



CENTRAL IOWA EMS DIRECTORS Synergy

Spring 2014

BRIDGING THE
GAP BETWEEN
HOSPITALS
AND EMS

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This edition is sponsored by:



STATE AND HOSPITAL BASED TRAUMA REGISTRY

How Details In EMS Documentation Improve Patient Care

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According to the National Center for Health Statistics, traumatic injury is the leading cause of death in the first four decades of life. Each year, more than 140,000 Americans die and approximately 80,000 are permanently disabled as a result of injury. Loss of productivity and escalating health care costs account for \$100 billion annually.

Hospital-based trauma registries are the source for much of current research and quality improvement efforts. Clinicians and policy makers utilize registry data to enhance the care of injured patients and develop education aimed at trauma prevention. Hospitals statewide are responsible for collecting data for input into the state registry. The task is monumental. For example, at UnityPoint Health – Des Moines, four data specialists comb the records daily to gather details from all trauma patients receiving care at Iowa Methodist Medical Center, Blank Children’s Hospital, Iowa Lutheran Hospital, and Methodist West Hospital. This information is then used for hospital-based quality improvement and research efforts. Data are also de-identified and sent to the National Trauma Data Bank (NTDB) and the Trauma Quality Improvement Program (TQIP) to be aggregated with data from other hospitals. These data, especially at the national level, allow for comparison of quality outcome measures between hospitals and determine where patient care and protocols can be improved.

Registry data includes details from the entire patient experience – injury through hospital discharge. Reliable and legible data leads to better understanding of the injuries and circumstances of the accident.

Beginning in 2014, the trauma registry is required to capture the physiologic and anatomic EMS triage criteria used by hospital personnel to determine the trauma activation level. Prior

to 2014, this data could be gleaned from nursing notes and the description of the hand off report given in the ED. New mandates require that in order to be captured in the registry, data must be recorded on the EMS run sheet – not just verbally reported at handoff. **EMS documenting should include the following pertinent criteria in the run report:**

- Glasgow Coma Scale
- full set of vital signs
- penetrating injuries
- chest wall instability or deformity
- long-bone fracture
- crushed or mangled extremity
- amputation
- pelvic fracture
- open or depressed skull fracture
- paralysis
- if patient is elderly and/or taking anticoagulant medications

Also required- detailed information about the mechanism of injury, such as:

- the height of a fall
- amount of compartment intrusion
- vehicle rate of speed
- death of a passenger in the vehicle

Many of the electronic charting software packages offer trauma data fields to assist EMS in this detailed documentation effort. EMS agencies should take advantage of these charting options to ensure compliance with state guidelines. EMS can also help by promptly submitting patient care reports to the hospital as soon as possible after the incident and responding quickly to requests for information posed by trauma services staff.

The patient care report from EMS is the beginning of the quality improvement process. Working together to ensure a high-quality trauma registry benefits all of us – health care professionals and especially our patients.

Visit us on the web at www.CIEMSD.org

Focus on Trauma

As patients become part of the trauma system in the state of Iowa, there are many factors that help ensure timely transport from the scene of the accident to the nearest appropriate trauma center. It is also important to realize that current research and evidence based "Best Practice" principals are utilized when developing protocols and educational offerings. Protocols are developed and reviewed on a regular basis by medical directors and trauma centers are dedicated to advancing the care and best outcomes of patients.

Iowa Methodist Medical Center is currently the only Level one Trauma center in central Iowa. Focusing on research is one of the defining characteristics for maintaining a Level One Trauma Certification. All trauma residents at IMMC are required to complete a research project and paper presentation.

Below is one such presentation written by Dr. John Welander MD Chief surgical resident IMMC



Over the past several years while investigating tourniquets in the lab, we have seen crews bring patients to our ER with tourniquets placed in the field, some appropriately and a few not. Besides farm machinery incidents, motor vehicle crashes, and other settings involving a limited number of bleeding individuals, we all now realize pre-hospital provider tourniquet knowledge to be especially important in times of mass causality events. (Tourniquets were widely used with the many lower limb injuries in the Boston Marathon bombing and were credited as being lifesaving.) Therefore, we want to help make sure EMS providers have the knowledge they need to choose and use emergency tourniquets effectively. Thanks to the organizers of several continuing education conferences, we have been able to share 5 key points concerning tourniquets with Iowa EMS providers:

- 1) Emergency use tourniquets need to stop arterial flow because just stopping venous flow is harmful.
- 2) Tourniquets are most life saving applied before shock.
- 3) Wider is better for stopping arterial flow with less potentially nerve damaging pressure (adding a second tourniquet beside a first tourniquet is a better strategy than unlimited tightening of a first tourniquet).
- 4) The forearm and lower leg are appropriate tourniquet locations for distal injuries.
- 5) Tourniquets need rechecking.

Besides sharing these concepts, we have been able to allow providers to try out and ask questions about various tourniquets that we know can be effective (blood pressure cuffs, the Combat Application Tourniquet, the Ratcheting Medical Tourniquet, and the Stretch Wrap and Tuck Tourniquet).

The pre-hospital environment can require quick decisions under conditions of high stress. These are not ideal decision making conditions; so having treatment protocols is very useful. Understanding tourniquet concepts and developing a tourniquet protocol before an encounter with severe hemorrhage from a limb injury can decrease provider decision stress, decrease the time needed for appropriate treatment, decrease patient blood loss, and be life saving. If you are interested in more information about tourniquets or in having us come and share our experiences, please email or call our trauma services staff.

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Tourniquets — life saving technology

Wide spread, early and effective use of arterial tourniquets combined with tourniquet training has proven to be lifesaving in recent military encounters. As data has emerged from the latest wars, it has become obvious that avoidance of hemorrhagic shock directly correlates with patient survival and does not necessarily commit the limb to an amputation. This information is different than what I had been taught in my EMT training many years earlier. The development of this data combined with several new tourniquet designs captured my interest, and I wanted to further study and compare the use and application of various tourniquets.

My co-investigators and I collected various comparison data between different styles of tourniquets: the ease and effectiveness of one-handed and two-handed application, light versus dark application, comfort once applied, and pressure required for arterial occlusion...etc. I then traveled to several trauma conferences reporting our experiences and findings, as well as published a few papers in national military medicine journals.

Additional research in trauma care: Permissive hypotension or hypotensive resuscitation

the use of restrictive fluid therapy, specifically in the trauma patient, that increases systemic blood pressure without reaching normotension (normal blood pressures)

In the past, physicians were very aggressive with fluid resuscitation (giving fluids such as normal saline or lactated Ringer's through the vein) to try to bring the blood pressure to normal values. Recent studies have found that there is some benefit to allowing specific patients to experience some degree of hypotension in certain settings. In addition, fluid resuscitation will dilute coagulation factors that help patients form and stabilize a clot, hence making it harder for the body to use its natural mechanisms to stop the bleeding.



Another issue with aggressive fluid resuscitation is the potential for hypothermia if fluids that are stored at room temperature are infused. If these fluids are not warmed prior to infusion (which sometimes time does not permit for), this can result in a significant drop in core body temperature. Hypothermia is associated with many problems including bleeding disorder, organ failure, and hypotension, and is one of the three components in the "Triad of Death" that is feared by all trauma specialists.

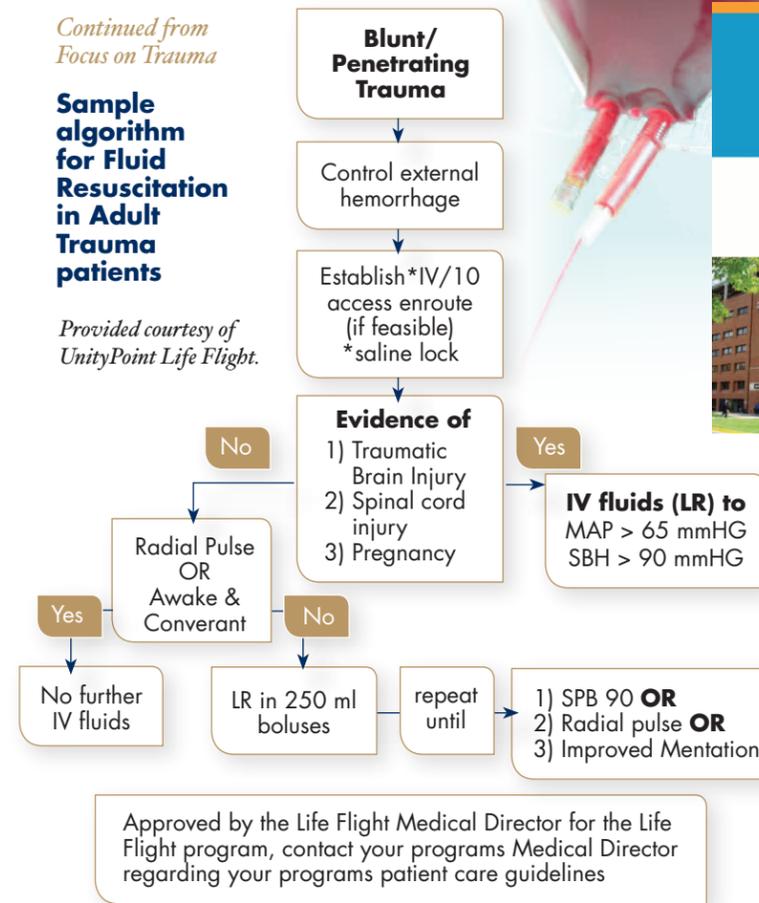
Contraindications for permissive hypotensive resuscitation would include: patients with traumatic brain injuries, preexisting hypertension, severe cardiovascular disease, spinal cord injury and pregnancy.

EMS providers are encouraged to review their departmental protocols for fluid administration with their medical directors. EMS providers must balance the needs of the patients based on their injuries to determine if permissive hypotension is appropriate. It is important to remember that permissive hypotension is a temporizing measure to improve outcomes until the source of bleeding is controlled.

Continued from Focus on Trauma

Sample algorithm for Fluid Resuscitation in Adult Trauma patients

Provided courtesy of UnityPoint Life Flight.



Approved by the Life Flight Medical Director for the Life Flight program, contact your programs Medical Director regarding your programs patient care guidelines

Central Iowa's only...

LEVEL 1
Adult Trauma Center



Iowa Methodist
Medical Center

LEVEL 2
Pediatric Trauma Center



Blank Children's
Hospital

UnityPoint Health
Des Moines

NEW SMART TRIAGE TAG

All Ambulances and hospitals in the Central Iowa Area have now switched to the SMART Triage Tag pictured below. The new tag more easily identifies the priority of the patient and allows you to change that priority without having to obtain a new tag. While the Triage Tag has changed, START and JUMP START continue to be the preferred triage method and can be used with this tag.



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Visit us on the web at
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CENTRAL IOWA EMS DIRECTORS ASSOCIATION

2013 Accomplishments

The goal of the Central Iowa EMS Directors Association is improved pre-hospital care for the sick and injured in our respective communities, and to maintain and improve communication and collaborative efforts between EMS agencies and associated organizations.

With that being said, we had a busy and productive year in 2013!

We assisted several agencies in the purchase of mass casualty triage kits from the SMART triage system. Our goal is for all first line emergency vehicles in our 9 county membership to have a kit available when they arrive on a scene. We have also purchased 2000 additional SMART triage tags for training, along with 200 training keys for use with the online learning system.

Mercy College hosted the Difficult Airway Course. CIEMSD subsidized \$100.00 of tuition for each participant of a member agency. This course is being hosted again on February 20 & 21 this year – please see their website at www.theairwaysite.com to register.

CIEMSD hosted several continuing education courses in conjunction with both health systems. The "Time Critical Diagnoses" series included one session per quarter with a rotating focus on STEMI, stroke and trauma. The annual NREMT Refresher held in January was attended by 126 providers from across

the state. Our Training Committee developed and implemented the Round Table series of leadership offerings, allowing area EMS leaders to work through several management issues.

The Bureau of EMS received a grant from the Paul Coverdell Acute Stroke Registry project for stroke education in Iowa. CIEMSD has been actively involved in the planning and implementation of these educational offerings. We have also worked with VA Des Moines on mass casualty response, diversion status and billing issues in EMS; we have participated in the accreditation process for both major health systems in Des Moines; have secured funds for system development and have worked with the Bureau of EMS in various other projects.

The two most recent initiatives we have started include a Metro STEMI task force and an EMS Data Project. Both of these initiatives will carry us into 2014 with strong involvement of pre-hospital EMS providers in our local healthcare delivery system.

On behalf of the officers of the Central Iowa EMS Directors Association, thank you for your involvement! With your help, we can deliver on our goals.

Sincerely,
Brian Helland
President

Is EMS Ready for Active Shooter Incidents?

If not already on your radar, EMS response to active shooter incidents soon will be.

Across the country, many agencies are being pressed to develop new strategies for dealing with active shooter incidents. Schools are devoting ever-larger amounts of time and money to school security and emergency lockdown or evacuation procedures. After Columbine, Police departments updated their training for responding to reports of active shooters in public buildings.

However, most EMS organizations did little to prepare for a similar event. Are you ready?

Probably first is defining what an active shooter incident is. According to the Federal Bureau of Investigations (FBI) an active shooter is defined as “an individual actively engaged in killing or attempting to kill people in a confined and populated area.” Events in recent weeks have seen active shooter incidents in a school, a movie theater, and a grocery store. Most active shooter incidents involve an individual with at least one (and often more) usually semi-automatic weapon, capable of firing and being reloaded rapidly. You have public buildings with limited points of egress. While not every incident will result in a mass casualty event, all have the potential to become one.

Many schools are adopting a response protocol based in part on the acronym A.L.I.C.E. – Alert, Lockdown, Inform, Counter, Evacuate. The idea is to minimize the window of opportunity for an active shooter by removing or barring access to potential targets as quickly possible. In a school building this may have students rushing to exits in one area while using desks/furniture to block the doorway in others. Responding police units are being trained to no longer wait for highly-trained response teams to assemble and enter, but are being trained to rush the building with immediately available officers.

While active shooter incidents in school garner a lot of national media attention, that isn't the only place events can occur. Churches, malls, movie theaters etc. are prime targets for active shooters. Don't get tunnel vision and think your local school is the only place an active shooter will show up. To help focus on preparing for an active shooter event in your community, identify public spaces which match the types of facilities where these events have taken place – an office complex, a shopping mall?

How does EMS fit into this likely-to-be chaotic scene? Our traditional approach has been to stand-by until the scene is secure. Usually this meant fire and EMS

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“Response to Hostile Situations” SOG

units staging a block or two away until PD summoned us to the scene. At a traditional mass casualty incident, patients are triaged, then collected and a centralized point where they are treated, then transported to regional hospitals. Our goal at an MCI is to triage, treat, and transport patients in under an hour. But how much would this process be delayed if we had to wait for PD to secure the entire building? Even though the shooting is over in less than 10 minutes, it could take an hour or more just to clear the building. Research has shown that for patients suffering from gunshot wounds, delays in transport to a trauma center may be fatal.

I recall an active shooter incident my brother-in-law — a FF/Paramedic in a large urban department — was involved in. He and his partner responded directly into an active shooting incident without staging to treat and rapidly transport a police officer who had been wounded. He and his partner were facing disciplinary charges for their actions — until the department got word they would be receiving medals from the police department. According to the ER physician, their quick actions were directly responsible for saving the officer's life.

One approach being taken by some agencies is to train and equip paramedics as part of initial entry teams. Not to be confused with SWAT medics, EMS units are being outfitted with ballistic shields or Kevlar vests. Personnel are being trained to enter and remove shooting victims rapidly, often using EMS or fire vehicles as shields. In some areas, the second wave of law enforcements is designated as EMS security, providing protection and if necessary cover fire to allow EMS personnel to enter active shooter scenes to remove victims.

PD and FD units are training together to handle these incidents on a more frequent basis. The most common recommendation found from services across the nation that have established S.O.G's and policies along with other professional organizations, is in the creation and establishment of warm and cold zones similar to haz-mat scenes where only certain people can only operate in certain zones based on departmental credentials.

In September, 2013, the US Fire Administration published a paper, Fire/EMS Operational Considerations and Guide for Active Shooter and Mass Casualty Incidents. The paper provides an in-depth discussion about fire and EMS operations and the latest research concerning these types of incidents. In order to maximize survival, critical initial interventions are necessary. The acronym T.H.R.E.A.T - Threat Suppression, Hemorrhage control, Rapid Extrication to Safety, Assessment by medical providers, Transport to definitive care is used to identify those interventions.

Medical studies have repeatedly shown that most life-threatening wounds require rapid surgical intervention, and field interventions (other than bleeding control) have little to no impact on survivability rates. A recent study in Philadelphia found shooting victims transported by the PD had the same survivability rate as shooting victims transport by EMS. Don't overlook the need to coordinate transport. An after-action review of the MCI shooting event at a movie theater in Colorado found less injured patients being transported by PD while more seriously injured patients remained on the scene. It remains up to EMS to coordinate transportation priorities.

No matter which direction your EMS service chooses to put their efforts into, coordination with local law enforcement in the planning and training phases are vital. Active shooter incidents are initially considered to be law enforcement events, and will likely be under their control. Command and control issues need to be addressed before the event. After-action reports on mass-casualty active shooter incidents have all identified this as an area that needs to be addressed. As of this writing there does not exist a universal playbook being utilized by law enforcement agencies in central Iowa. It is up to each department how they will handle these events, and how EMS will fit into that plan.

So the question still remains – is your department ready for an active shooter incident? How do you start to prepare? Conducting research using some of the items identified above is a good start. Contacting your local law enforcement and seeing what they have put in place. Another great and free resource is the “Tactical Combat Casualty Care Guidelines” produced 17 Sept 2012 by the U.S Defense Health Board. Contact EMS agencies in your area to see what plans they have begun to work on. Like other EMS efforts CIEMS has been involved in, a standardized approach using shared resources is likely to produce the best outcome.