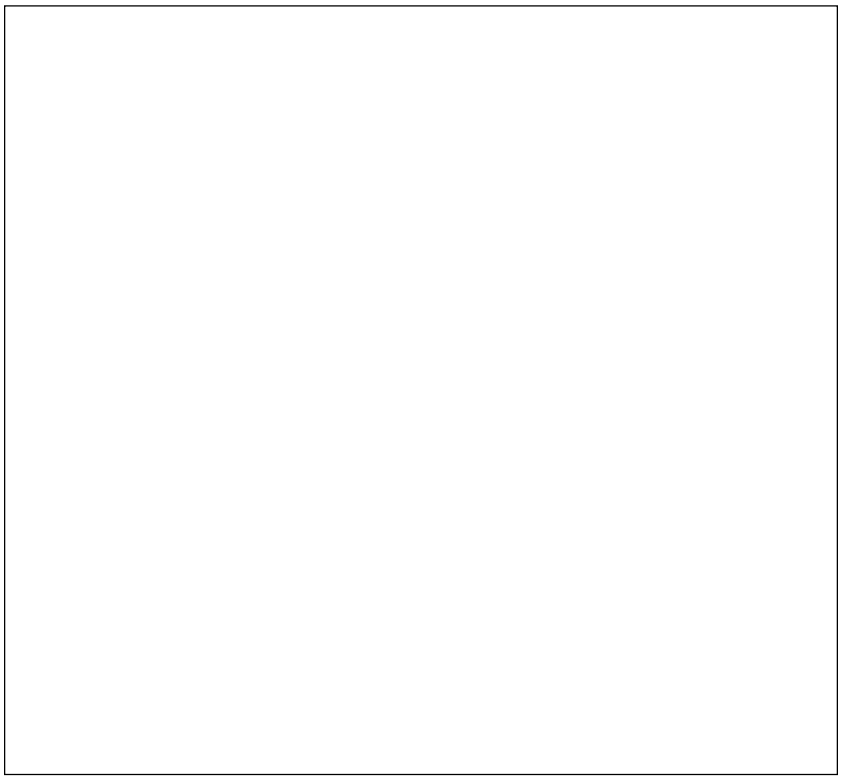
"The Bahamas really does not have a countrywide system. There are EMS services in the bigger tourist areas, such as Nassau and Freeport," adds Wiltfang. "My island, which is home to the third largest city in the country, did not have an ambulance service until my father bought our first of five ambulances in 1998 in Alexander, Iowa. The ambulances are ill-equipped and poorly maintained by the government so private services have stepped in to provide support.

"I am the first, of hopefully many, to attend an EMT-Basic training class for the island. The course came highly recommended to me by an Iowa physician friend of my father," adds Wiltfang.

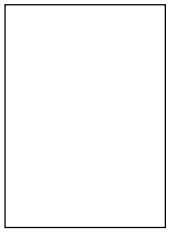
Gill, Estrada and Ross, learned about the EMSLRC EMT-Basic training program through the EMSLRC website on the internet.

For more information on donating equipment to Guatemala or the Bahamas, contact Estrada at ronyestrada@hotmail.com and Wiltfang at dwiltfang@hotmail.com

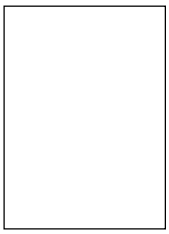
Flight nurses insert peripheral central venous catheters



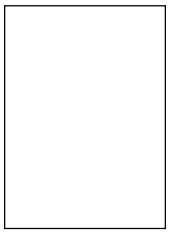
Rick Ogren, RN, (right) inserts a PICC line at a patient's bedside after a topical anestheic has been applied. The line is inserted with patient's arm at a 90 degree angle.



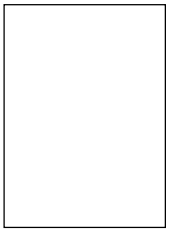
Pat Doser



Jeff Lipcamon



Dave Miller



Tom Toycen

The use of peripherally inserted catheters (PICC) has grown dramatically in the past decade because of improving catheter technology, and an enlarging population requiring prolonged intravenous therapy.

A PICC line accesses the high blood flow of the central circulation required to administer long-term intravenous fluids. Many times long-term venous access is provided through a subclavian (collar bone area) or internal jugular (neck area) vein. Because the PICC line is inserted in the forearm, patients with burns, radiation, other injuries to the chest or neck; and surgical procedures on the neck or upper chest, can avoid the traditional chest or neck IV line placement and benefit from a PICC. PICCs may also be indicated for patients who have limited peripheral access.

Rick Ogren, RN, flight nurse, Air and Mobile Critical Care Services, University of Iowa Health Care, was instrumental in developing the PICC program at the University of Iowa Health Care in 1999.

"The PICC line provides an alternative means of vascular access which greatly enhances the delivery of IV therapy," says Ogren. "The PICC line usually allows venous access with fewer needle sticks. Thus, reducing the patient's pain and stress associated with repeated attempts at venipuncture and subsequent fear of needles. Fewer insertions also mean less risk of systemic infection."

Healthcare professionals administer long-term antibiotic therapy, chemotherapy, total parenteral nutrition, pain medications, intermittent drug therapy, and fluids through the PICC lines.

"When a PICC catheter is inserted as first choice therapy, a patient can be spared many venipunctures," says Ogren. "The PICC line should be used as a device of first choice, not one of last resort. Previous venipunctures may prevent proper placement of the PICC line."

Air Care flight nurses go to the inpatient unit to perform the one-hour procedure and place a peripherally inserted catheter.

The PICC catheter is a small, soft, biocompatible, flexible tube that is placed into a vein in the patient's forearm at the bedside. The arm is numbed and the needle sends the catheter up the arm to the large vessels in the chest. After the insertion, the flight nurse takes the patient to X-ray and consults with radiologists on proper placement. Then the flight nurse returns the patient to the unit so nurses there are confident that the catheter placement is accurate and the line is ready for use.

"University of Iowa Health Care is unique in utilization of a flight team to insert PICC lines," says Diane Lamb, RN, assistant nurse manager, Air and Mobile Critical Care Services. "It's the perfect match. Flight nurses are very skilled in IV insertion. Our flight nurses have already been trained in the Seldinger IV technique which is similar to that used for placing PICC lines."

"We receive an average of 80 to 100 requests per month to insert PICC lines here," says Lamb. "We prefer to have a 24 hour notice for a PICC placement so we can best accommodate the patient's needs."

Air Care nurses, Ogren, Pat Doser, Lamb, Jeff Lipcamon, Dave Miller and Tom Toycen completed a certification program to learn PICC line placement techniques, patient preparation and positioning.

The PICC line provides a reliable vascular access for short or long-term therapies at a significant cost savings because physician insertion or operating room time are not required as in the past.

Patients with hardened blood vessels or with veins which have been punctured repeatedly are not candidates for PICC catheter insertion and will instead need a central line inserted directly into the subclavian or internal jugular vein.

Peripherally inserted central catheters have provided a safe and effective vascular access alternative in patients requiring intravenous therapy. The PICC catheter may remain indwelling for more than six months and there are documented cases with PICCs in patients for more than one year.

Kerber receives Heart Association's Distinguished Achievement Award

Richard Kerber, MD, (right) persues his research on cardiac defibrillation and resuscitation. He recently has focused on the use of small, portable, automatic defibrillators in places such as airports and sports arenas helping make them more accessible to the general public. Kerber has published more than 200 scientific articles.

The American Heart Association recognized Richard Kerber, MD, University of Iowa professor of Internal Medicine and associate director of the UI Division of Cardiology, with its Scientific Councils Distinguished Achievement Award November 13 at the association's annual scientific sessions in Anaheim, California.

The Distinguished Achievement Award is presented to council members who have made significant contributions to scientific knowledge in cardiovascular medicine and to the activities of the AHA councils.

The award recognizes Kerber's past service as chairperson of the American Heart Association Council on Cardiopulmonary and Critical Care and his research in cardiac defibrillation and resuscitation.

Kerber also received the AHA Year 2000 Honoree of Emergency Cardiovascular Care (ECC). He recently completed his second term as chair of the association's ECC Committee, which develops CPR guidelines. In 1996, Kerber received the American Heart Association's Award of Meritorious Achievement.

Kerber has been a UI faculty member since 1971.

Ireland retires; Peterson appointed Chief, State Bureau of EMS

Gary Ireland, EMT-P, chief of the Iowa Department of Public Health, Bureau of Emergency Medical Services, retired June 29, 2001 after 16 years with the department.

"Gary Ireland was for years the face of emergency medicine in Iowa," says Stephen Gleason, DO, director of the Iowa Department of Public Health (IDPH). "He guided our Bureau of Emergency Medical Services through a watershed period in which a statewide trauma system was organized. He is sorely missed at the IDPH."

Some of the changes under Ireland's leadership benefiting EMS in Iowa include:

- development of Iowa's trauma system,
- definition of the Bureau of EMS as the lead agency for EMS in Iowa
- changes in the EMS provider curriculums to match evolving national standards, and
- statuatory definition of the expanded scope of practice for the EMS provider to be not only in the traditional ambulance setting but also in hospitals and other health care settings where medical care is provided.

Ireland began his career with the Bureau of EMS in 1985 as the basic care coordinator, handling certification renewals and continuing education approvals. He also was the education coordinator and became the state's south central regional coordinator when the EMS Bureau expanded in 1987. He was appointed to the Bureau chief position in March of 1991.

Ireland began his career in EMS as a volunteer in the early 1980s, taking EMT-A training through Iowa Valley Community College in Marshalltown. He completed his paramedic training in 1983 at Mary Greeley Medical Center in Ames.

Following Ireland's retirement, Gleason appointed Timothy Peterson, MD, chief and medical director of the Bureau of EMS.

Gary Ireland

Tim Peterson, MD

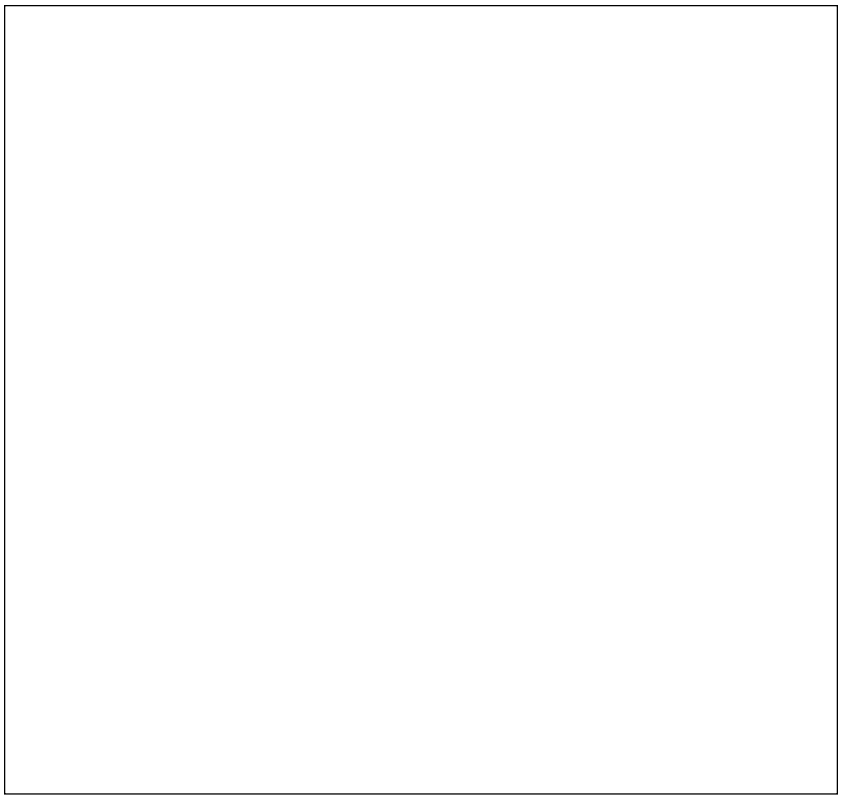
Peterson has been serving as the Bureau's medical director for the last six years. He is a specialist in emergency medicine with experience in both rural and urban areas. Peterson is a graduate of Drake University and the University of Iowa College of Medicine.

According to Gleason, "The IDPH Bureau of Emergency Medical Services for years has benefited from Dr. Peterson's experience and expertise. Now it will benefit from his leadership as well."

As the lead agency for EMS in Iowa, the Bureau provides leadership and support for the EMS system. Currently, 14,709 certified EMS providers and 945 EMS service programs operate in Iowa. All of Iowa's hospitals are integrated into a system through the categorization and verification process for the Trauma Care Facility certification the Bureau manages.

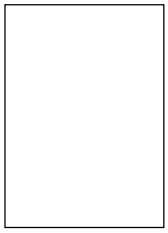
New legislative bill supports funding school CPR classes

Lance Heern, (right) teaches a high school student the proper technique to dislodge a food partical from an infant's airway.

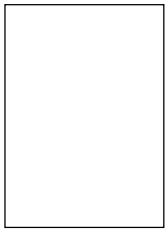


A new legislation effort, the Teaching Children to Save Lives Act, provides states with resources and equipment to help schools teach children the life-saving skill of cardiopulmonary resuscitation (CPR).

"Children have a tremendous capacity for learning," says Ginny Henry, EMT-PS, RN, Training Center coordinator, EMS Learning Resources Center. "If we take the initiative and teach children CPR, we encourage them to make a long-term commitment to an important and life-saving skill. The Teaching Children to Save Lives Act recognizes the value of this training program and commits the resources necessary to make CPR training a reality."



Ginny Henry



Lance Heern

The Senate bill would allow school districts to apply for federal grants to implement CPR training programs. The schools would work in conjunction with community organizations—such as the American Heart Association, fire and police departments, hospitals, and parent-teacher associations—to begin CPR training in grades six through 12. The bill would authorize $30 million over three years to purchase CPR materials such as manikins and to train instructors.

"Many times a school age child or teenager is the first witness to an attack," says Lance Heern, BSN, CPR coordinator, EMSLRC. "Many kids—and many adults—would not know what to do in the face of an emergency. We believe teaching CPR to our children and teens will improve their confidence in responding to emergencies and may encourage them to update these skills and carry them into adulthood."

"Introducing the Teaching Children to Save Lives Act will help teach youths the skills to deal with cardiac emergencies," says Henry. "Training youths to recognize the warning signs of cardiac arrest and stroke, to call 911, and to provide CPR and relief of choking can save many lives."

Furthermore, *Circulation: Journal of the American Heart Association* reports that researchers have found that sixth-grade school children with moderate training can learn to use automated external defibrillators (AED) to save the lives of cardiac arrest victims almost as efficiently as professional emergency medical personnel.

For states with active CPR training programs, schools may apply for federal funds to add AED training to their program.

EMS Update

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Director: Doug York
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FAX (319) 353-7508
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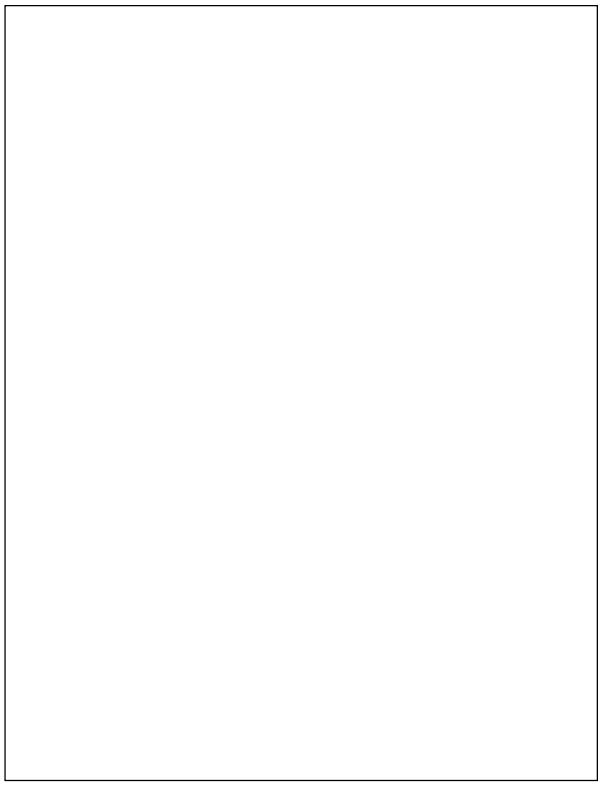
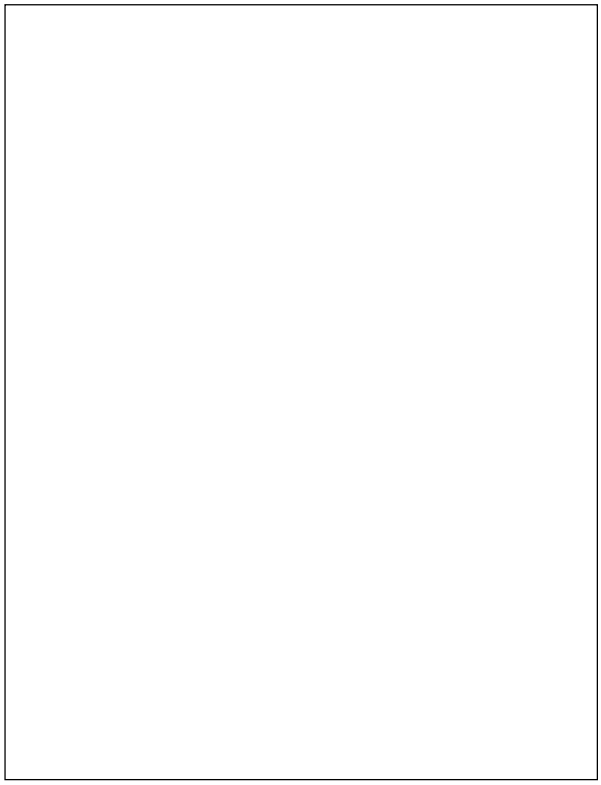


Doug York



Jerry Johnston

Doug York, REMT-P, and Jerry Johnston, REMT-P, are both leaders in emergency medical services. Their efforts were recognized by the National Association of Emergency Medical Technicians.

Two Iowa EMS leaders win national awards

"In Doug's most recent position as director of the University of Iowa Hospitals and Clinics' Emergency Medical Services Learning Resources Center, he has established the Center as the pre-eminent training organization in the state."

Quotes like this pulled from his nomination file, make it clear why Doug York, REMT-P, received the 2001 Mary Ann Talley EMS Instructor/Coordinator of the Year Award. The award, presented last October at the National Association of EMTs national conference in Reno, is given by the National Association of Emergency Medical Technicians (NAEMT). It is presented to a recipient who exemplifies excellence in EMS education and instruction.

"Doug has long been recognized as a leader in prehospital education in Iowa," says Nathan Williams, NAEMT president. "He has held EMS positions from field paramedic to administrator."

Another nomination letter states, "The EMS courses at the EMSLRC are known nationally for their educational content, clinical component, as well as field internship training which utilizes many emergency medical service systems from across the U.S."

York developed and piloted the first Iowa Communications Network Paramedic Program in the state. This course is designed to bring paramedic education to rural Iowans without requiring attendees to leave their hometown. The didactic portion is presented over Iowa's fiber optic communications network once a week. This allows the instructor to present the information at a host location while beaming the presentation to selected sites across Iowa. Site coordinators are assigned to each location to monitor performance and provide practical skills training.

"This innovative course design was developed by Doug in an effort to provide EMTs from rural communities an educational opportunity without leaving their homes for an extended time," says Jerry Johnston, REMT-P, director of Emergency Medical Services, Henry County Health Center, Mt Pleasant, Iowa.

"It has met with resounding success and many training institutions from around the nation have been in contact with Doug regarding this course design."

A third nomination letter stated, "With 28 years of experience as a paramedic and 18 as an EMS instructor, Doug is a valuable resource for thousands of EMS educators, providers and students across Iowa and the nation."

York has held numerous positions as Affiliate Faculty and Regional Faculty for numerous life support courses with the American Heart Association. In addition, he was recently appointed to the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP) as an NAEMT representative.

Johnston also received an award in Reno. Robert Miller, chief executive officer, Henry County Health Center, nominated Johnston for the William Klingensmith EMS Administrator of the Year award.

"Under Jerry's leadership, we have moved from a basic transport service to be honored for both the 1998 State of Iowa and National EMT-Paramedic Service of the Year," says Miller.

"This year Jerry acquired, organized, operationalized and integrated a privately-owned basic emergency transport service into a hospital setting at the advanced life support level."

Johnston is active at the local, state, and national levels. He teaches local first-aid classes, directs the local E-911 board, and presides over the state EMS association. He meets with senators in Washington, D.C. to explain to our congress people and federal program officials the impact of federal rules and regulations on emergency medical services.

EMSLRC course calendar

2002		MD (CMEs)	RN (CEUs)	EMS (CEHs)
Mar 21-22	Iowa City: Advanced Trauma Life Support Student	19	—	—
Mar 22	Iowa City: Advanced Trauma Life Support Student Refresher	5	—	—
Mar 25-26	Iowa City: Advanced Medical Life Support	—	1.48	14
Apr 1-2	Iowa City: Pediatric Education for Prehospital Professionals	—	1.45	15
Apr 4-5	Iowa City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Apr 15-16	Iowa City: Prehospital Trauma Life Support Basic/Advanced Provider	—	1.6	16
Apr 15-25	Iowa City: Critical Care Paramedic Training program	—	—	—
Apr 18-19	Fort Dodge: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Apr 25-26	Iowa City: APLS—The Pediatric Emergency Medicine Course	TBA	TBA	TBA
Apr 26	Waterloo: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
May 2-3	Iowa City: Advanced Trauma Life Support Student	19	—	—
May 3	Iowa City: Advanced Trauma Life Support Student Refresher	5	—	—
May 9-10	Mason City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
May 13-23	Mt Pleasant: Critical Care Paramedic Training Program	—	—	—
May 20	Iowa City: EMT-Basic Training Program begins	—	—	—
May 31	Iowa City: Advanced Trauma Life Support Instructor	12	—	—
Jun 1	Iowa City: Prehospital Trauma Life Support Instructor/Coordinator	—	.7	7
Jun 6-7	Marshalltown: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Jul 8	Iowa City: Paramedic Specialist Full-time Training Program begins	—	—	—
Jul 16-Aug 10	Washington: Critical Care Paramedic Training Program	—	—	—
Aug 1-2	Sioux City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Vareid
Aug 19, 21, 26, 28	Iowa City: Basic Cardiac Rhythm Interpretation and Introduction to 12 Lead	—	Varied	Varied
Sep 14-15	Carroll: Advanced Medical Life Support	—	1.48	14
Sep 19-20	Iowa City: Trauma Nursing Core Course	—	1.4	14
Sep 26-27	Iowa City: APLS—The Pediatric Emergency Medicine Course	16.5	1.8	18

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