

#### a VOICE for POSITIVE change in IOWA



Legislative Agenda  $4 \mid$  2003 Convention  $6 \mid$  Awards  $7 \mid$  Continuing Education 14

lowa Emergency Medical Services Association



# CENTRAL IOWA EMS IN ACTION CONFERENCE

March 5-6, 2004 🔳 Stoney Creek Convention Center 🔳 Johnston, Iowa

For more information and a registration brochure visit

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### *News to —* SHARE

Are you working on an exciting program that needs to be shared with the membership of IEMSA? Do you know of an EMS-related educational program that needs to be showcased? Has your service won an award or done something outstanding? Do you want to honor a special member of your staff or of the community? If so, you can submit an article to be published in the IEMSA newsletter! In order to do this, just prepare a press release (and pictures, if appropriate) and e-mail it to iemsa911@netins.net by the following dates: February 1 (to be mailed February 20), May 1 (to be mailed by May 20), August 1 (to be mailed by August 20), November 17 (to be mailed by December 10).

The Newsletter Committee will review all articles submitted and reserves the right to edit the articles, if necessary.

### Bring On 2004 BY JEFFREY D. DUMERMUTH PS, President, IEMSA Board of Directors

would like to begin by thanking vou all for your support of me and our organization in 2003. We have made great advances for emergency medical services in our State. I would be remiss if I did not recognize your outstanding Board of Directors who championed many committees and projects to promote EMS in Iowa.

Our Conference and Trade Show, held in November, was the most successful to date and drew the largest number of attendees ever gathered in the name of EMS in Iowa. The dedication, by both career and volunteer emergency care providers to continue to provide outstanding emergency care to our communities, is the reason other agencies are now recognizing EMS as a key player for public safety in our State and following our lead.

2004 will continue to be exciting. Our legislative agenda is aggressive but important to the safety of our families and neighbors. Our membership committee is committed to providing both



Welcome to the new IEMSA Newsletter VOICE, I hope you enjoy the new look and format. We would like to hear from you. Please VOICE your questions, comments and/or suggestions to www.iemsa.net. Have a safe and happy holiday season.

our individual and affiliate members more bang for their buck and are exploring things such as life insurance for our members and group

> purchasing programs. Is your organization a member of IEMSA? We will continue to explore the option of becoming the administrator for the Advanced Practical Testing in the State which

could bring a constant revenue stream to our organization. We will again partner with the Iowa Department of Public Health and coordinate the distribution of several AED's into our communities. We are also committed to bring you the premier EMS Conference next November. The list goes on and on...

You are always welcome and encouraged to attend any of our board meetings. We cannot continue to be successful without YOUR involvement and participation in YOUR association. Please consider volunteering to serve on a committee or provide your talents to our organization.

#### **BOARD MEETINGS:**

The IEMSA Board of Directors will meet on the following dates in 2004. Each meeting (with the exception of the Annual Meeting) will be held at Fire Station #17, 1401 Railroad Avenue, West Des Moines (515-222-3422) from 10:00 a.m. to 1:00 p.m.



#### *Additional* IMPORTANT DATES:

February 26, 2004 EMS DAY ON THE HILL 7:00 am - 9:00 am Capitol Building Room 116

Nov. 11 – 13, 2004 Annual Conference & Trade Show • Polk County Convention Complex

# WE NEED *you*

RIC JONES, EMT-PS BOARD MEMBER (NE) · LEGISLATIVE CHAIR

t IEMSA's annual meeting on Thursday, November 13, we unanimously adopted our 2004 Legislative Agenda. For it to work, we only need to convince 78 people of the need. Fifty-one members of the Iowa House of Representatives, Twenty-six Iowa Senators and One Governor can make this all happen. How do we convince them?

Our Lobbyist, Cal Hultman, will work very hard selling this package to lawmakers during and before the session next January, but if he is to be truly successful we need every IEMSA member to talk with their representatives and senators at home. One face-to-face with a VOTER trumps a visit from a lobbyist!

The message that we've somehow missed is that EMS is a critical and most basic need of everyone in Iowa. It is no less important (or any more important) than fire and police protection. It is a need, not a want. Fire, EMS and Law Enforcement need to be fully funded first before education, before transportation, before agriculture, before human services. All of these things are keenly important to all Iowans, and they should all be fully funded. Still, our basic safety must come first. We need to repeat, loud and often, that public safety isn't only police and fire!

We believe that the number one job for every elected official is to keep Iowans safe and healthy in their homes, at work, at leisure and in transit. This includes fully funded, well-trained and dedicated law enforcement, fire and EMERGENCY MED-ICAL SERVICES resources throughout the state.

Each of us must take this as a personal quest. If every EMS provider in our state took this agenda to their representatives and senators, it would not fail. We can achieve great things together, but only if our elected officials get the message loud and clear that WE ARE TOGETHER!!!

#### Legislative AGENDA OUTLINE:

The Iowa Emergency Medical Services Association will work for the following public policy measures:

- Protection of any and all current language on scope of practice and area of practice for EMS providers.
- 2. Provide a permanent funding stream for the provision of emergency medical services for all lowans. This includes fully funding the Bureau of EMS as well as providing money for training and equipment for individual EMS services in the State.
- 3. Provide a system to reward volunteerism in public safety. This might take the form of an lowa income tax credit or the ability to earn a pension for volunteer service in EMS, Fire and Law Enforcement.
- Provide for equity of pensions for public employees in EMS. Currently fire fighters and law enforcement officers under the Iowa Public Employment Retirement System (IPERS) receive a higher retirement benefit earned with fewer years of service than EMS providers.
- Provide support for other initiatives and organizations working to improve the health and safety of lowans.

# **E911** Wireless Council

DENNIS BACHMAN, COUNCIL MEMBER

he 911 Wireless Council has occ... working hard to move forward with the legislative agenda for 34A. It is working with the lobbyist from the League of Cities and the Iowa Association of Counties. It also has the Sheriff's and Deputies Association and the Iowa Firefighters Association on board. The Council will be entering this bill as an independent bill as well as an agency bill through the Division of Home Land Security. The Council hopes that by doing this we can get the bill into the legislative process faster than last year and give it a better chance of being successful.



#### 911 Wireless Council OVERVIEW:

The Council has not changed the content of the bill from last year. The following is a brief overview of what the Council is looking for.

- **1.** Increase the surcharge to \$1.00 per phone from .50 cents. This would provide the money needed to pay the bills that are past due and fund the equipment and software for the move to Phase II. Phase II will give us the location of the cell phones when individuals call 911 for help. Currently, only the cell phone number and the tower that they are calling from can be identified. This is usually within a 10-15 mile radius.
- 2. Of the surcharge that is collected, local 911 boards will get 20% of the collected surcharges after all of the back bills are paid. This will help support the local boards with the declining land line charges.

All emergency services personnel and volunteers need to contact their legislators and ask them to support this bill. Without the extra funding, the Council cannot implement Phase II. As an Association. IEMSA needs to support the bill and have our lobbyist assist in its passage. Everyone's help is needed on this life-saving legislation. Should you have questions please contact Dennis Bachman at 641-754-6101 or e-mail him at dbachman@marshmed.com.





### IEMSA CONFERENCE 2003 <u>An Unparalleled Success</u>

"Awesome conference, well organized! Handled tons of people well. Good speakers, topics, food and fun!"

"Very nice conference. Very well run. Good speakers. Even the food was good!"

"Best conference yet! Outstanding Dance! Thanks!"

".....this conference(is) the crown jewel of Iowa EMS conferences"

Work of the second state o

Plans for the 2004 confer-

ence are underway. The conference committee is dedicated to making next year's conference even better than this year's. As you may have noticed on the conference evaluation, the committee will be evaluating expansion of the pre-conference workshops that have seen such success over the last two years. Critical Care Paramedic will definitely be back as a pre-con with over 100 participants attending that session. As well, the committee will be evaluating adding different sessions, Thursday morning sessions, and possibly adding some EMS "specialty" classes such as PHTLS, AMLS, etc. Thanks to all of you who completed your evaluationsthey are invaluable to the committee to make improvements and plans for next year.

Just a few days before the conference, the Des Moines Register ran a story indicating that Polk County would be closing the Convention Complex. Many of you asked us what this would mean for the future of the conference. We have been assured that the Convention Center will not close until at least December 31, 2004, so next year's conference, at least, will still be held in the Convention Complex.

The move to close the **Convention Center is** planned to occur in conjunction with the opening of the Iowa Events Center. Wells Fargo Arena, HyVee Hall and Veterans Auditorium will form the Iowa Events Center, a state-of-the-art, multi-purpose facility for sports, concerts, entertainment, conventions, trade shows and exhibits. The Iowa Events Center is currently under construction and will include a complete remodel of Vets as well as the addition of HyVee Hall, a complex specifically designed for conventions and tradeshows, and the Wells Fargo Arena, a sports arena capable of seating over 17,000. At this time, it is our hope to move the 2005 IEMSA conference to this wonderful new facility. We will keep you informed as we know more.

## 2003 AWARD **Recipients** EMSA



VOLUNTEER SERVICE OF THE YEAR Lockridge Emergency Response Unit

This service exemplifies the term "Team Work." They serve as an example of the good things that can come from cooperation and coordination of services — truly a progressive service positioned for the future. This Service also acts as a role model to their community through their commitment to providing quality care. In September, this group traveled to Las Vegas to receive the National EMS Gold Volunteer Service of the Year award. (see related article on page 11)

#### INDIVIDUAL VOLUNTEER OF THE YEAR **Tim Richmond**

Tim's interest began in high school as a concerned member of the Students Against Drunk Driving organization. Tim, an EMT-B, has been responsible for promoting EMS in the community and county by serving in many capacities, from the coordination of medical services for RAGBRAI, to serving in local government, to training students and volunteers — the list just goes on and on. Tim was also the force behind the formation of a First Responder service providing pre-hospital care to the 119 residents of his hometown.



Each year at the annual convention, the Iowa Emergency Medical Services Association takes an opportunity to recognize individuals and services that have made outstanding contributions to the profession. 2003 was no exception The dedication and commitment

#### CAREER SERVICE OF THE YEAR **Spencer Hospital Ambulance Service**

The service maintains a highly visible community presence and a commitment to Spencer Hospital Ambulance excellence. Service was the first in Northwest Iowa to be certified as a Critical Care Service. As stated in one of the letters of recommendation, "The medics of this service exhibit nothing less than the utmost professionalism and are truly exceptional people in their field. They believe in injury and illness prevention and education as part of their daily tasks and objectives.











#### CAREER EMS PROVIDER OF THE YEAR - John Hill

As EMS coordinator at Spencer Hospital, John challenges the service members to not only talk the talk but to walk the walk. He is well-known for his leadership, enthusiasm, and guidance which have allowed his service to implement a competency program designed for personal and professional growth. In his free time, he volunteers with the Arnold's Park Fire & Rescue as a Paramedic/Firefighter. John is also the Captain of the Okoboji Underwater Search and Rescue Dive Team and coordinates the dive team, equipment and all water rescue operations in emergency situations.

### PART-TIME INSTRUCTOR OF THE YEAR **Dennis Morlan**

Dennis has been actively involved in EMS since the early 1980's. He is that "special someone" who serves as a role model for each of us to follow. Beginning in 1983, Dennis has continuously taught and is responsible for 39 First Responder, EMT-A, EMT-B, and EMT-I classes with over 580 students entering the field of EMS. In addition to teaching, Dennis operates an ambulance service, is the director of Emergency Management and Homeland Security, serves as a Medical Examiner Investigator and is chairman of the E911 Joint Service Board.

### FULL-TIME INSTRUCTOR OF THE YEAR Brad Madsen

Brad currently serves as the program coordinator for the Mercy School of EMS. He plays a vital role in the success of the program through tireless efforts in Continuing Education, Critical Care Paramedic, PHTLS, AMLS, and numerous national refresher courses. As a proponent of life-long learning, Brad can often be seen as a guest speaker at numerous EMS conferences or participating in classroom activities. His vision and commitment have benefited all those who come in contact with him.

#### EMS FRIEND OF THE YEAR - Jerry Youngquist

Every service needs an individual like Jerry; very few are privileged to have one. Jerry is known as the "Big Brother" of the SW Webster Ambulance Service in Gowrie, IA — always caring, always listening, and always willing to do whatever he can to see that those with the training are in the right place at the right time. It is Jerry's commitment to be part of the solution rather than part of the problem that has been an important part and one of the main reasons for the survival of SW Webster Ambulance Service, and has enabled the town of Gowrie to provide pre-hospital care to the members of his community.





#### HALL OF FAME - LeRoy Jorgensen

LeRoy began his EMS career 32 years ago as one of the original EMT's in the state of Iowa. Since that time, he continues to be active. To this day, he does not neglect his duties — he continues to volunteer for both day and night shifts. LeRoy has excelled in being a leader, a mentor, and a role model for generations of EMS people.

A comment made in a letter of recommendation refers to LeRoy as a foundation block for the State of Iowa EMS system. Very few of us involved in EMS can remain active for 32 years. Even fewer can retain the same level of compassion and caring for others as is displayed by this individual.

#### HALL OF FAME - Edward Riley

In the early 1960's, Mr. Riley founded the Riley ambulance service. This service later became the Muscatine Ambulance Service and continued operation until 2000 when the service was assumed by the Muscatine Fire Department. Truly a man of vision, he was one of the first to offer "Oxygen Equipped" and "24 Hour Service" to the members of the Southeast Iowa town of Muscatine, to recognize that formal training was essential to offering advance patient care, to do cardiac monitoring on an audiocassette during a cardiac arrest, and to implement a paramedic service offering 12-lead EKG's in the pre-hospital setting. Mr. Riley has been a fixture in EMS for over 40 years. It is through his caring, vision, wisdom and commitment that we function in EMS today.



#### HALL OF FAME - Pat Scollard

Pat had been an EMT since the age of 18. He had devoted his life to helping others, and paid the ultimate price when he gave his life in a helicopter crash while working as a Flight Paramedic for Lifenet of the Heartland in Norfolk, NE. Pat always found time to help others. He touched many lives directly and indirectly. He was a positive influence in the EMS community. Pat was a true believer in providing his very best in patient care. Pat continues to live in the hearts of the people he touched over the years; his family, friends, colleagues, past students and patients. Pat worked every day to be the best of the best. He will be forever missed but never forgotten. (see related article) Accepting the award on his behalf were his wife Tammy and his children, his mother, the North Sioux City Fire Department and Siouxland Paramedics.



EVAN BENSLEY · PI & E COMMITTEE CHAIR · NORTHWEST REGION REPRESENTATIVE

he Public Information and Education (PI & E) Committee has been working on a Statewide EMS Conference Poster for 2004. This poster will include information and dates on several of the various EMS Conferences from across the State. The poster is modeled after the Fire Service Training Bureau's annual Fire School Poster. The EMS Poster will be mailed to every EMS Service in the State. We would encourage you to display it in

your ambulance or rescue department. The poster is currently in the proofing/ editing stage. We plan to mail the poster in early January. A special thank you goes to Dawn Beisner from the FSTB in Ames who worked hard on designing the poster!

The concept of the poster originated from a problem encountered by many EMS providers who were looking for a class to obtain their needed CEH's. Many of the conferences are held annually, but may not be well publicized beyond their region. This poster will help to ensure that everyone will have the opportunity to obtain necessary continuing education hours and promote networking among others beyond their area.

As the PI & E Committee Chair, I am always looking for new ideas to promote EMS within the community & within EMS itself. I look forward to serving you over my term on the Board. ■



# at Central Campus Des Moines High Schools

s you walk into the room, you see all kinds of displays, models, tools, posters and equipment that pertains to the body. Then, there is the textbook and workbook, a thick book that you wouldn't think you would even be able to get through in one year, let alone a semester. This is the scene I get to work in five days a week for 3 hours a day. My name is Adam Quick and I am an EMT-B student at Des Moines Central Campus. This class is very interesting and a lot of fun at the same time. I am a 12th grader at Southeast Polk. This is an unreal experience for me. The class is full of students who want to work hard and help others.

The class involves learning at Central Campus for four days per week and going to Mercy School of EMS to be with the paramedics one day a week for skills. The time spent with the paramedics is invaluable. Our requirements for this high school class are the same as the students taking the class at Mercy.

Through our clinical time we actually see what we have learned in the classroom and love it! You go to the ER with one kind of attitude and leave with another. It is just so invaluable to me to work in the ER. It is just incredible to see it actually happen, compared to reading it in a textbook.

Some of the students want

to continue and be paramedics, others plan on continuing in medicine and nursing. No matter what we do in the health field, this class is just a wealth of knowledge to get you started into a health profession.

I want to thank everyone in my class for all the knowledge and fun times. Also, Mrs. Lingwall, for the stories and knowledge you share with us everyday. Josh, Heather, Spencer, Joe, Beth, Kristina, Tricia and Paul you have made this an awesome semester.

Postscript: The EMT class at Central Campus is open to any 17 year old in high school who will turn 18 within the year of taking the class and has a GPA of 2.5.

### LOCKRIDGE FIRST RESPONDERS Receive State and National Awards

The Lockridge First Responders were recently awarded the Iowa EMS Association Volunteer Service of the Year award for 2003. This group goes beyond the call of duty, according to Cathy Giberson of Fairfield. "They are very active in their community, they respond to calls, do blood drives, print and distribute an annual newsletter, and participate in their community's "fun days." The group began as a single unit that completed medical calls only, but they recently joined with the local Fire Department and have become one team that believes in teamwork. Monthly training goes well past what is mandated by rule or law. "Because of this extra effort, when a call comes in they are ready for anything and provide good, quality patient care," according to Cathy. In September of 2003, they were selected as the National EMS Gold Volunteer Service of the Year and received that award in Las Vegas.

"As the Jefferson County EMS coordinator for the Lockridge First Responders, I wish to thank all of the group for your hard work, professionalism, and team work. The Lockridge community appreciates you," says Giberson.

### IOWA CISM NETWORK <u>Family Crisis Support Program</u>

he Iowa CISM Network, comprised of CISM team members from throughout the State of Iowa, is dedicated to providing critical incident stress management services for all emergency service providers in the state. Realizing the profound impact that traumatic events have on not only the emergency responders, but also on the family members and significant others of the responders, the Iowa CISM Network is equally committed to providing supportive services to these individuals as well.

Critical incident stress management is a comprehensive crisis intervention approach that was specifically developed to address "critical incidents" or traumatic events experienced by emergency service providers. Pre-incident education about critical incident stress; defusings; debriefings; and one-on-one crisis interventions are all methods that have become common practice in many fire, police and EMS departments across the nation. Too often, the spouses and other loved ones of the responders are overlooked in this process. Failing to address the concerns and stress of emergency services family members may greatly contribute to the cumulative stress experienced by our responders.

It is clearly understood that emergency responders need the support of their families and significant others in order to effectively continue to provide services for their communities. It is also well known that emergency service providers who experience critical incident stress may withdraw from their loved ones, developing a communication gap that only worsens over time unless positive intervention occurs, helping the individuals rebuild effective communication patterns. Without the same type of education and crisis intervention services that are provided to emergency responders, their spouses, family members and significant others may have difficulty understanding what is happening, may lack knowledge of how to best support the emergency responders and may be confused by their own feelings.

The Iowa CISM Network has secured funding to establish a CISM Family Crisis Support Program to support those who love and care for emergency service providers. Results of a brief questionnaire for spouses of emergency services personnel demonstrated keen interest in development of a CISM Team for debriefings of family members following traumatic events, availability of CISM-trained counselors for one-on-one or family consultation and pre-incident education for spouses and family members.

The Iowa CISM Network is working with existing CISM teams throughout Iowa to identify local leaders to develop this important resource. Please join with other dedicated volunteers to build a model CISM program for spouses, family members and significant others of emergency service personnel. Not only must we care about our responders, we must also care for those who love them.

FOR MORE INFORMATION CONTACT ANY OF THE FOLLOWING INDIVIDUALS:

> **Lisa LaDue:** 319-360-0495

> **Pat Wilson:** 641-422-6474

Sue Stannard: 319-398-3534

Ellen McCardle Woods: 641-377-2237

### **WITCC** *Receives Gift for EMS Program*

he emergency medical services (EMS) program of Western Iowa Tech Community College (WITCC) has received a gift that will train students to work in the cramped confines of an ambulance. The gift, a custommade model ambulance, has been given to WITCC by Tammy Scollard in memory of her husband, Pat, a flight paramedic and resident of Sioux City who was killed June 21, 2002, in a medical aircraft crash at Norfolk airport in Nebraska.

The training environment has been created from cabinetry that is custom-designed and custom-made. The cabinetry, which was created by Mike Allen of Kingsley, Iowa, simulates the full-size of a working ambulance. A special plaque incorporating a tribute to Pat Scollard, as well as his photograph, has been installed on the cabinetry. The ambulance was formally dedicated at a special ceremony last month attended by WITCC administrators and faculty and members of the college's EMS advisory board.

Tammy Scollard recently

visited the ambulance, which is housed in WITCC's Building B. "The ambulance is much more than I hoped for," she said. "What they did is wonderful. Pat would

have been so proud of this." Scollard's gift is designed to commemorate her husband's service to the community and to Western Iowa Tech's emergency training programs. As a paramedic, Pat Scollard served both with LifeNet of the Heartland and Siouxland Paramedics. At WITCC, he was a longtime member of the college's EMS



advisory board and also occupied the role of paramedic preceptor. A preceptor is a community-based teacher of health-profession students who provides mentoring and direct supervision in the field.

Scollard said the goal of the gift was to honor her late husband's memory by supporting and strengthening EMS education. "Pat had a tremendous love for EMS." she said. "It was his life. He worked hard to get people involved in EMS and to care as much as he did. He was really devoted to education. He felt that quality education produced quality care. So it seemed important to me to reflect his devotion in my gift." Pat Scollard enjoyed a reputation for many years as a skilled and caring EMS instructor. "He had such outstanding qualities as a teacher," said Tammy Scollard. "He made everyone feel special and he was a very giving person. So I'm really happy that Sally Johnson, coordina-

> tor of WITCC's EMS programs, has put this project together so well. It's such a neat memorial to all he believed in."

> To further honor her late husband's memory and achievements, Scollard has also made gifts to Ponca Fire Department and the Nebraska Emergency Association.

Pat Scollard grew up in Ponca and

received his EMS training in Nebraska. In recent years, he specialized in stress debriefing with emergency medical technicians and volunteers based in Nebraska.

# CONTINUING education

ACCIDENTAL HYPOTHERMIA

#### ACCIDENTAL HYPOTHERMIA

**OBJECTIVES:** When the participant reads the following article, they should be able to:

- describe the human body's natural ability at thermoregulation with emphasis on heat loss;
- define unintentional hypothermia and its 3 categories of mild, moderate and severe;
- describe the "at risk" population for hypothermia & what factors make them at risk;
- describe the pathophysiologic process of hypothermia through slow and rapid means;
- 5) describe the signs and symptoms of hypothermia and its stages;
- 6) describe the treatment for all hypothermia patients and the specific therapy for the stages of hypothermia with EMS implications, including cardiac arrest management;
- 7) successfully complete a 10question post-article quiz on hypothermia with at least an 80% score.

#### **CASE STUDY**

Cold, blustery January day in rural Iowa. At approximately 08:00 AM, the Dispatch Center requests your EMS presence at a "car in the ditch". While enroute, Dispatch states unconscious male found in driver's seat and in need of medical assistance.

Upon your arrival, you find an intact pickup in a ditch. There are no signs of collision. Police officer on scene reports a cold engine and no fuel registered in the tank. An empty container of whiskey, along with several empty beer cans litter the cab of this vehicle. Law enforcement has determined that this gentlemen has been missing from his family since he "went out" the previous evening.

Your patient is a 20-30 year old male who is cold to touch. He does not respond to stimuli. After I minute of assessment, you note no spontaneous breathing and a very slow pulse, at approximately 20/per minute. His pupils are dilated and fixed. While gently extricating the victim, you note that his legs and arms are stiff. As you place the victim into the ambulance, you note that you are 20 minutes from the closest rural hospital, 45 minutes from a larger hospital.

- Is this a victim of unintentional bypothermia?
- What out-of-bospital treatment should I begin?
- What will need to be done to rewarm him?

#### NORMAL PHYSIOLOGY OF HEAT LOSS:

ormal body temperature is maintained in a narrow range by a delicate balance of heat loss and heat production regulated by the body's thermostat in the anterior hypothalamus of the brain. When the body senses that it is cold, the hypothalamus sends a message to the sympathetic nervous system to increase heart rate and dilate the blood vessels to the muscles to increase heat production. This process creates shivering which generates heat by increasing muscle activity. In the body's attempt to create heat through shivering, blood flow must be increased to the peripheral muscles - which actually creates a 25% core heat loss. The outer skin constricts its blood vessels to move blood (shunt) from the periphery to the core in an attempt to balance this heat shunt and reducing heat loss.

The body maintains neutral body temperature in a normal state through the following processes: Conduction, Convection, Evaporation, and Radiation. Conduction: The exchange of heat from higher to lower temperature through contact, either with a surface or with the air. Convection: Air or water next to the surface of the skin that is warm is replaced by cooler air moved next to the skin. The wind-chill factors play a role in this process so the higher the winds, the more convection.

**Evaporation:** When fluid absorbs heat from the surrounding objects and air-evaporation occurs. Evaporative heat loss is greatly affected by temperature and relative humidity and in practical terms, the patient's temperature is greatly reduced by moisture on the skin and in the respiratory tract. Radiation: The body surface is constantly losing heat in the form of infrared rays. If the surface of the body is warmer than the environment, net heat is lost and, the greater the difference in temperature, the faster the loss.

#### UNINTENTIONAL HYPOTHERMIA

Unintentional hypothermia is defined as a decrease in core body temperature below 35°-36° C (95°-96.8°F). Health care providers usually see this phenomenon in the following settings:

- cold stress/exposure in persons with an inability to regulate body temperature
- cold weather exposure
- cold water immersion (with or without submersion)

#### 1. COLD STRESS IN THE AT-RISK POPULATION

Surprisingly, cold exposure in persons with impaired thermoregulatory function is the most common cause of death from hypothermia. There are many patient groups at risk for this dangerous combination of cool environment over a long term AND poor body temperature regulation. They are the elderly, insulin-dependent diabetics, malnourished, alcohol- or drug-intoxicated, the chronically ill, and those who take numerous medications and those medically disabled.

Members of your community with impaired body temperature regulation who are poor, semi-starved, or homeless and disabled, are particularly at risk for cold exposure from lack of shelter, inadequate clothing, or improper residential heating. This has been termed, "accidental urban hypothermia" by many authors. Even though the word urban comes up in this phrase — it applies in the rural setting, too.

This population can develop this slow hypothermia even in ambient temperatures not usually considered "cold weather". This is most likely to occur when the patient suffers cold exposure over a long period of time.

#### 2. COLD WEATHER EXPOSURE

Healthy people with normal body temperature regulation mechanisms can experience hypothermia when exposed to cold weather conditions. Some factors can play a role here, too. They include the severity of the cold snap, how many layers of clothes the person has on or what type (if any) shelter is available, wind chill factors, body exhaustion after heavy work outdoors, wet clothing, poor caloric intake, and associated injuries (like frostbite or fractures) that might interfere with self-preservation (like walking out of the cold environment). This form of unintentional hypothermia is fairly easy to understand.

In the rural area, more than 90% of deaths from hypothermia are associated with elevated blood alcohol levels (just like our case study).

#### 3. COLD WATER IMMERSION

Healthy people with normal thermoregulatory mechanisms can also suffer from hypothermia when suddenly immersed in cold water (< 21° C or < 70° F). Conductive heat loss is 25-35 times faster in water ► than in air so this body cooling occurs rapidly. Mortality nears 50% at 1 hour following cold water immersion at 4.44° C or 40° F. For a perspective on water temperature — look at waters off New York in January: typical temperature is 3° C or 37° F.

Once in cold water, victims also may experience aspiration, asphyxia, hypoxia and even death from cold water submersion.

Some authors suggest that the protective value of cold water immersion is overexaggerated. Recent experiments show that cold water immersion causes extreme exhaustion with subsequent submersion faster than the protective mechanisms of the cool water on the body.

#### PATHOPHYSIOLOGY OF HYPOTHERMIA:

As we Iowans have all experienced in January, shivering and other mechanisms generate heat. But in some patients with acute circumstances and chronic disease, shivering and other compensatory mechanisms may not be available. The ability to shiver is affected by hypoglycemia, hypoxia, fatigue, alcohol, and drugs. This heat production cannot be sustained as glycogen (stored glucose) stores become depleted. So, let's think about those who've ingested too much alcohol and/or drugs. Think about those

who have chronic diseases like diabetes, cardiovascular diseases, COPD and are poorly nourished.

Those with chronic disease can develop a very slow loss of body heat and be unable to compensate for it in a chronically cool environment. A slow loss of body heat in the development of hypothermia is very harmful to the body.

It is important to remember that when a patient has moved from shivering to non-shivering in a cold environment, they have moved onto severe hypothermia.

#### DEFINITIONS

Mild Hypothermia: Body temperature between  $34^{\circ} - 36^{\circ}$  C (93.2° - 96.8° F)

**Moderate Hypothermia:** Body temperature between  $30^{\circ} - 34^{\circ} C (86^{\circ} - 93.2^{\circ} F)$ 

**Severe Hypothermia:** Body temperature less than (<) 30° C or 86° F

**Profound Hypothermia:** Less than  $20^{\circ}$  C (68° F)

#### REALISM AND CORE BODY TEMPERATURE MEASUREMENT IN EMS:

How does your EMS system measure body temperature? Do you use the back of your hand to the patient's skin? Do you use a glass thermometer? (I hope not.) Do you possess one of the new ear thermometers?

Some of the new thermometers on the market advertise themselves as giving "core" temperature. Whether or not those devices can actually determine central body temperature is controversial, especially in young children. There is a consensus that a computerized rectal or esophageal probe is really the only reliable method of determining the central or "core" body temperatures.

Most Midwest EMS units do not possess these specialized thermometers. So — how do we determine if hypothermia is present and what level the patient is in? We look at symptoms and circumstances.

#### HYPOTHERMIA SIGNS AND SYMPTOMS:

- Mild: Onset of shivering which can become severe. This activity is the body's attempt at thermogenesis (heat production through skeletal muscle activity). Mental confusion and disorientation represents the signs of the onset of moderate hypothermia.
- **Moderate:** Progressive loss of the ability to think with confusion, disorientation, stupor, and eventually, loss of consciousness. Shivering diminishes and eventually disappears.

- Severe: Unconsciousness, immobility and progressive loss of all vital signs of life. Loss of functions occur roughly in the following order:
  - loss of consciousness and all voluntary movement
  - loss of pupillary light reflexes
  - loss of deep tendon reflexes
  - loss of spontaneous respirations
  - loss of organized cardiac rhythm (onset of ventricular fibrillation)
- **Profound:** Total loss of any sign of life. Cardiac activity is lost — asystole (flat line). Brain activity is silent and there is no distinction from death. There are very few patients who have been reported to have been resuscitated from this level of hypothermia and, of those who were, very few recovered normal brain function.

#### A SIMPLE RULE

IF HISTORY SHOWS THAT A PATIENT IN A COOL/COLD ENVIRONMENT HAS BEEN SHIVERING AND HAS NOW STOPPED (OR HAS NO ABIL-ITY TO SHIVER) AND HAS DEVELOPED CONFUSION — THEY HAVE MOVED ON TO MODERATE OR SEVERE HYPOTHERMIA. WHY IS IT IMPORTANT TO DETERMINE WHAT LEVEL OF HYPOTHERMIA IS PRESENT? — YOUR TREATMENT DEPENDS UPON IT.

TREATMENT OF HYPOTHERMIA:

Two major questions come up when dealing with a hypothermic situation: 1) is the victim in cardiac

- arrest?
- 2) what is the core temperature?

The recommended treatment depends on the answers to these two questions.

#### INITIAL THERAPY FOR ALL HYPOTHERMIA PATIENTS

- **1.** Remove wet garments.
- **2.** Protect the patient from heat loss and wind chill.
  - In the prehospital setting, if the patient still has pulses, rescuers should prevent cardiac arrest by preventing further heat loss, begin passive re-warming, begin monitoring and rapidly transporting the patient to definitive care. Prevent further conductive, convective, evaporative, and radiant heat losses by shielding the victim from wind, removing wet garments, and insulating the victim with blankets (or metallic foil wraps), insulated sleeping bags and pads, dry clothing, or even newspapers or cardboard.

- **3.** Maintain a horizontal position
  - A horizontal position is necessary because many hypothermic patients suffer from "Cold Diuresis" or a major loss of fluids creating hypovolemia.

#### 4. Avoid Rough Movement

 Try to avoid rough movement and excess activity but do not delay rescue procedures. Perform procedures gently and monitor cardiac rhythm closely. There is an exaggerated fear of causing ventricular fibrillation (VF) or ventricular tachycardia (VT). Realistically, creating VF or VT with jarring movement is only a risk with severe hypothermia (levels < 30°  $C \text{ or } < 86^{\circ} \text{ F}$ ).

#### 5. Monitor Core Temperature

 A rectal or tympanic membrane thermometer will be OK to check temperature. Mercuryfilled glass thermometers are useful only for mild hypothermia as they do not register low enough. A lower-reading rectal probe with electronicdigital capabilities are available and should be in used in EMS where hypothermia is likely to occur. ►

#### **TREATMENT-MILD HYPOTHERMIA** (93.2° – 96.8° F) (Shivering, respon-

sive-may be confused) Besides the 5 steps above, begin passive re-warming. As a rule, passive re-warming is the treatment of choice for hypothermia victims who can shiver.

#### **Passive Re-Warming:**

Blankets and reflective metallic-foil wraps applied can help the patient regenerate heat. This is a slow process and must be monitored carefully as this can cause heat loss in the pre-hospital setting.

#### Active External Re-

Warming: This can be accomplished with a variety of devices which might include radiant heat (turning heat up in the ambulance), forced hot air, or warm bath water. Heated devices include warmed plastic bags of IV solutions (good oldfashioned hot water bottle), heated blankets, or chemicalreaction warm packs. Do not place heated objects directly onto the skin. The patient may not be able to sense the "heat" and burns may occur. Monitor the patient and device carefully. If in a wilderness setting, body-tobody contact inside an insulated bag has been used. Application of heating pads under the patient's body (back and waist) can raise the temperature as much as 1° C per hour.

#### **Afterdrop Phenomenon:**

There is risk in external rewarming like this. As the extremities warm, rapid dilation of the peripheral blood vessels occur. Cold and acidic blood is then returned to the central circulation or "core" and the core body temperature falls again. Tissue Injury: Heated devices applied to the skin surface, especially fingers and toes, may result in injury to the tissues. Peripheral tissues often have extreme vessel constriction and this form of external re-warming may cause tissue trouble. Apply warm packs to the trunk only (armpits, groin, etc.).

#### TREATMENT- MODERATE HYPOTHERMIA (86° –

### 93.2° F) (Confused, apathetic, shivering slows/stops)

The initial five steps need to be accomplished, along with two other methods described previously:

- passive re-warming
- active external re-warming (trunk only). Do not warm arms and legs.

#### **TREATMENT-SEVERE HYPOTHERMIA** (< 86° F)(Vital Signs slow, Risk of VF, unconscious)

The initial five steps need to be started in the field as you transport the patient gently. The two methods described above are begun: passive rewarming and active external re-warming of the trunk only. In this level, active internal re-warming must be initiated as soon as possible.

• Active Internal Rewarming: There are several ideas on how to accomplish this with very little scientific evidence as to which one works the best.

- 1. Start with warmed IV fluids. and warmed. humidified oxygen. How can you warm those 2 items? In the ambulance, use of prewarmed IV fluids from a warmer device is good. In the hospital, using the microwave to warm IV fluids is acceptable, as long as the provider is monitoring the IV bag's internal temperature. Using a "hot pot" system with a oxygen humidifier is about the only way to provide the warmed, humidified oxygen as recommended. Very difficult for most prehospital providers.
- 2. In the hospital, peritoneal lavage (run-in, run-out, heated lavage) of the thorax with chest tubes, the abdomen with lavage catheters, the stomach with NG tubes, the bladder with Foley catheters, and the lower colon with enema devices are recommended.
- **3.** Extracorporeal Re-warming: This technique mimics bypass surgery set up as theblood is taken from the cold body, rewarmed and then sent back into the body.
- **4.** Esophageal re-warming tubes may also be inserted by ED staff.

#### • Active Internal Rewarming in Cardiac

**Arrest:** If the patient is thought to be in severe hypothermia and in cardiac arrest, the rescuers should remember the following: 1) use as many re-warming techniques as possible while continuing CPR; 2) start with simple and the least invasive techniques of re-warming as you progress to more complex (if available) in the hospital.

- First as the patient arrives in the ED, active external re-warming of the trunk only should have been started. Warmed, humidified oxygen via endotracheal tube and warmed IV fluids initiated.
- 2. The ED staff should place electric heating pads under the dry and unclothed patient's trunk and abdomen while warmed IV bags are placed at the groin and armpits.
- 3. The ED physician should insert a dialysis catheter into the patient's abdomen and begin peritoneal lavage while the hospital's bypass team is getting ready for the patient to enter the OR for that procedure.

Some experts think that active internal re-warming should not be started in the pre-hospital setting.

#### OTHER RESUSCITATION ISSUES IN SEVERE HYPOTHERMIA:

If hypothermia has continued for more than 45-60 minutes,

most patients will require IV fluid – volume resuscitation as their blood vessels dilate. Heart rate and perfusion must be monitored carefully during this procedure.

Severe increases in the patient's potassium level may occur during re-warming, especially if combined with trauma. Medical Control will need to be contacted if signs of hyperkalemia are apparent in the prehospital setting.

All of the health care team attempting to rewarm this patient should remember that most of these victims have an underlying health problem that needs to be identified and resuscitated. For instance, drug overdose, alcohol intoxication, malnourishment, etc.

Complete re-warming may not be indicated in all victims. Clinical judgment by the Medical Director or other responsible physician/clinician is used to determine when resuscitation efforts should cease in the best interests of the patient.

#### HYPOTHERMIC CARDIAC ARREST MANAGEMENT

Airway, Breathing and Circulation withDefibrillation are still used in hypothermic cardiac arrest. CPR is initiated and then, if available, determine core temperature.

Remember that respiratory and heart rates may be extremely slow and difficult to assess. Assess for breathing and presence of circulation for at least 45-60 seconds before deciding whether they are present or not. If breathing is not present, initiate bag-valvemask ventilation and add warmed, humidified oxygen as soon as possible. If no pulse, begin chest compressions.

Application of AED pads or electrodes may be difficult if severe hypothermia and "frozen" skin is present. The rescuer may have to "sew" the patch on with a straight needle if the sticky surface of the pad will not adhere. Determine what the rhythm is and if ventricular fibrillation or pulseless ventricular tachycardia (a shockable rhythm), defibrillate up to three times as per standard protocols. Successful conversion to normal sinus rhythm may be impossible until re-warming has occurred.

Secure an airway and provide good ventilations with warmed, humidified oxygen at a normal rate (12/min for adults). If unable to get the chest to rise with standard bag-valve-mask ventilation or with resources available, intubate the patient and confirm placement. Start an IV and infuse warmed normal saline. Continue the resuscitation efforts until arrival at the ED to determine core temperature.

If the core temperature is < 30° C (<86° F), withhold all medications in cardiac arrest management. If the victim fails to respond to the first 3 shocks, defer any repeated shocks until patient rewarmed (> 86° F). Continue CPR throughout transport to the local ED. ►

#### IEMSA CONTINUING EDUCATION ACCIDENTAL HYPOTHERMIA



#### 1) Understanding the rules of heat loss, which of the following situations would make you most suspicious of hypothermia?

- A) A healthy farmer with 3 layers of clothing on who is completing his "chores" in the early morning with temperatures at 0° F and winds at 20 mph.
- B) A trauma patient in compensated shock who has been extricated from a partially submerged car, is completely soaked with river water and has been admitted to the local ER with the room temperature at 68° F.
- C) A 70-year-old, 70 Kg female with a history of hypertension and arthritis who has been laying on the floor of her 72° F home for 3 hours with a fractured hip.
- D) A 2-year-old who woke up from her nap and is actively shivering with a cough.

#### QUESTIONS 2, 3, & 4 ARE RELATED TO THE FOLLOWING SCENARIO:

You have responded to a one-vehicle collision in the early morning hours in February to find 2 victims trapped within the vehicle. Rescue is beginning the process of extrication. Victim #1 is conscious, alert and oriented, occasionally shivering with an obviously closed fracture of the lower leg. He has several blankets covering him. Victim #2 is slow to respond, confused, and not shivering with one layer of clothing on. Victim #1 reports that victim #2 was shivering about 1 hour ago but stopped. He adds that #2 placed blankets upon him because of his fractured leg.

- 2) Both victims are suffering from hypothermia. By clinical signs and symptoms, victim #1 is suffering from which stage of hypothermia?
  - A) Mild.
  - B) Moderate.
  - C) Severe.
  - D) Profound.
- 3) Related to the above scenario, victim #2 is suffering from which stage of hypothermia?
  - A) Mild.
  - B) Moderate.
  - C) Severe.
  - **D)** Profound.

#### 4) Both victims in the previous scenario need to have the steps of pre-hospital re-warming initiated. They include:

- A) Remove the patient's wet clothing, apply blankets, place warm packs directly to the patient's skin, including fingers and toes.
- B) Apply spinal immobilization but keep their heads elevated to prevent a rise in intracranial pressure, apply blankets and heat packs.
- C) Start 2 I.V.s from the ambulance shelf and run wide open, apply heat packs to all areas of the body on both patients and encase in blankets.
- D) Remove the patient's wet clothing, apply blankets to torso and covered warm packs to groin and armpits, and keep both supine.

#### 5) Afterdrop phenomenon:

- A) Is a form of intentional hypothermia where doctors place a patient who has survived cardiac arrest into hypothermia to salvage their brain.
- B) Occurs when the arms and legs are warmed and peripheral blood vessels dilate, circulating blood that is cold and full of acid to the torso.
- C) Is a process by which the body begins to shiver and actually drops the body temperature.
- D) Occurs when the patient's body temperature rises with EMS efforts then falls as a result of active re-warming procedures.

#### 6) Cold water immersion:

- A) Is of benefit and most victims should recover due to diving reflex and the cold effect on the body.
- **B)** Can create an evaporative heat loss 25-35 times slower than cold air.
- C) May not be as beneficial as once thought. The victim in this type of cold water submersion may be struggling, causing extreme exhaustion, then drowning.
- **D)** Is thought to be therapeutic.

### 7) Please choose the best answer regarding hypothermic cardiac arrest:

- A) Always assess circulation prior to airway and breathing so that chest compressions may be initiated earlier.
- B) The sequence is still ABCD as is the usual cardiac arrest management except that defibrillation is not allowed and C is for central or core temperature.
- C) Because the body has been dramatically slowed, make sure to check for the presence of breathing and signs of circulation for at least 45-60 seconds.
- **D)** Any handling of the patient can cause ventricular fibrillation so no CPR.

#### IEMSA CONTINUING EDUCATION ACCIDENTAL HYPOTHERMIA

#### 8) During BLS and ALS management of profound hypothermia and cardiac arrest, all of the Code Team should be aware that:

- A) Medications should not be given until temperature is back up to at least 30° C
- B) AED applied and if the patient is presenting in a shockable rhythm, you should allow the AED to shock up to 3 times until temperature is back up to 30° C.
- C) If no shock advised (asystole or PEA), CPR is continued as you transport the patient onto the receiving hospital for re-warming.
- D) All of the above statements are correct.

#### 9) Determination of core temperature:

- A) Is best done via rectal computer probe or esophageal device.
- B) Is accurate if a glass, mercury thermometer is used.
- **C)** Can be done by simply touching the patient's skin.
- D) Should never be attempted by pre-hospital personnel in the field.

CLIP AND RETURN

#### 10) In the rural area, more than 90% of deaths from hypothermia are associated with:

A) Age.

- B) Chronic disease.
- C) Elevated blood alcohol levels.
- D) Malnourishment, homelessness & substance abuse.

#### **CONCLUSION:**

As our weather settles into its winter pattern, all Midwest EMS services should prepare themselves for the potential for the hypothermic patient. This includes prevention of this rare, but serious phenomenon by checking on our elderly and reminding bystanders about ways to prevent beat loss during cold snaps.

#### **REFERENCES:**

Sanders: Paramedic Textbook", 2nd Edition, 2001, Mosby **Cummins:** ACLS for Experienced Providers", 2003, American Heart Association

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All EMS providers participating in this informal continuing education activity will complete all 10 questions related to the article on unintentional hypothermia. You must attain an 80% score to receive the one hour of informal continuing education credit through The University of Iowa Hospitals' EMS Learning Resources Center in Iowa City, EMS Provider Number 18.

For those who have access to email, please email the above information, along with your answers to: adamr@uihc.uiowa.edu.

Otherwise, mail this completed test to: Rosemary Adam University of IA Hospitals and Clinics EMSLRC, 200 Hawkins, So. 608GH lowa City, IA 52242-1009

NEW Board Members — Elected —

EMSA welcomes five returning board members and two new board members to their ranks as a result of the election conducted in November. Five individuals ran unopposed, negating the necessity of holding an actual vote for those seats, while one voting process was held in the NE Region. Returning board members include Rosemary Adam (At Large), John Copper (NC Region), Evan Bensley (NW Region), Cindy Hewitt (SE Region) and Rod Robinson (SW Region). Lee

Ridge of Sumner won the NE Regional seat and Brad Madsen ran unopposed for the SC Regional seat.

Lee Ridge has been involved in EMS for

over 20 years. He has filled a variety of roles since then as both a volunteer and full-time

provider — EMT-A, Dispatcher, Street Paramedic, Shift Supervisor and an EMS Instructor. Lee has also worked as an electrician, building ambulances for a short time. For the past 16 years, Lee has been a full-time flight paramedic with Air Care in Waterloo. He has been married for the past 27 years and has one grown daughter who



LEE RIDGE

lives in Chicago. A self-proclaimed computer geek, Lee does graphic design and desktop printing as a sideline. When he has spare time, he loves to

do stained glass. Brad originally started in EMS because of his adrena-



**BRAD MADSON** 

line-seeking personality. This inspired him to become a paramedic specialist as well as a critical care paramedic. Brad currently works at Mercy School of EMS as a Program

Coordinator. His previous experience includes: Director of Atlantic, IA and Midwest Ambulance. He currently serves on IEMSA's Conference Planning Committee.

# --2003---



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