



JULY-SEPTEMBER 2003

*Iowa Emergency Medical Services Association*

# NEWSLETTER

A V O I C E F O R P O S I T I V E C H A N G E I N I O W A E M S

## IEMSA 2003 - Iowa's Premier Conference

*By Lori Reeves, Conference Planning Committee Chairperson*



Have you got your calendars marked yet? Summer is flying by and, whether you are thinking about it yet or

not, fall will soon be here and this year's IEMSA conference is just around the corner. The keynote speakers lined up for this conference are without a doubt some of the best the IEMSA conference has ever had. We have four of the nation's most renowned and well-respected speakers.

You probably recognize Dr. Brian Bledsoe's name as a prominent EMS author of multiple EMS textbooks, reference books, and articles. Dr. Bledsoe will not only be presenting at the general conference, but will also be participating in the EMS Educator pre-conference workshop this year. Make a point not to miss his Friday morning keynote "Common Myths of Modern EMS."

You may remember Dr. Peter Pons from the 2002 EMS Leadership conference which was hosted by the EMS Bureau. Dr. Pons will be participating in the Disaster Preparedness pre-conference workshop as well as the general conference. Dr. Pons will cap-off

Friday's sessions speaking on "EMS and the Law."

Saturday's line-up of speakers includes two very popular and highly sought-after EMS presenters. Although many of you may not have heard of Mike Helbock before, Mike is considered to be one of the top five national EMS speakers. We are very excited as Mike will be making his first-ever appearance in Iowa at our conference. Mike will bring the adult and pediatric versions of his nationally acclaimed "Sick Not Sick" program as well as a session on interactive case studies.

We know many of you remember Baxter Larman from previous conferences because so many of you have requested that we bring him back. Baxter is able to present in a way that is entertaining and humorous. You will not find yourself nodding off or watching your watch in any of his presentations! Baxter will speak on hanging emergencies, controversies in cardiac arrest and will also cap-off the conference with the Saturday afternoon keynote.

In addition to the four keynote speakers above, due to popular demand and multiple requests, Connie Mattera will be back presenting for several of the

break-out sessions during the general conference. "Great Speaker," "Excellent!," "Outstanding," "Awesome," "wonderful info," "a wealth of clinical information" were just a few of the multiple positive comments Connie received last year on conference evaluations. If you didn't get a chance to hear Connie last year, don't miss her sessions this year!

James Richardson, an employee at the National Stroke Association and an authority on stroke care, will be coming to us from Colorado. James will host two sessions on stroke, including one specifically designed for Basic level providers.

As well, we will have a host of some of the best speakers from Iowa to round out the sessions. Be sure to start making plans now to attend Iowa's premier conference!

Visit

[www.stayatmarriott.com/IEMSA](http://www.stayatmarriott.com/IEMSA)

**to reserve your room  
for the Conference.**

## EMS Week Proclamation

On Friday, May 23rd, Governor Tom Vilsack signed a proclamation declaring the week of May 18th - 23rd as EMS Week in Iowa. This proclamation corresponded with the nationally designated EMS week. This year's theme of "EMS – When It Matters Most" was celebrated across the country, as well as in the State of Iowa.

Various departments throughout the state celebrated in a variety of ways. Open houses were held and free blood pressure checks and blood sugar evaluations were given. In celebration of EMS-C day, which was Wednesday, May 21st, AED's were given away through the Rural Access to Emergency Devices grant at Iowa Methodist Medical Center. Bicycle helmets were distributed free of charge to elementary school children. In an unusual twist to the EMS-C day, EMS personnel went into the elementary schools and read to the Kindergarten, first and second grade classes.

EMS week is a celebration in honor of the individuals who have dedicated themselves to the service of those in need. Approximately thirty EMS personnel from various departments were present in the governor's office for the official signing of the proclamation.

Representatives included members of career as well as volunteer services, personnel from the Iowa Department of Public Health, IEMSA, and the EMS training centers.



## Calling All EMS Managers.....

Have we got a treat for you! This year's EMS Management Pre-conference workshop will feature Jerry Overton speaking on "Hot Topics Facing EMS Administrators". If you don't know who Jerry is, you should. Jerry is currently the Executive Director of the Richmond Ambulance Authority in Richmond, Virginia. Just as important, though, is that Jerry is president of the American Ambulance Association. There is probably not a more knowledgeable authority on EMS administration in the country. Jerry's many years in EMS and wealth of knowledge as an EMS administrator make his presentations "do not miss" opportunities for EMS managers. Having him speak at our workshop is quite a coup. Jerry not only speaks nationwide, but, recently even spent two days doing presentations in Australia. We feel very lucky and honored to have him presenting at the 2003 IEMSA Conference.

In addition to Jerry, you will have the opportunity to hear Jane Pauba Dodge's presentation, "Other Duties as Assigned: How to Hire the Best Candidate for the Job." Jane is the Human Resources Manager for the City of West Des Moines and comes highly recommended as a human resources expert. Her presentation will give you that extra edge you need when interviewing and making hiring decisions.

Last, but by no means least, the EMS management pre-conference workshop will have one additional speaker, Heather Martin, Training Officer for the City of Des Moines EMS. Heather will be speaking on Quality Assurance in Today's EMS. Her presentation is designed to provide tools to assist in prioritizing performance measures, implementing tools to measure performance and what to do with the data once you have it.

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## Thursday at the Conference

The format of the scheduled events for Thursday at this year's 2003 IEMSA conference has been changed slightly from last year. First, we invite you to attend one of four pre-conference workshops which will all run 12:00-4:00 pm. This year's workshops include EMS Management, EMS Education, Disaster Preparedness and Critical Care Paramedic; providing variety enough to have something for everyone. As soon as the sessions end at 4:00, the vendor hall will open and a reception will be held among the vendors. Refreshments and hors d'oeuvres will be served. This will give workshop participants or individuals who come in early for the general conference an "early bird" opportunity to visit the vendor hall and partake of the vendors' displays and products.

The IEMSA Annual Board of Directors' Meeting will be held at 5:00 pm. We hope you will take this opportunity to meet the Board and hear, first hand, what IEMSA has accomplished in the past year and what the goals are for the future. You will be more than welcome at the meeting to ask questions, or make comments or suggestions, because of course, the Board represents you.

The meeting is slated to end at 6:30, still giving you most of the evening to take an opportunity to enjoy downtown Des Moines. This year's conference handbook will feature a new special section highlighting downtown Des Moines. It will include a listing of downtown restaurants and a map showing how to get to these establishments. In addition, we have asked these restaurants to place ads or discount coupons in the handbook, providing you a special invitation and incentive to enjoy their business.

So, we hope you do take advantage of Thursday at this year's 2003 IEMSA conference!

## With Special Thanks from the EMS Provider of the Year

To the IEMSA Board of Directors:



I would like to thank everyone at the IEMSA for sending me to Washington D.C. to attend the "Stars of Life" program. This was truly an educational experience for me. I have toured the D.C. area several times over the years, but this was the first time I ever toured the House Office Buildings and Senate Office Buildings. Plus, this was the first time I ever met with a Representative to talk about EMS issues.

The American Ambulance Association sponsored this event, which was held at the Omni Hotel in D.C. This event included classes and training sessions geared towards meeting Senators and Representatives to talk about EMS issues. I met with Rep. James Leach and we talked about Medicare issues, Re-Invent Iowa Bill, EMS funding, and other EMS issues that affect Muscatine. The meeting went well and I had my picture taken with Rep. Leach in his office. I also attended the picnic at the Zoo and the special banquet dinner where I received an award and certificate.

As I mentioned before, thanks for sending me to the "Stars of Life" program, I truly had a once-in-a-lifetime experience.

Sincerely,

Gerald P. Ewers

Asst. Fire Chief, Muscatine Fire Dept.

2002 Career Individual EMS Provider of the Year



## UPCOMING IEMSA MEETINGS

IEMSA's Board of Directors will meet on the following dates. Most meetings will be held from 10:00 a.m. - 1:00 p.m. at Fire Station #17, 1401 Railroad Avenue, West Des Moines, unless otherwise noted. All members are welcome to attend. Minutes of each meeting will be available at [www.iemsa.net](http://www.iemsa.net).

September 18

October 16

November 13 – ANNUAL MEETING

December 18



*Iowa Emergency  
Medical Services  
Association Newsletter*

Published Quarterly  
Iowa Emergency Medical  
Services Association  
1200 35th Street, Ste. 206-11  
West Des Moines, IA 50266  
Vol. 2003-03, July-September, 2003

# IEMSA DISTRIBUTES AED'S

The following services received new, Phillips Heartstart FR2+ defibrillators courtesy of the Rural Access to Emergency Devices Grant Award:

Alden First Responders  
Alta Fire and Rescue  
Beaman/Conrad Emergency FR  
Bluffton First Responders  
Burr Oak First Responders  
Castalia First Responders  
Chester-Lime Springs 1st Resp.  
Clemons/St Anthony First Resp.  
Cumberland Vol. Fire Dept.  
Cushing Fire Department  
Dickens Fire and Rescue  
Doon Emergency Medical Service  
Duncumbe Fire & Rescue  
Earlham Rescue  
Eddyville Volunteer Fire Dept.  
Eldon Fire & Rescue Inc.  
Ellston First Response Team  
Ellsworth First Responders  
Farragut Fire & Rescue

Ferguson-Laurel First Responders  
Fontanelle Fire & Rescue  
Fostoria Fire and Rescue  
Gravity Rescue  
Greenville Rescue  
Humeston First Responders  
IHSRA Rescue  
Kendalville First Responders  
Lewis First Responders  
Louisa County Ambulance  
LuVerne First Responders  
Maquoketa Rescue Squad  
Marne First Responders  
Mechanicsville Ambulance  
Melbourne First Response  
Mingo Fire Department  
Montezuma Fire Department  
Montour First Responders  
Moorhead Rescue

Mt. Vernon Fire Department  
New Market Vol. Fire Dept  
New Sharon Fire & Rescue  
Nora Springs Vol. Ambulance  
Palmer Fire Department  
Peterson CRU  
Rake First Responders  
Reg. Health Services/Howard Co.  
Rembrandt Fire and Rescue FR  
Rhodes First Responders  
Royal Rescue  
Silver City Ambulance Service  
Stanhope First Responders  
Stanwood Ambulance Service  
Tabor Vol Ambulance  
Union Emergency Service  
Vincent Vol Ambulance Service  
Waterville Ambulance Service  
Wayland Volunteer Fire Dept.  
West Branch First Responders  
West Point Fire & Rescue  
Zearing First Responders

## NE Region



From left to right, *Front row*: Mike Buser, Mt. Vernon; Nicole Mitchell, Jeff Mitchell and Gene Leiran, Waterville. *Back Row*: Cindy Schnitzler, Burr Oak; Larry Spalla, Cresco; Donna Trachta, Chester-Lime Springs; Alan Kelley, Montour; Cindy Leonhart, Bluffton.

## SW Region



From left to right, *Front row*: Lark Addy, Moorhead; Roger Van Ness, New Market; Denny Sickles, Fontanelle; Linda Storterbecker, Silver City; Koleene Poper and Terry Eckerson, Lewis. *Back Row*: Todd Prat and Ray Stewary, Fontanelle; Rick McIntyre, Farragut; Peg Schrier, Cumberland; Tom Mothershead and Curt Ambrose, Gravity.

## NC Region



From left to right: Mark Bradley, Union; Bob McNally and Dan Ostrem, Stanhope; Ron Ladehoff, Beaman-Conrad; Darlene Bradley, Union; Greg Campbell, Ellsworth; Joe Dillon, Alden.

## NW Region



From left to right: Tracy Gotto, Rembrandt; Julie Rosenboom, Palmer; Willie DeMan, Alta; Melinda, Habben, Palmer; Denny Launderville, Alta; (not pictured) Donna Koch, Greenville.



## SE Region



From left to right, *Front row*: Susan Brown, Eldon; Craig Cochran and Sandy Heick, West Branch; Brad Latcham and Ron Wyatt, New Sharon. *Back Row*: Sue Bartlett, Eldon; Pat Raynor and Ken Raynor, Montezuma; Connie Knutsen, Mechanicsville; Troy Schneider and Barry Kelderman, Eddyville; Dave Diers, Wayland.

## SC Region



From left to right, *Front row*: Wendy Eldridge, Rhodes; Patti Stalzer, Melbourne; Roseann Nymeyer, Ferguson-Laurel; Laura Perisho, Zearing. *Back row*: Jim Keislar, Melbourne; Susie Gibbs, Humesten; Larry Spoon and Bob Carnahan, IHSRA Rescue

# CALL FOR IEMSA AWARD NOMINATIONS

The IEMSA Annual Emergency Medical Services recognition banquet will be held during the 2003 conference – Friday, November 14, 12:00-13:10 at the Polk County Convention Center. This time is dedicated to the recognition of EMS leaders in the State of Iowa. The nomination criterion is listed below. Please write a letter of recognition/nomination and return it to IEMSA with your completed nomination form. The Award Nominations must be postmarked no later than September 26, 2003.

## Criteria for Nomination (You can nominate yourself)

**Individual:** The nominee must be currently certified by the State of Iowa, have strong and consistent clinical skills at his/her certification level, and have made an outstanding contribution to the EMS system either within or outside of his/her squad or service. Award recipients **MUST** be (or become) an active Iowa EMS Association member.

**Service:** The nominee must be currently certified by the State of Iowa, have made outstanding contribution(s) in the last year to public relations, information and education (PI&E), maintain a positive and outstanding relationship with the community it serves and take visible and meaningful steps to assure the professionalism of its personnel and the quality of patient care.

**Friend of EMS:** Any individual who has made outstanding contribution(s), which enhance the quality of EMS at the local, regional or state level.

**Hall of Fame:** Any individual who has made outstanding contributions to EMS during longevity in the field (10+ years). This individual may be someone to recognize posthumously. This will be an ongoing plaque displayed in the Association Office.

**Instructor:** Any individual who instructs and/or coordinates on a full-time or part-time basis; has dedication to EMS through instruction, number of years in EMS and/or number of years instructing EMS.

Don't miss this opportunity to recognize someone deserving recognition!

### AWARD NOMINATION FORM

**Individual:**  Volunteer  Career **Friend of EMS**   
**Service:**  Volunteer  Career **Hall of Fame**   
**Instructor:**  Full Time  Part Time

Nominee's Name: \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_

Nominator's Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Day Telephone \_\_\_\_\_

Evening Telephone \_\_\_\_\_

Mail Nomination Form and Letter of Recognition/Nomination to:

IEMSA Awards, 1200 35th Street, Ste. 206-11, West Des Moines, IA 50266

Deadline: September 26, 2003

# Every Thirty Minutes: Could You Be Next?

*Ken Vanlandingham, Director of Operations, Stuart Rescue Unit*

The following was accomplished when four communities came together for a common goal: educating their high school students on the dangers of drinking and driving.

On May 14, 2003, Fire and Rescue departments from Redfield, Dexter, Stuart and Menlo, along with the assistance of Mercy One, Adair County Sheriff and Adair County Ambulance presented a day-long Alcohol Awareness assembly. The morning started with a staged two-car accident involving three students and three high school teachers. The students, who had been drinking, ran a stop sign t-boning the car driven by the teachers. The high school Spanish teacher was DOA, with the other two teachers critically injured. The front passenger in the student car was ejected through the windshield and flown from the scene by Mercy One. After extrication, the remaining patients were transported off the scene. The drunk driver was transported from the scene by the Adair County Sheriffs office.

The remainder of the day worked off of the theme “Every 30 Minutes: Could you be next?” The Grim Reaper pulled one student from class every 30 minutes. Local clergy then read a brief death notice over the school’s intercom. The students pulled from class were marked as dead for the remainder of the day. They were taken to the gymnasium where they participated in various alcohol-awareness activities.

The final assembly started with a dark gymnasium, a spotlight on a mock emergency room. The student flown from the accident scene was brought into Mercy ER. Dr. David Stillely led the call with assistance from various ER staff. As the team worked to save the student, the Grim Reaper slipped into the room. The mother was brought into the room and the time of death announced. The mother’s sobs echoed through the gym as the spotlight moved to the featured speaker, Mr. Russ Reinke. Mr. Reinke lost his son in an alcohol related collision; he now travels the state educating students on the effects of drinking and driving. He purchased both vehicles involved in the collision. The vehicles are displayed on a flatbed trailer. The vehicles stayed in the community for three days. An impressive number of community members were also in attendance.

This was put together with many meetings and an organizer that went above and beyond. Angie Moore put a lot of effort into making this event take place. She not only scheduled the meeting but also raised enough money to provide the students and teachers involved with T-shirts and all the pop and pizza they could eat. She also raised enough money to buy “Every Thirty Minutes: Could You Be Next?” lanyards for the entire student body. The effort put forth by the four communities was remarkable.

The feedback we have received from the high school staff and students have all been positive. We hope to make this something we can offer to the school on a regular basis.

## BYLAW CHANGES

There are changes to the IEMSA Bylaws that are proposed by the Bylaws Committee this year. For these changes to be adopted, they must be approved by the general membership at the annual meeting on Thursday evening, November 13, 2003.

These proposed changes will be published on our web site – [www.iemsa.net](http://www.iemsa.net) after the August 21st Board meeting. To obtain a hard copy of the proposed changes, please contact the IEMSA office at 515-225-8079. For clarification, contact Jeff Messerole, Bylaws Committee Chairman at 712-336-4358.



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# AT-LARGE/REGIONAL NOMINATIONS REQUESTED

It is time to consider your **At-Large** and **Regional** representatives to the IEMSA Board of Directors. The representatives elected will serve two-year terms beginning in January, 2004. These positions are currently being held by Rosemary Adam – At-Large, Evan Bensley – NW Region, Rod Robinson – SW Region, John Copper – NC Region, Steve Noland – SC Region, Dana Sechler – NE Region, Cindy Hewitt – SE Region.

The following are guidelines for this process.

**Nomination Requirements:** The nominee must be an active member of IEMSA for two years or more. Nominations will only be accepted by using the format provided. Nominations must be received in the IEMSA office by **September 26, 2003 at noon.**

Upon receipt at the IEMSA office, the nominations will be checked to ensure compliance with the nomination process. The nominee's membership status within the association will also be verified.

Successful nominations will comprise the final ballot which will be mailed on October 7, 2003. These ballots will be due back in the IEMSA office by November 7, 2003. Detailed instructions will be provided on the ballot.

We urge all members with an interest in becoming involved with their professional organization to become nominated. Please complete and return the At-Large/Regional Nomination Form by September 26, 2003.

*Your involvement truly makes a difference!*

## AT-LARGE/REGIONAL NOMINATION FORM

Must be returned to the IEMSA office by September 26, 2003

Please check one box only.

At-Large

Region (NC, NE, NW, SC, SE, SW)

\*Please circle one region.

Nominee's Name: \_\_\_\_\_

Company/Service: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Brief biography of nominee (50 words or less – use a separate sheet of paper if necessary):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Nominator's Name: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Mail to: IEMSA – At-Large/Regional Nomination, 1200 35th Street, Ste. 206-11, West Des Moines, IA 50266

# Attention Critical Care Paramedics! (and everyone else too!)

Now that Iowa has recognized the Critical Care Paramedic training with a special endorsement, they have also required specialized continuing education to maintain it. As you should already know, to maintain CCP endorsement you must complete 8 hours of CCP core curriculum approved topics every two year recertification period. Have you thought yet about how you are going to get your hours? Well, the IEMSA conference is the answer! This year, one track of the pre-conference workshops will be designed specifically to meet the CCP's recertification needs. The pre-conference workshops are held on Thursday Nov. 13 from noon until 4 pm and cost only \$40 to attend. By attending this workshop every year, you would be able to obtain the 8 hours needed for each recertification period.

This year's workshop will feature some of Iowa's premier EMS instructors. From the EMSLRC, Rosemary Adam will be presenting case studies in neurology while Mike Harley will be discussing how to differentiate heart blocks. Mercy School of EMS's Brad Madsen will be speaking about balloon pumps, AICD's and pacemakers and Matt Stuart, a Respiratory

Therapist with Mercy Medical Center and a paramedic with Altoona EMS, will cover C-PAP and Bi-PAP.

Maybe you're not a CCP but have an interest in advanced topics – this workshop may be for you, as well. Other levels of EMS providers may still attend this workshop, since EMS providers are allowed to have up to 8 hours of continuing education that are in areas outside their core curriculum. So, come one, come all!

### IEMSA Invited to Hawkeye Football!

**Iowa Emergency Medical Services Association members may purchase tickets to either of the games listed below at the following special group rates:**

Adults - \$31 each *(Regularly priced at \$40 each)*  
Youth high school age and younger - \$15 each



**Iowa vs. Arizona State**  
September 20  
Kinnick Stadium  
Kickoff TBA



**Iowa vs. Illinois**  
November 1  
Kinnick Stadium  
Kickoff TBA



**Clip and Mail**

---

Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Return by Sept. 5 to:  
IEMSA Day  
205 Carver-Hawkeye Arena  
Iowa City, IA 52242-1020

Game	Adults	Price	Qty	Total
Arizona State - Sept. 20	Adults	\$31 x	_____	_____
	Youth	\$15 x	_____	_____
Illinois - Nov. 1	Adults	\$31 x	_____	_____
	Youth	\$15 x	_____	_____
	Processing fee			+\$6.00
<b>TOTAL AMOUNT DUE =</b>				_____

Make checks payable to: Iowa Athletic Dept.  
For more info call (319) 335-9228  
For Office Use: Group # 3016












## IEMSA Merchandise

Do you hate standing in line year after year at the IEMSA Conference to purchase the latest Iowa EMS Association merchandise? Did you think the only items available for purchase are patches? Wait no longer!! You can now purchase the greatest and latest fashion designs recently released especially for IEMSA at the IEMSA web site. Clothing items currently available include golf shirts, denim shirts, tee shirts and sweatshirts. New to the clothes line are flannel boxers and pants available in wine plaid and black watch plaid, and IEMSA hats.

Non-clothing items include coffee mugs and glass mugs. The latest addition to this line is the IEMSA briefcase. State patches and certification rockers are always available.

To order any of these items check out the official IEMSA web site at [www.iemsa.net](http://www.iemsa.net) to download the order form.

# THE RESPIRATORY EFFECTS OF A HOG CONFINEMENT

Objectives: Once the participant has read the article, each should be able to answer the 10-question post test with at least an 80% overall success, demonstrating their understanding of the following:

1. Anatomy and physiology of the respiratory system.
2. Symptoms of various respiratory problems that accompany hog confinement work.
3. Identify the potential gases and dusts that can cause respiratory complications, both acute and chronic.
4. Personal protective equipment for hog confinement workers and safety measures.

## Case Study

In April of 1980, a Midwestern swine producer was emptying the manure storage tank under his new confinement building for the first time. He put a high volume pump into the pit and loaded the manure wagon. He then put the pump in the recirculating mode to agitate the slurry while he emptied the first load from the wagon. When he returned from the field, he smelled a peculiar odor outside the building. He looked inside the building and saw all the hogs were laying on their sides. He rushed into the building to increase the ventilation. After a few seconds he had a hard time getting his breath. He became lightheaded and started for the door. He stumbled outside and collapsed, lying unconscious for several minutes. After regaining consciousness, he made his way to the house and his wife took him to the hospital. He was hospitalized overnight for observation and released the next day, apparently with no remaining effects. All of the 24 sows and 200 piglets died in the building over the agitated pit. The deaths of the swine and the farmer's illness were caused by hydrogen sulfide gas (H<sub>2</sub>S) released during slurry agitation.

## Anatomy and Physiology of the Respiratory System

The respiratory system allows for the exchange of oxygen and carbon dioxide. The airway consists of the upper and lower anatomy. The upper airway anatomy consists of the mouth and nose, which include the nasal and oral cavity, and the pharynx. The upper airway extends to the larynx, which serves to connect the upper and lower airways. The nasal cavities warm, purify and moisten the air. Most airborne particles are caught by the cilia in the mucous membranes. The rich blood supply to the membrane serves to warm the air.

The oral airway is made up of the hard and soft palates and the tongue. The pharynx is, by definition, a muscular tube that extends vertically from the back of the soft palate to the superior aspect of the esophagus. The pharynx is where air

goes into the respiratory system and food is transferred to the esophagus, as well. The larynx is where the air passes into the lower airway system. The vocal cords and cricoid and thyroid cartilages are also found in the larynx.

The lower airway consists of the trachea, the bronchi and the alveoli. The trachea is a 10-12cm tube that connects the larynx to the two-mainstem bronchi. The bronchi bifurcate into the left and right mainstem bronchi at the carina. The bronchi then split into the secondary and tertiary bronchi and then into bronchioles. The bronchioles can control the amount of air moved by dilating or constricting. The bronchioles then become the respiratory bronchioles where the alveoli begin. The alveoli are only 1-2 cells thick, thus facilitating the exchange of oxygen and carbon dioxide.

The respiratory system's physiology is based on two kinds of respiration: pulmonary and cellular. In pulmonary respirations, oxygen and carbon dioxide are exchanged at the alveoli level. Oxygen is brought in through the lungs to the alveoli and carbon dioxide is brought, as waste, from the body through the red blood cells at the capillary level. The carbon dioxide is a waste product from cellular respiration.

The respiratory cycle is initiated when the diaphragm contracts and pulls downwards, thus creating unequal pressure between the lungs and the atmosphere. The chest wall also expands, further increasing the capacity of the lungs. The pressure in the lungs becomes less than the atmospheric pressure and air then moves into the lungs. The lung pressure then matches the atmospheric pressure and the muscles in the chest wall, as well as the diaphragm, relax and thus expel the air from the lungs. The act of inspiration is an active process, while expiration is a passive process.

## Symptoms of Various Respiratory Problems (Exacerbated by Hog Confinements)

The symptoms exhibited by hog confinement workers might include a runny/stuffy nose, chest tightness, shortness of breath, increasing cough and phlegm. Some non-respiratory related

symptoms are headache, fatigue, irritated eyes and flu-like symptoms. A hog confinement worker can exhibit one or all of these symptoms. The severity of these symptoms can be influenced by several pre-existing conditions such as cigarette smoking, length of time at work in a confinement center, as well as the number of hours worked in a day (usually more than two hours a day). Other contributing factors are concentration of dusts and gases, previous existing health problems, such as heart or respiratory problems, or allergies. It is extremely difficult to determine the single cause of these symptoms because of the fact that there are hundreds of dusts and gases in a hog confinement.

Several respiratory problems that can arise from the various conditions in a hog confinement are listed below:

1. **Bronchitis:** is a cough with increased phlegm production. This is the most common of these problems. It can present with wheezing and chest tightness, as well as the aforementioned. Symptoms are more noticeable after days off and are worse among smokers.
2. **Rhinitis:** produces an inflammation of the sinuses. Other symptoms may be headache, stuffy nose, dizziness or feeling like you have a constant cold.
3. **Occupational Asthma:** is presented with chest tightness, shortness of breath and wheezing. Occupational asthma can accompany bronchitis, thus causing more severe symptoms. Normal asthma attacks can be attributed to one type of allergen, but with confinement occupational asthma attacks it is difficult to pinpoint one type. There are many different types of dusts and gases that can combine to cause an attack.
4. **Organic Dust Toxic Syndrome:** is a flu-like illness. Workers may present with headache, cough, fever, muscle aches, and chest tightness with general discomfort. Usually does not require medical attention and will go away in two to three days.
5. **Pulmonary edema:** fluid in the lungs. This occurs when exposed to high levels of hydrogen sulfide that is released during agitation of the manure pit. Exposure to high concentrations of hydrogen sulfide can cause death within seconds. Symptoms are nausea, dizziness, dyspnea, unconsciousness and then death.

### **Identifying the Dusts and Gases Within a Hog Confinement**

In Iowa, 67% of workers in hog confinements become ill from poisonous gases and bacteria in the air. In manure pits, there are 138 gases identified but only a few cause health problems for workers. These gases are as follows:

1. **Hydrogen Sulfide:** the most lethal of these gases. The gas is produced when manure pits are agitated. The inhalation

of this gas can cause death in minutes, or in extreme cases, within seconds. In lower concentrations, it can cause nausea, vomiting, eyes, nose and throat irritation and unconsciousness. In lethal concentrations, it presents with nausea, dizziness, sudden collapse, respiratory difficulty and then respiratory failure.

2. **Carbon Monoxide:** is produced when the manure pit is agitated. Lower levels of concentration produce symptoms such as a headache or fatigue. Mid levels can cause chronic headaches, nausea and impaired mental ability. High levels can cause convulsions, coma and rapid death.
3. **Carbon Dioxide:** is also produced from agitating the manure pit. Lower levels can cause deep and rapid breathing. Mid levels can cause heavy breathing, drowsiness and headaches. High levels can have narcotic effects, unconsciousness and death.
4. **Ammonia:** Low levels produce an irritable smell. Mid levels can cause eye irritation and respiratory problems. High levels can cause headaches, nausea, reduced appetite, and irritation to airways, nose and throat.
5. **Methane:** is potentially explosive and can cause asphyxiation.

Dusts are also found in hog confinements. They are produced when feed is moved and with the handling of the hogs. Dusts are irritating to the respiratory tract and can cause bronchitis. Endotoxin is a bacterial poison in dust and can cause decreased lung efficiency and lead to Organic Dust Toxic Syndrome.

### **Personal Protective Equipment and Safety Precautions**

The respiratory problems mentioned above cannot be eliminated but their severity and occurrences can be reduced in several ways. The first way is through structural engineering of the confinement buildings. The manure storage pits can be placed outside the confinement, either underground or above ground. You must take precautions so that gases don't re-enter the confinement while designing the operation.

Proper ventilation is extremely important. Proper ventilation helps to eliminate the dusts and gases that can cause respiratory illnesses in workers. In certain cases, (such as in the case study), proper ventilation of the manure pit could have saved the worker the night's stay in the hospital as well as the death of his pigs. If a worker finds it necessary to go into the manure pit, they should wear a self-contained breathing apparatus (SCBA), with which they have been trained to use and maintain. Also, the workers should wrap a safety line or harness around themselves so, in case of unconsciousness, other workers standing by can pull them to safety.

*(continued on page 12)*

(continued from page 7)

In order to reduce dust, placement of extended feeders on automatic systems so the feed doesn't fall as far is helpful. Also, placing covers on feeders, adding fat to the feed, and making sure ventilation systems are in good working order are important. Workers could also reduce the amounts inhaled by wearing NIOSH-approved, two-strap disposable respirators or half-face masks with disposable filters. Workers who find it difficult to breathe with the above-mentioned masks can use a powered, air-purifying respirator as well.

### **EMS Response to Hog Confinement Emergencies**

An emergency response to a hog confinement should always be handled with a thorough scene size up before proceeding into the building. Only rescue personnel with proper self-contained breathing apparatus should enter a hog confinement when a worker or workers are down, (livestock as well).

Below-ground manure pit accidents usually produce two to three victims. When a worker goes down, usually there's another worker who tries to help, collapses, and so on. Once the worker is safely removed from the hazardous area, each service should proceed with their own protocols for respiratory emergencies and other complications. In cases that involve hydrogen sulfide, some studies show that nitrates may be beneficial. They can be found in a hospital's cyanide poisoning treatment kit.

### **In Summary**

Workers within a hog confinement are exposed to gases and dusts that may cause several types of respiratory illnesses.

Factors that can increase the affects of the gases and dusts can include the amount of hours worked in a day, years worked at a confinement, whether or not the worker smokes or has a preexisting respiratory problem. The workers can reduce many of the gases and dusts with proper engineering of the confinements and proper use of PPE. EMS should proceed with extreme caution whenever responding to a hog confinement emergency. Remember, you can't treat a patient if you yourself become a patient.

This article written by Tim Springsteen, EMT-PS, and Assistant Ambulance Director at Van Buren County Ambulance of Keosauqua, Iowa.

#### References:

Module 2: upper and lower respiratory tract disorders secondary to work in the hog confinement environment.

<http://www.unmc.edu/ruralhealth/module2.htm>

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Agricultural Core Curriculum Topic: Factors that contribute to Farm Accidents.

<http://www.calaged.org/resourcefiles/curriculum/advcluster/1801.txt>

Swine Confinement and Respiratory Health The Institute of Agricultural Medicine and Occupational Health The University of Iowa

Agricultural Respiratory Hazards Education Series Unit 4 Livestock Confinement Dusts and Gases American Lung Association, Cooperative Extension Iowa State University, The Institute of Agricultural Medicine and Occupational Health at the University of Iowa

## Disaster Preparedness - What do you really know?

It may seem like we have heard tons of stuff on bioterrorism and disaster preparedness in the last few months, but, what have you really heard or what do you really know? Have you attended any really good classes? Have you heard about the strategic stockpile? What is it? Any idea how BIG it is? Do you know what it would be used for? How would Iowa deploy it? How would it affect you locally? Is Iowa prepared? What has happened in the state during the past year to get us ready? What more needs to be done? Are we even close? Want to know? Then attend the Disaster Preparedness pre-conference workshop to be presented by Mary Jones, Division Director for the IDPH Division of Epidemiology, EMS, and Disaster Operations and Jenise Dahlin, Logistics Officer/SNS Coordinator for IDPH. You will get answers to these questions and a much better perspective on our disaster preparedness. You will likely be surprised about what you hear.

This pre-conference workshop will also highlight Dr. Peter Pons speaking on weapons of mass destruction: their recognition and appropriate treatments. Dr Pons' knowledge of EMS topics is vast. He has spoken on this subject as well as on multiple others throughout the country. Dr. Pons will also be joining us for the general conference on Friday.

# Respiratory Effects of a Hog Confinement

## 10-Question Post-Article Quiz

Iowa EMS Association members who achieve an 80% overall score on the following quiz will receive 1.0 informal CEHs through The University of Iowa Health Care's EMS Learning Resources Center of Iowa City, an EMS Training Program, Provider 08.

Name: \_\_\_\_\_

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**First Responder and EMT-Basic answer questions 1-8. Advanced levels answer all 10 questions.**

*Please choose the one, best answer to the following questions and indicate your answer by circling. If you are sending answers via email, please list the letter answer next to the question number: 1-10 and include all above information PLEASE.*

1. Cough with increased phlegm production (bronchitis) in a hog confinement worker:
  - A. is usually more noticeable during a few days off and worsened by smoking.
  - B. always includes pulmonary edema and respiratory failure.
  - C. affects the bronchi, which are part of the upper airway anatomy.
  - D. can be eased by working more hours in the confinement area.

2. Organic Dust Toxic Syndrome:
  - A. is similar to asthma and can accompany bronchitis.
  - B. is an inflammation of the sinuses.
  - C. is a flu-like illness caused by an endotoxin.
  - D. is always due to the presence of ammonia.
3. Some harmful gases emitted when hog manure is agitated in a confinement center are:
  - A. methane, ethylene chloride and botulism.
  - B. hydrogen sulfide, carbon dioxide, and carbon monoxide.
  - C. endotoxins, oxygen, and tetracycline.
  - D. hydrogen sulfide, ethane and nitric oxide.

4. The confinement worker in the article's case study could have prevented his illness by:
  - A. making sure the manure storage pits were in close proximity to the working area of the confinement center.
  - B. working for only 4 hours at a time in the center.
  - C. putting feed covers on the feeders.
  - D. learning how to and then using self-contained breathing apparatus.

The next 4 questions are related to the following case:

Your First Response (non transport) crew is responding to a report of "workers sick" on a farm. You arrive to find a frantic farm owner who reports her family is sick. Three adult-sized males are lying or sitting on the ground outside a hog confinement center. There is no unusual smell apparent. Two of the 3 are awake and complaining of headache. One is lying down and begins to exhibit tonic-clonic seizure activity as you arrive. One man reports that, "one is inside." Additional information is that these patients have been working in the confinement center for about 5 hours.

5. While completing your scene size-up, what resources will be needed?
  - A. Rescue/Fire with SCBA, 2-3 ambulances and a Coroner.
  - B. HAZMAT team, 3-4 ambulances and a Coroner.
  - C. Rescue/Fire with SCBA, and at least 2-3 ambulances.
  - D. DMAT, HAZMAT, OSHA, and Disaster Services.
  
6. While you go to the side of the patient showing seizures, you assign two team members to attend to the conscious patients. What treatment should be started immediately on those 2 conscious individuals?
  - A. 90-100% supplemental oxygen via non-rebreather.
  - B. Positive pressure ventilation with 35% oxygen.
  - C. CPR.
  - D. (You should not touch those two individuals until the HAZMAT team arrives.)
  
- Scene Update: Dispatch informs you that it will be at least 15 minutes before the local Fire Dept. can bring you the SCBA's.
  
7. What equipment should be accessed or what procedures should occur now?
  - A. Look for and pull on the rope tied to the victim left in the building – otherwise, wait for the SCBAs.
  - B. Throw a rope around your youngest rescuer – have him hold his breath as he proceeds into the building and rescues the victim inside.
  - C. Place an oxygen mask on yourself, turn it on and proceed into the building.
  - D. Place your TB mask on, proceed into the building to rescue the victim inside.
  
8. Of the most common harmful gases found in a hog confinement center, which might be implicated with the signs, symptoms and history of the case presented?
  - A. Dust Endotoxins
  - B. Ammonia
  - C. Nitric Oxide
  - D. Carbon Monoxide
  
9. Choose the **correct** answer regarding the act of respiration:
  - A. Inspiration is a passive process, exhalation is an active process.
  - B. The diaphragm moves downward and chest wall muscles outward to initiate inhalation.
  - C. Once the chest wall is made larger on inhalation, the atmospheric air is too high to enter the pulmonary system.
  - D. Cellular respiration creates oxygen as a waste product.
  
10. Occupational Asthma:
  - A. create asthma “attacks” that are usually caused by one allergen.
  - B. may present with chest tightness and wheezing and, if combined with bronchitis, may produce severe symptoms.
  - C. only occurs on the job.
  - D. always stops when the worker stops working in a hog confinement center.

*Please send completed quiz to: Rosemary Adam, RN, EMT-P(S);  
The University of Iowa Health Care, 200 Hawkins Drive,  
EMSLRC South 608 GH, Iowa City, IA 52242-1009.  
Call (319)356-2599 if questions. FAX to: (319)353-7508. Email  
answers with proper identification to: [adamr@uihc.uiowa.edu](mailto:adamr@uihc.uiowa.edu)*

## 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](mailto:iemsa911@netins.net) by the following date: 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.*



## The Top 10 Reasons Why You Should Attend the 2003 IEMSA Conference:

10. You can spend Sunday getting a jump start on Christmas shopping.
9. You need a weekend away from the house or kids.
8. It's a chance to meet and mingle with EMS providers from all across the state.
7. You can get T-shirts and neat stuff from the vendor and exhibit hall.
6. It's "one stop shopping" for all your con ed needs.
5. You'll have a chance to hear all the new information on EMS topics.
4. Baxter's back and Mike's coming too.
3. The dance is a blast!
2. Everybody who is anybody in EMS in Iowa will be there.
1. You need to refresh your EMS spirit.

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