



CENTRAL IOWA EMS DIRECTORS Synergy

Spring 2010

BRIDGING THE
GAP BETWEEN
HOSPITALS
AND EMS

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This edition is sponsored by:

**Polk County Emergency
Management Agency**



Metropolitan Medical Response System (MMRS) Grants Help Build Local Capabilities

by A.J. Mumm, Director, Polk County Emergency Management Agency

The Polk County Emergency Management Agency is governed through a Commission made up of members from each of the cities in Polk County as well as the Board of Supervisors and the Sheriff. The mission of this countywide agency is to serve the public through four areas: 1) building partnerships among local governments, the private sector, and non-profit organizations; 2) enhancing the level of multi-hazard preparedness through planning, training, and exercises; 3) coordinating emergency response to a wide variety of emergencies and disasters; and 4) facilitating the disaster recovery process. The agency is staffed by three full-time employees (Peggy Reelitz, Office Specialist; Jon Davis, Assistant Coordinator, and A.J. Mumm, Director) and a Summer Employee (Olivia Sommerlot).

MMRS Grant Background: The MMRS program is a federal grant program distributed through the U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA) through the Homeland Security Grant Program (HSGP). The MMRS program supports the integration of emergency management, health, and medical systems into a coordinated response to mass casualty incidents (MCI) caused by any hazard. Consequences of MCIs are reduced by augmenting existing local operational capabilities and capacities.

There are 124 MMRS jurisdictions across the United States. The MMRS grant is administered locally by the Polk County Emergency Management Agency guided by the Polk County Multi-disciplinary Group acting as a Steering Committee. A total of over \$1.2 million has been invested in the medical response system in Polk County/Des Moines MMRS area over the past four grant years. The following paragraphs explain some of the projects that have been used to build and enhance these capabilities and capacities in Central Iowa. The specific targeted capabilities that have/are being addressed include: planning, communication, on-site incident management, emergency operations center management, critical resource logistics and distribution, responder safety and health, emergency public safety and security, public information and warning, triage and pre-hospital treatment, medical surge, medical supplies management and distribution, and fatality management. You can find out more

about these capabilities and others in the following document: <http://www.fema.gov/pdf/government/training/tcl.pdf>. Solutions often come in the form of training, exercises, equipment, and planning.

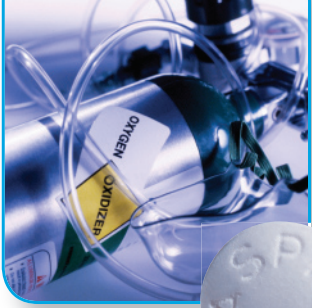
Heat Health Warning System: A system to gather information and recognize indicators of high heat and the impact it has on the population of Central Iowans. The outcome of this investment will allow for locally generated heat threat information and the implementation of appropriate mitigation measures to reduce the impact of extreme temperatures on our local populations. This tool will assist in the opening and operation of cooling center(s) in Polk County.

EOC Enhancements: Improve the capability to provide multi-agency coordinator for incident management by activating and operating an EOC for a pre-planned or no-notice event. This includes: EOC activation, notification, staffing, and deactivation; management, direction, control, and coordination of response and recovery activities; coordination of efforts among neighboring governments at each level and among local, regional, state, and federal EOCs; coordination of public information and warning; and maintenance of the information and communication necessary for coordinating response and recovery activities. The dedicated countywide EOC is expected to open at 1907 Carpenter Ave., Des Moines, during the summer months of 2010 and will include the administrative offices of the Polk County Emergency Management Agency.

Code Red Automated Notification

System: This emergency notification system is capable of making more than 1,000 calls per minute to pre-established call lists or the general public through an internet geographic information system (GIS) interface. It is used to deliver customized emergency messages directly to homes and businesses. Cell phone users and unlisted phone numbers can be registered through the Polk County Emergency Management Agency web site: www.polkcountyiowa.gov/emergency-management/.

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Oxygen, Aspirin, Nitroglycerine and Chest Pain

By Brian Helland, Clive Fire Department

Acute counts of EMS area. The term “acute coronary syndrome” encompasses all patients who suffer symptoms due to a lack of blood flow through a coronary artery creating an ischemic area of heart muscle. These patients account for nearly 40% of our patient population. Thus, it is important to make sure our crews understand the importance and reasons for the administration of our mainstay medications; oxygen, aspirin and nitroglycerine.

Interestingly, oxygen use in cardiac patients has not really been studied. In this era of evidence-based medicine, there are few if any studies that show improved outcome in our cardiac or respiratory patients because we administered oxygen. Our common sense answer is “yes,” based on our current understanding of oxygen demand of myocardial cells. If we have muscle cells that are starved for oxygen, then we should be administering additional oxygen to ensure that our red blood cells are saturated as much as possible.

Should I be administering oxygen to my patient with chest pain if they have a pulse-ox reading of 99%? Once again, our common sense answer is “yes.” Remember, the patient also has the limited ability to dissolve oxygen in plasma as well as attaching it to the hemoglobin of the red blood cells. Plasma oxygen is not measured by a pulse oximeter, and so we don’t know how much additional O₂ we can or should administer. There does seem to be a clear decision by most emergency physicians to titrate oxygen to the comfort level of the patient unless there are obvious signs of hypoxia, such as cardiac arrhythmias, respiratory distress, cyanosis or low pulse-ox readings. The 2005 ACLS guidelines support this, recommending supplemental O₂

coronary syndrome account for a significant number of calls run in our metro service

at 41pm via nasal cannula for uncomplicated AMI.

Aspirin is the only Class I recommendation (highly supported by good science) for the treatment of acute coronary syndromes. Aspirin blocks one of the three mechanisms that platelets use to start clumping together, which is the first step in forming a clot. Other medications also can inhibit platelet aggregation, such as Plavix (clopidogrel) or another class of IV medications known as the glycoprotein IIb/IIIa inhibitors. However, aspirin is the most widely available, cheapest and easiest to administer. Some studies even indicate that aspirin can stop a heart attack in its tracks, preventing muscle damage until further intervention by a physician.

Nitroglycerine is used to treat pain or discomfort due to cardiac ischemia. It is a smooth muscle dilator, and will allow increased blood flow through the cardiac vessels. It also dilates blood vessels throughout the body, decreasing the afterload on the heart, which decreases the amount of oxygen consumption of the heart muscle cells. Remember, nitro can drop blood pressure very quickly, especially in patients who are dehydrated, have decreased right ventricular function (as in right ventricular MI), or those who have taken erectile dysfunction agents.

While nitro is commonly used to “treat pain,” it is not a substitute for narcotic analgesia. Nitro is shown to decrease the mortality associated with AMI. Some protocols advocate the use of nitro as long as the patient is displaying any symptoms of ACS, including dyspnea, nausea, weakness or ST segment elevation / depression on a 12 lead ECG.

These three treatments are the mainstay of ACS treatment for the pre-hospital provider. As with all areas of emergency medicine, it is important for EMS providers at all levels to keep abreast of changes in the treatment of ACS.

MMRS Grants Help Build Local Capabilities Continued from front page.

Hospital Status System: The EMSystems based solution is used by Central Iowa hospitals, EMS, fire departments, communications centers, emergency management, and public health. This system enhances emergency preparedness and response to medical emergencies, mass casualty events, and public health incidents by providing real-time status of hospital emergency department capacity, multi-media alerting, and inventory resource allocation.

First Watch Real Time Early Warning System: This system works with the computer aided dispatch systems to provide situational awareness and data intelligence for early recognition of suspicious criminal patterns or trends, potential terrorist activity, or syndrome surveillance of disease outbreaks. It enables area agencies to proactively monitor indicators of geographic patterns as well as frequency of occurrences that exceed established thresholds.

MCI Plan Revisions and Officer-in-a-Bag: The Central Iowa EMS Directors have taken considerable time over the past year to review and update the Polk County Mass Casualty Incident (MCI) Plan. MMRS funds are expected to be utilized to conduct tabletop and functional exercises as well as updating the equipment in the MCI Officer-in-a-Bag systems deployed across the Metro Area.

Other Potential Projects: Through continued discussion with groups like the Central Iowa EMS Directors, the Metro Emergency Department Directors, the Polk County Multidisciplinary Group, and others, there are a number of potential projects that are emerging. Among those are: mass fatality support trailer updates, automatic CPR units, mobile emergency operations center/command post unit, mobile rehab support unit, and response area study. We encourage everyone to participate through their service’s involvement in these important groups. Our regional cooperation, communication, and collaboration on strategic projects will continue to improve the service to our citizens.

For more information follow us on our Facebook page: www.tinyurl.com/polkema



Protocol Spotlight

Acute Coronary Syndromes



Basic Treatment Guidelines:

Follow initial protocols for all patients.

Advanced Treatment Guidelines:

1. Establish IV access, infuse as patient condition indicates.
2. Administer ASPIRIN 324mg orally if patient has not taken one prior to arrival of EMS.
3. Perform 12 lead ECG and continue to monitor ECG and treat dysrhythmias following appropriate protocol.
 - If inferior ST elevation perform V_{4,5,6} R
 - If consistent with RVMI treat cautiously with NITROGLYCERIN SL; preferably with NITROGLYCERIN infusion 5 mcg/min titrate to effect increasing dose by 5 mcg/min and maintain blood pressure > 90 mm/Hg systolic.
4. Administer NITROGLYCERIN 0.4mg SL (tab or spray) if blood pressure is >90mm/Hg systolic. Initial dose of NITROGLYCERIN may be given synchronous with IV initiation.
5. Without signs of ST abnormalities, repeat NITROGLYCERIN SL every 3-5 minute for a total of 3 doses, as long as blood pressure remains > 90mm/Hg systolic. After 3 doses of NITROGLYCERIN SL consider Nitroglycerin infusion starting at 10 mcg/minute, titrate to effect increasing dose by 5 mcg/min increments and maintain blood pressure > 90 mm/Hg systolic..
6. Initiate NITROGLYCERIN infusion immediately if patient presents with ST abnormalities. Starting at 10mcg/min, titrate to effect increasing dose by 5mcg/min increments and maintain blood pressure > 90 mm/Hg systolic.
7. Following initial dose of NITROGLYCERIN SL and/or initiation of NITROGLYCERIN drip, administer (After December 31st 2007 the use of Morphine will be

stricken from the protocol) FENTANYL CITRATE 25-50 mcg IV initial dose with following doses of 25-50 mcg every 5 minutes for pain control and maintaining blood pressure > 90 mm/Hg systolic. or 200mcg total of FENTANYL CITRATE has been administered

8. In patients presenting with ST abnormalities, administer of METOPROLOL 5 mg IV over 2 minutes provided heart rate >60 and blood pressure > 100 mm/Hg systolic. Repeat every 5 minutes to max dose of 15mg.

Pre-hospital Level one cardiac alert should be called when:

- ST segment elevation is seen in two or more anatomically contiguous leads and onset of symptoms less than 12 hours.
- Left Bundle Branch Blocks = QRS > 120ms with the presence of anginal equivalents (consult with ED physician to initiate review of previous ECGs)

Contact receiving facility medical control and request an ED physician for a Cardiac Alert. Give the physician a report with patient findings who will activate the cardiac alert process.

Special Considerations:

Patients with any of the following chief complaints should be treated as suspected ACS unless other wise ordered.

- Chest pain or pressure in any patient > 25 years of age.
- Syncopal episode in any patient > 25 years of age.
- Unexplained respiratory distress.
- Atypical chest pain (i.e. shoulder, arm or jaw pain) in absence of chest pain, especially in patients having past cardiac history, irregular pulse, diabetes and in the elderly.
- In young adults consider history of cocaine and methamphetamine use.
- Other anginal equivalents.

CREW CORNER

By Katy Hill, EMS Coordinator
Iowa Health Systems

A SEAMLESS TRANSITION: What's on the Emergency Department's WISH LIST?

It's always hard to see things from the other side of the fence. We asked a group of ED nurses what would help ease the transition from the back of the squad to the ED room. Here's what they said:

"We really need to know"

- A short exact report
- A brief description of the complaint
- If you are sending a 12 lead
- What protocol you are utilizing
- Any unusual findings
- Your ETA

(Occasionally, we may ask for the Patient name and DOB so that we can look up previous records and old EKGs or if a specialist is waiting for the patient's arrival)

What the shift leader has to decide after hearing your report:

- What room to assign the patient?
- How many ED staff need to be there to get started?
- Whether to alert the ED physician now or let it play out normally?
- Will they need any special equipment in the room?

Other things that make the transition from Prehospital to Emergency Department go smoother:

- "Please take the patient's arm out of their sleeves before starting the IV"
- "Please put an extension on the IV tubing — Then we don't have to un-tape down to the hub to switch to our hospital tubing"
- "Please leave a copy of your run report and make it as detailed as possible regarding times and specific interventions"
- "Please stop back in the patient room before you leave. So many times, we have additional questions about the transport or the home environment"
- "Please let us know if the patient is a DNR"
- "Please let us know which care facility the patient came from if applicable"
- "Please inform us of family status and their pending arrival"

So, in a nutshell, from all of them to all of you... "Thanks for all you do and let us know how we can help YOU too!"

Meetings/Events

Visit www.ciemsd.org for a full schedule of events, committee meetings, etc.

CIEMSD Regular Meeting

Date:
Monday, July 26th

Location:
Urbandale Fire Department
3927 121st St, Urbandale

Dinner:
18:00

Meeting Time:
18:30 - 20:30



"Chill" — It may be the Hot Thing to do!

By Katy Hill, EMS Coordinator Iowa Health Systems



33-34 degrees Celsius. Patients are usually kept in this chilled state for 12-24 hours, before being "re-warmed" at a stringently controlled rate.

The cooling process is usually achieved by initiating some or all of the following:

- 2 liters of Iced (4 degrees C) Sodium Chloride intravenous fluids over 30 min.
- Ice packs to groin, neck and axillary regions
- Cooling Blankets used to "sandwich" the patient
- Cooling machines, designed to specifically cool and monitor the patients core temperature throughout the procedure, treatment and re-warming phase.
- The patients are medicated throughout the process to treat pain and discomfort, shivering and achieve tight glucose control.

The therapeutic effects of mild hypothermia are far more complex than a simple reduction in oxygen consumption. By reducing ischemia/reperfusion injury, the brain is further protected from the induction of cell necrosis or "cell death." Cooling prevents chemical oxidative stress and the release of excitatory amino acids. As long as the patient is not overcooled, (as this can aggravate the already compromised heart) studies have shown marked improvement in neurological outcome.

Success stories are streaming out of critical care centers everywhere. And many Emergency Medical Services, like that of New York City, are listening. As of January 1, 2009, they will only transport patients that have been resuscitated after cardiac arrest to an emergency department trained and equipped to perform therapeutic hypothermia. Several other cities including Boston, Seattle, and Miami, have similar policies in place, and will not transport to a hospital that does not offer the treatment, even if it is closer.

EMS services and air medical crews are now taking a look at how they can be part of the process, with many choosing to initiate the cooling process in the field, at the point of ROSC. Cold IV fluids can be initiated and cold packs applied while en route to the Emergency Department.

Medical Directors, ER physicians, Cardiologists, and Neurologists are watching research studies closely and EMS will certainly be somewhere in the equation as this COOL change continues to be a Hot Topic!

"CPR IN PROGRESS"

Everyone knows the first question asked after you come back to the squad room following this type of call.

"DID THEY MAKE IT?"

The answer you give can be somewhat deceiving. Often times, the patient does indeed have a Return of Spontaneous Circulation (ROSC). The real question, however, should be "Did they survive and go back to their lives and their families and their jobs?"

It is well known that, over the past decade, substantial efforts have been made to reduce the time needed to restore effective circulation after out-of-hospital cardiac arrest. Despite encouraging progress, victims of out-of-hospital cardiac arrests still experience anoxic brain injury and not uncommonly remain comatose after arrival to the emergency department. It is here, in the clinical setting, that numerous cardiac interventions are initiated and treatments are often aggressive and precise. The "time is muscle" phrase is deeply ingrained within our practice. But we need to think of the brain as an important muscle that needs immediate attention as well! Even after a few short minutes without adequate oxygen, the brain will begin to respond with a cascade of negative effects. This causes the deleterious outcomes on quality of life and return to "pre-arrest" abilities.

Across the nation, and right here in Iowa, post V-Fib arrest patients are being induced into a therapeutic hypothermic state with the goal of cooling the core body temperature to

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