

EMS Update

An Emergency Medical Services Learning
Resources Center Publication

Summer 2003
Vol. 24, No. 2

After surviving a serious motorcycle accident and leg amputations, the couple at right is back riding a new three-wheeled motorcycle.



G. Patrick Kealey, MD

Couple survives severe injuries thanks to Iowa's trauma system

A couple was riding their motorcycle on Iowa Highway 22 near Muscatine when an oncoming pickup truck crossed the center line and struck them. It continued in their lane, striking them on the left side

with the main impact on their legs between the motorcycle and truck. The truck then continued approximately 200 yards west. The motorcycle continued east coming to rest against a guardrail.

The husband and wife received multiple, life-threatening, traumatic injuries. Neither victim was wearing a motorcycle helmet.

The couple's treatment and recovery illustrates how the Iowa Trauma Care System helps physicians rapidly identify where to send patients, depending on the severity of their injuries.

University of Iowa Hospitals and Clinics is the state designated Resource Trauma Care Facility to treat the most severe trauma cases. G. Patrick Kealey, MD, professor and vice chair, Department of Surgery; chair, Division of General Surgery; and director, Section of Trauma, Burns and Critical Care, University of Iowa Health Care, says the system allows coordination of efforts by medical personnel across the state.

"The coordination extends from paramedics responding to the initial call to physicians who will diagnose and treat the patients," Kealey says.

"This system has led to dramatic outcomes and an overall reduction in the number of deaths and complications from all types of injuries."

continued on page 2

Motorcycle cont'd

The motorcycle continued east after being struck by the pickup, coming to rest against a guardrail.



Mike Whitmer



Darren Brooke



Troy Anthony



June Anne Gaeta



Joe Timmsen

Sheriff's deputies were first to arrive on the accident scene, called 911, and began giving aid.

Off duty Muscatine Fire Department firefighter, Mike Whitmer, EMT-Basic, arrived soon after.

"I saw the damaged front of the pickup, then I saw the motorcycle and assumed they made contact," says Whitmer. "I knew we had two critically injured patients."

With one ambulance on the way, Whitmer's wife called 911 and requested another.

The truck hit the bike just in front of the footpeg and spun the bike around with the wife on it, who then flew off the back.

Darren Brooke, EMT-PS, and Troy Anthony, EMT-PS, Muscatine Fire Department firefighters, responded on the first ambulance.

"The wife was unconscious and unable to answer questions," says Brooke. "The left lower leg below the knee was missing from the female patient. Bystanders had used the husband's belt as a tourniquet for his wife's leg. We tried to keep her stabilized. There were no other outward injuries."

Rescuers placed the 40-year-old female patient on a spineboard and prepared to transport her.

Montpelier firefighters and bystanders searched for the woman's lower leg and found it down the embankment, near the river just before the ambulance left.

"We placed the leg in a biohazard bag," says Anthony, "then into a bystander's cooler and transported it with the patient."

Since there was no extrication at the accident scene and the ambulance was able to transport so rapidly, University of Iowa Health Care AirCare was diverted to Unity.

The husband, 46, was equally critical with a severely injured leg. Muscatine firefighters, Joe Timmsen, EMT-PS, and June Anne Gaeta, EMT-PS, arrived in the second ambulance. Gaeta, a 1995 graduate of the



EMSLRC paramedic training program was senior member on the scene.

"The husband had a major trauma to his left leg. A sheriff's deputy was trying to control the bleeding when we arrived," says Gaeta.

"Although the husband had an obvious deformity and open fractures of the leg," says Timmsen, "it impressed me how aware he was."

Crews applied C-collars on both patients as spinal injury precautions. The rescuers followed trauma protocols and continued further assessment during transport.

"The spinal immobilizations for both patients at the scene were important," adds Gaeta. "The wife ended up having a neck fracture so those precautions were very critical."

At Unity Hospital, the state designated Area Trauma Care Facility, Calvin Atwell, MD, trauma surgeon, made critical decisions and determined the severe leg and pelvic injuries on both required care from specialists at UI Hospitals and Clinics. The female patient was flown immediately.

During preparation for transfer, the husband's blood pressure dropped to dangerous levels. Atwell rushed him to the operating room, where he removed his spleen and amputated his left leg just above the knee to control the bleeding and save his life. The surgery stabilized

him long enough to get him to Iowa City by air.

"Dr. Atwell provided expert patient management," says Kealey. "He performed the assessments and expedited transfer for definitive care. He also performed indicated blood loss control surgery on the husband before transfer."

Kealey's trauma team evaluated the wife upon her arrival at UIHC and began to coordinate her treatment among specialists. Kealey immediately performed bladder and lung surgeries on her.

"Replantation of the woman's leg was impossible due to crushed bone and nerve damage," says Kealey.

The woman experienced a compressed fracture in her spine, cracked ribs, a punctured lung, a fractured pelvis, total amputation of her left lower leg, multiple left rib fractures, lacerations and abrasions.

The husband's injuries included a fractured pelvis, lacerated spleen, ruptured bladder, multiple dental fractures, abrasions and lacerations.

Kealey called on UI Health Care orthopaedic surgeons to pull both patients' pelvises back together.

"Only 32 minutes were used of the golden hour ó the critical period during which surgical intervention for a trauma patient can enhance survival and reduce complications," adds Kealey.

The first step in the transmission of West Nile Virus (WNV) typically occurs when a mosquito bites an infected bird. The main route of human infection is through the bite of an infected mosquito. Birds especially crows, jays, hawks, owls are the principal host for WNV.



EMS providers must stay informed of West Nile virus cases



Mary Gilchrist

Wet weather conditions intensify the threat of West Nile virus. The virus infected 54 Iowans last year, killing two.

"If the spring and summer are wet, we believe more birds and mosquitos will be identified with West Nile virus in Iowa," says Mary Gilchrist, PhD, director of the University of Iowa Hygienic Lab, "which will increase the chance that Iowans become infected."

The incidence of disease in the bird-mosquito-bird cycle begins when adult mosquitos emerge in early spring and continues until fall. It is mosquitos, which have picked up the virus from infected birds, that pose the greatest human health risk.

West Nile virus (WNV) was first identified in Iowa in September 2001, isolated from a dead crow. The first confirmed human case in Iowa was detected in August 2002.

Researchers at the University of Iowa Hygienic Lab screen mosquitos and dead birds found throughout the state for West Nile. Experts predict at least as much West Nile virus activity in Iowa this year as last year, says Gilchrist.

"If EMS personnel are assessing patients who present with a sudden onset of fever, possibly accompanied by flu-like symptoms, they should ask the patient about their exposure to mosquitos as they take a detailed health history," says Gilchrist. "This exposure could occur during just about any outdoor activity, especially in the evening."

Gilchrist stressed, however, that the chance of becoming sick from West Nile virus is still relatively low.

Most people who become infected will have mild symptoms that include fever, head and body aches, skin rash, malaise, eye pain, gastrointestinal problems and swollen lymph glands. Those people typically show symptoms from three days to 15 days of a bite from an infected mosquito.

However, a health care provider should be contacted immediately, if there is high fever, muscle weakness, and severe headaches.

EMS personnel must stay informed whether other WNV cases have been reported in the community. There is no specific treatment for West Nile virus, except to address the symptoms which generally last three to six days.

For every five humans infected with WNV, one has mild illness. Meningitis or encephalitis, potentially fatal brain inflammations, develop in approximately 1 in 150 infected persons.

Emergency medical service personnel should be especially suspicious when caring for persons over 50 years of age, the chronically ill, and others with weak immune systems who have developed meningitis or encephalitis in the summer or early fall in temperate climates. Severe muscle weakness is a common symptom and may provide a diagnostic clue.

The virus is not spread from person to person. People should protect themselves and their families through mosquito control ó eliminating standing water to minimize mosquito breeding, wearing long-sleeved shirts and pants, and using insect repellent to avoid mosquito bites.

From the left, Burn Treatment Center nurses and nursing assistants Lynn Forbes, Tonya Naughton, Bridget Werling and Mendie Sauder display their Community Outreach puppets made by Kids on the Block, Inc in Columbia, Maryland.



Burn Treatment Center earns excellence in care re-verification

The Burn Treatment Center at University of Iowa Hospitals and Clinics has been re-verified as a burn center by the Committee on Trauma of the American College of Surgeons (ACS) and by the American Burn Association (ABA). This achievement recognizes the Burn Treatment Center's dedication to providing excellence in patient care.

In order to receive verification, each burn center undergoes an on-site review by a team of experienced surgeons who use American College of Surgeons guidelines for conducting the survey.

"The verification process reviews all aspects of patient care, from the pre-hospital and emergency care to rehabilitation after discharge and everything in-between," says Lee Faucher, MD, assistant professor in the Department of Surgery.

This is the second re-verification for the Burn Treatment Center, which originally was verified in 1996. According to the American College of Surgeons, there are currently 37 burn centers officially verified in the United States, and the University of Iowa Health Care Burn Treatment Center is the only one in Iowa.

"This is the culmination of the effort by all members of the burn care team who strive for the same goal: to provide the highest quality care possible, and get a patient back into society again," says Faucher.

"This distinction was only made possible due to the dedication of each and every member of the multi-disciplinary burn team," says Jackie Heinle, RN, nurse manager, Burn Treatment Center, UI Health Care.

Verified burn centers must meet criteria that ensure burn care capability and institutional performance. The actual designation of burn centers is determined by the local, regional, or state health care systems agencies, such as the local emergency medical services authority. The Burn Treatment Center at University Hospitals also is a designated burn center.

It is a critical and intermediate care, 16-bed unit. Burn specialists

provide care for pediatric and adult patients with electrical, chemical, thermal, scalding, frostbite, and inhalation injuries.

Burn patients are cared for from an acute stage of injury to discharge and rehabilitation at the Burn Treatment Center. Nurses with specialized education and expertise in the care of critically ill patients provide care.

The staff have used puppets since 1999 in their Community Outreach for Burn Prevention program. They present burn safety programs to third graders in the community and discuss fire escape plans, safety issues, and school re-entry programs for kids who have been burned.

"Community outreach to EMS providers throughout Iowa and the midwest was a huge part of the re-verification survey and review," says Heinle.

Physicians, nurses, physical and occupational therapists, social workers and registered dietitians work with patients and their families during the inpatient and rehabilitation phases of burn injuries.

For more information contact Jackie Heinle at (319) 356-3224 or jacqueline-heinle@uiowa.edu.



Lee Faucher, MD



Jackie Heinle

First Aid course trains lay community to assist before EMS arrives

A victim has had an accident with a lawnmower and is bleeding from the face. A first aid provider arrives and says, "I am trained in first aid, may I help you?" The rescuer gives the victim gauze dressing and asks the victim to apply pressure over the bleeding area while the rescuer puts on gloves. The rescuer then adds more gauze and applies pressure.

The new American Heart Association Heartsaver First Aid course teaches the lay community skills to provide immediate care to a victim of an illness or injury before emergency medical services personnel arrive.

The American Heart Association (AHA) introduced the Heartsaver First Aid course in January 2003.

"This program targets the layperson in a work setting to recognize and treat adult emergencies in the first critical minutes until emergency crews arrive," says Ginny Henry, RN, EMT-PS, Training Center coordinator, EMS Learning Resources Center.

"The course developed for businesses includes topics that are limited to the emergencies a first aid rescuer is most likely to encounter at the worksite," says Henry.

To tailor the course to the needs of the participants, the instructor must be familiar with the worksite, its emergency response plan, and the equipment that the first aid provider will be expected to use. Information from the course can be used in settings other than worksites.

The course is video-based and includes manikin practice and case discussions. The AHA included only the assessments and interventions that can be applied by a trained lay rescuer and which have been shown to make a difference.

Some First Aid course topics include choking, chest pain, fainting, stroke, bleeding, burns, insect stings, and poisonings.

"The Heartsaver First Aid course meets a widespread interest because of its flexibility. It can be taught as a First Aid only course but can also include adult CPR, AED and an elective environmental module," says Henry.

The Heartsaver First Aid course consists of six modules. Three of the



modules are required, three are elective. Required modules include General Principles, Medical Emergencies, and Injury Emergencies.

"Since the program rollout in February, 48 instructors have become AHA First Aid Instructors," says Henry.

Henry and Lance Heern, RN, CPR coordinator, EMS Learning Resources Center, both BLS instructor trainers and training center faculty, became American Heart Association First Aid Instructors in February.

To be admitted to a Heartsaver First Aid Instructor course, participants must be either a BLS Instructor or Heartsaver Instructor and be one of the following:

Healthcare Professional (RN, LPN, MD, DO, DDS, or have EMS certification); Certified athletic

trainer; Heartsaver FACTS or American Red Cross First Aid Instructor; have completed the AHA Heartsaver First Aid course including the environmental module. All AHA First Aid Instructor courses must be directed by BLS regional faculty, Training Center faculty, or Instructor Trainers who have completed the Heartsaver First Aid Instructor Course.

The EMSLRC plans to offer First Aid training to the public this fall.

For information on the AHA First Aid courses or on becoming a Heartsaver First Aid instructor, contact Ginny Henry at henryg@uihc.uiowa.edu or (319)353-7495.

You may also visit the AHA Instructor Information page at www.americanheart.org/cpr



Ginny Henry



Lance Heern

MEDICS take EMSLRC skills to Egypt

U.S. troops will depart mid-July on a peacekeeping mission to Egypt. The medical specialists have been training to treat heat-related illnesses, and injuries from dust in the eyes, land mine explosions and possible nerve, biological and chemical attacks.

EMS Learning Resources Center Paramedic Training Program students, Garrett Gingrich and Mark Mahler, are two of 13 Army combat medical specialists who will support 450 U.S. troops on a peacekeeping mission in Egypt. They leave mid-July for the Sinai Peninsula on the Red Sea.

Gingrich and Mahler are completing a two-month training session in Fort Carson, Colorado to update their medical skills and prepare for the desert climate.

"Two of our main concerns on this deployment are preventing heat injuries and monitoring field sanitation to prevent the spread of disease," says Gingrich. "We are also training to react to any kind of injuries associated with the mission we will be performing in the Sinai."

The Army combined the positions of combat medic and practical nurse into a combat medical specialist. In Colorado the medics transitioned into combat medical specialists and have been preparing to take care of the soldier's medical needs.

Combat medical specialists can start IVs, perform advanced airway techniques, give injections, and dispense medications under the direction of the battalion physicians.

"We will be running sick call daily, providing medical coverage for the soldiers," says Mahler. "We may be treating land mine injuries and heat-related illnesses."

Gingrich, from Cedar Falls, Iowa, received his EMT-Basic in 1998 through the Army National Guard. He recently completed the classroom portion of the EMS Learning Resources Center Paramedic Specialist Training Program. He worked for Covenant Medical Center Ambulance Service, Waterloo, before being called to active duty in May.

Mahler is the Medical Platoon sergeant for the 1-133 infantry. He



has been a flight paramedic for 16 years with University of Iowa Health Care AirCare helicopter located at Covenant Medical Center.

He served three years on active duty with the Army, where he received his NREMT-B.

Upon his discharge in 1987, Mahler completed the EMSLRC Paramedic Training Program. He joined the Army Reserves and later transferred to the Army National Guard. He was also called to active duty May 1.

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.

Contributing Sponsors:

Acute Care, Inc
Armstrong Medical Industries
Emergency Practice Associates
Iowa Chapter, American College of
Emergency Physicians
Laerdal Medical Corporation
ZOLL Medical Corporation

Director: Doug York
Writer/Editor: Jeri Irvine

Photo: Pg 1, Beth Hecht, Muscatine Journal; Pg 2, Iowa State Highway Patrol

Printer: UI Printing Department

View the *EMS Update* at:
www.uihealthcare.com/emslrc/

FAX (319) 353-7508
Phone (319) 356-2597

Please e-mail your questions and story suggestions to
irvinej@uihc.uiowa.edu.

All e-mails will receive a response.

The University of Iowa prohibits discrimination in employment and in its educational programs and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information on nondiscrimination policies, contact the Coordinator of Title IX, Section 504, and the ADA in the Office of Affirmative Action, (319) 335-0705 (voice) or (319) 335-0697 (text), 202 Jessup Hall, The University of Iowa, Iowa City, Iowa, 52242-1316.

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.

An EMS provider assisted at the scene of an accident, then discovered the victims were her parents.



Your next patient may be your friend, relative or neighbor

Rural rescuers must live with the knowledge that their next patient may be a neighbor, friend, or family member. They can experience a lot of anxiety when called to a familiar address or spotting a neighbor's car at the scene of an incident.

Reylon Meeks, EMS director, Pleasant Hill Emergency Services, responded to a call for a vehicle under water in June a few years ago.

Meeks, RN, MSN, clinical nurse specialist, Blank Children's Hospital, Des Moines, is an EMT-Basic, but performs as a paramedic in the field under the RN exception rule.

A pickup truck had flown 400 feet off a four-lane divided highway and landed upside down in the runoff from the Des Moines River. It had been hit from behind at a high rate of speed by a drunk driver.

A volunteer firefighter and his wife had been following and witnessed the accident at dusk. The firefighter went immediately to the truck while his wife called 911. The rescuer found the driver completely under water. He broke out a window, grabbed the driver's head and held his face above water.

The Pleasant Hill Fire Department personnel used the Jaws of Life to break out another window. They were then able to float the patient onto a backboard. Several rescuers brought him up the river bank and to the road so he could be assessed.

"I was performing the initial assessment on the driver: airway, breathing, circulation, and mental status," says Meeks.

"Suddenly the patient said, 'Hi, Honey.' It was my dad. I looked again and without his glasses and soaking wet I did not recognize him," says Meeks. "The people around me kept saying 'Recognize him!' 'Recognize him!'"

"Then I saw the shirt and pants that I had given him for Father's Day. I also had to see that this person was 6' 4" with size 14 shoes."

Another paramedic had arrived and took over for Meeks while she went to look for her mother.

The firefighters had been calling to the woman and could faintly hear a voice calling back.

The woman had kept her face in a pocket of air near the roof of the truck to breathe. Her shoulders and hair were completely under water.

Although the passengers were wearing their seat belts, the front seat broke at impact so the seat belt buckles were difficult to find and unlatch. Meeks' father found his, but her mother could not locate her buckle. The rescuers used the Jaws of Life to get Meeks' mother out.

Both patients were taken to Iowa Methodist Medical Center, Des Moines, and recovered well.

"EMS personnel shouldn't think it could never happen to themó especially in rural Iowa. It's nothing you can prepare for. It was emotionally draining and traumatizing for me," says Meeks.

"Talking about the accident brings up emotions, but that's okay because I can't erase it. Two weeks after the accident I felt I could never go back to the fire department and EMS. I finally received some Critical Incident Stress Debriefings (CISD)," adds Meeks. "I suggest that anyone who would find themselves in that situation where you know the patient, to immediately get in touch with a CISD team."

Other rescuers have tried to cope with the stress in other ways.

One says he tells himself that he didn't cause the accident and that he's doing his best to care for that patient, whatever the outcome.

Doug York, REMT-P, PS, director, EMS Learning Resources Center, says he teaches the paramedic training program students to prepare for the time they may know the patient when they respond to a call.

"We want the students to recognize the fact that, particularly in rural areas and small towns, there is a chance of them being called to assist someone who may end up being a friend or family member," says York. "We help them prepare for that unfortunate possibility."



Reylon Meeks



Doug York

EMSLRC course calendar

		MD (CMEs)	RN (CEUs)	EMS (CEHs)
2003				
Jul 25	Iowa City: Advanced Cardiac Life Support Provider Renewal	—	.45	—
Aug 4-14	Atlantic: Critical Care Paramedic Training Program	—	—	94
Aug 16-17	Iowa City: National Registry EMT Exam	—	—	—
Aug 18, 20 25, 27	Iowa City: Basic EKG	—	1.26	12
Sep 5	Iowa City: Critical Care Paramedic Refresher	—	—	8
Sep 8-9	Iowa City: Pediatric Education for Prehospital Professionals	—	1.45	—
Sep 9	Various Locations: Iowa Paramedic Outreach Training Program begins	—	—	—
Sep 15, 17 22, 24	Iowa City: Advanced Cardiac Life Support Provider	—	1.53	—
Sep 18-19	Iowa City: Trauma Nursing Core Course	—	1.4	14
Sep 29-30	Iowa City: Advanced Medical Life Support	—	1.4	16
Oct 2-3	Red Oak: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Oct 3-4	Creston: Prehospital Trauma Life Support Basic/Advanced Provider	—	1.6	16
Oct 11-12	Dewitt: Prehospital Trauma Life Support Basic/Advanced Provider	—	1.6	16
Oct 13-14	Iowa City: Prehospital Trauma Life Support Basic/Advanced Provider	—	1.6	16
Oct 18-19	Iowa City: National Registry EMT Exam	—	—	—
Oct 27	Iowa City: Advanced Cardiac Life Support Provider Renewal	—	.45	—
Oct 30-31	Iowa City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Nov 3	Iowa City: EMT-Basic Training Program begins	—	—	—
Nov 6-7	Sioux City: Advanced Cardiac Life Support and Pediatric Advanced Life Support Instructor/Instructor Renewal	Varied	Varied	Varied
Nov 10, 12, 17	Iowa City: Pediatric Advanced Life Support Provider	—	1.44	—
Nov 17	Iowa City: Pediatric Advanced Life Support Renewal	—	0.4	—
Nov 20-21	Iowa City: APLS—The Pediatric Emergency Medicine Course	17	1.8	18
Dec 3	Iowa City: Advanced Cardiac Life Support Provider Renewal	—	.45	—
Dec 5	Iowa City: Prehospital Trauma Life Support Instructor/Coordinator	—	.7	7
Dec 8	Iowa City: Neonatal Resuscitation Program Provider/Provider Renewal	—	.58/.33	—
Dec 11-12	Iowa City: Pediatric Education for Prehospital Professionals	—	1.45	—



University of Iowa
Hospitals and Clinics, EMSLRC
200 Hawkins Drive, 6-South, GH
Iowa City, Iowa 52242-1009

Nonprofit Organization
U.S. Postage
PAID
Permit No. 45
Iowa City, Iowa

RETURN SERVICE REQUESTED