By Will Humble, ADHS Director

Over the past three years I have focused many resources within the Bureau of EMS and Trauma System on the continued development of our trauma system. By working with our strong partners — Level I trauma centers, the State Trauma Advisory Board (STAB) and the Center for Rural Health at the University of Arizona — we have made great progress.

Highlights include:

- Designation of 15 rural hospitals within the trauma system as Level IV trauma centers;
- Creation of an on-line EMS Medical Director’s training course;
- Offering quality improvement and trauma managers training;
- Partnering with the Center for Rural Health to Supporting Critical Access Hospitals;
- Creation of a “Road Show” highlighting the social and financial benefits of trauma center designation for rural hospitals;
- Formation of a workgroup to assist level IV trauma center registrars in improving the quality of their data collection efforts;
- Improvement in the quality of trauma registry data through Inter-Rater-Reliability testing;
- Creation and sharing of validated benchmarking reports on trauma survival based on landmark studies augmented with body-region specificity.

Over the next few months we will launch a state-of-the-art EMS Registry that we are offering free of charge to every EMS/fire agency, ambulance service, and emergency department in the state. And with our partners at the University of Arizona, we are launching a landmark traumatic brain injury education initiative with EMS providers. Finally, in the coming year we will be adding medical examiner and trauma data from the two Las Vegas trauma centers that receive Arizona trauma patients to the Arizona State Trauma Registry.

Our trauma system is entering transition period, making this a good time to re-visit the 2007 report by the American College of Surgeons – Trauma System Consultation (ACS-TSC) team. Also, performing a system-wide assessment using the Benchmarks, Indicators and Scoring (BIS) tool from the Model Trauma System Planning and Evaluation document from the Department of Health and Human Services would be a good idea.

I will be asking STAB to review the existing State Trauma System Plan and, (based upon the BIS and the ACS-TSC recommendations), update the Plan. I hope that this process can be completed and approved by STAB and submitted to me by next October. The updated Plan will provide important direction for future system enhancements as we continue to improve trauma care for all Arizonans for the next several years.
Many of you have been following the efforts to update our EMT Certification Legislation in response to the changes at the national level. A primary focus of the efforts has been around an effort to add an alternative initial certification pathway for EMTs and remove specific references to the National Registry of EMTs. The Director’s Office at the Department of Health has been working with stakeholders to develop consensus language to meet everyone’s needs and we are hopeful that our stakeholders will get a bill before the Legislature this session.

The proposed language clarifies that an alternative pathway must meet the education content of the National Education Standards and the testing process would be equivalent to that currently available through the National Registry of EMTs. It would also require that the test be validated. It calls for the EMS Council and Medical Direction Commission to recommend any new certification pathways to the Director after evaluating them to ensure that these criteria are met. The proposed language also removes specific references to the National Registry of EMTs.

Additionally, the proposed language will need to ensure that the remaining EMT-I 99s (about 40) may either be grandfathered in at their current level or allowed to transition to another level. Also, consideration of a new level of EMT – the Advanced EMT – may be approved in the proposed language.

We encourage you to work with your representative to the Arizona Fire Fighter’s Association, Arizona Fire District’s Association and the Arizona Ambulance Association to review the proposed language and provide comments.

AZ’s Central Region most densely populated and highest trauma volume, but lowest trauma rate per 100,000 residence compared to other regions.
In the last issue of Pulse we reported that the vendor who will provide Arizona’s first statewide electronic patient reporting (ePCR) system would be selected in January 2011. The selected vendor is ImageTrend, a nationally established company based in Lakeville, Minnesota, that develops National EMS Information System (NEMSIS) Gold-compliant ePCR software.

Implementation of the Arizona Prehospital Information and EMS Registry System (AZ-PIERS) included the Arizona Department of Health Services (ADHS) purchasing the ImageTrend StateBridge and FieldBridge applications, along with annual maintenance and support. The software licenses were purchased for just under $390,000 as enterprise license agreements. This enables Arizona EMS agencies to download the software onto as many portable and desktop computers required to implement a versatile, NEMSIS-compliant, ePCR system. The enterprise license secured by ADHS makes it possible for Arizona EMS agencies to obtain world-class ePCR software free of charge, and thus freeing funds to support other agency needs or expand existing services.

AZ-PIERS is the final component of the Premier EMS Agency Program (PEAP), a quality improvement initiative facilitating regionalized care along the EMS and Trauma care continuum. The continuum’s prehospital component is facilitated by EMS agencies generating and transmitting ePCRs in the field or en route to a hospital. The hospital component is facilitated by the AZ-PIERS Hospital Dashboard, enabling emergency department (ED) personnel to receive, view, print and save ePCRs and pdf copies of 12-lead EKG records generated in the field.

As of November 14, 2011, the following EMS agencies and hospitals use the ImageTrend software and participate in AZ-PIERS: Avondale Fire-Rescue, Bullhead City Fire Department, Clarkdale Fire District, Cottonwood Fire District, Holbrook EMS, Kingman Fire Department, Lake Havasu City Fire Department, Montezuma-Rimrock Fire District, Flagstaff Medical Center, Havasu Regional Medical Center, Scottsdale Healthcare – Osborn, St. Joseph’s Hospital and Medical Center, Verde Valley Ambulance Service, Verde Valley Fire Department, University of Arizona Medical Center – University Campus in Tucson, and Verde Valley Medical Center – Cottonwood.

AZ-PIERS will integrate data with the Arizona State Trauma Registry that will increase the percentage or trauma records with complete prehospital data, link traffic-related crash data with prehospital and trauma data, integrate data with the STEMI database and the Out-of-Hospital Cardiac Arrest (SHARE) database. As AZ-PIERS progresses with more participating EMS agencies and hospitals it is hoped that prehospital data on Traumatic Brain Injury (TBI) will be integrated with the Excellence in Prehospital Injury Care (EPIC) collaborative project between ADHS and the University of Arizona and statewide EMS agencies and hospitals.

Any Arizona EMS agency and hospital can participate in AZ-PIERS. Those EMS agencies without an existing ePCR system can obtain the ImageTrend software free of charge by submitting an application to the BEMSTS. Those EMS agencies with existing ePCR software can participate by having their ePCR software vendor establish an API through ImageTrend, making it possible for NEMSIS Gold-compliant software system to submit ePCR data to the State server and making their ePCRs available to hospital EDs participating in AZ-PIERS. Hospital EDs need only submit an application to access the Hospital Dashboard application.

For more information on participating in AZ-PIERS, including obtaining an application, please contact Dr. David James Harden, BEMSTS Data and Quality Assurance Section Chief, at hardend@azdhs.gov or 602-364-3188.
In 2010 Arizona’s Western Region had the highest percent of Motor Vehicle Traffic-Related Trauma (MVT) compared to the other regions.
AZ’s 2010 Trauma Registry identified MTV-related trauma as the most common mechanism of injury (41.2%) with a case mortality rate of 2.63%.

By Anne Vossbrink, MS

The Bureau’s September 2011 Quarterly Trauma Report produced for Level I trauma centers provided statistically significant outcome information about trauma patients treated at all Level I trauma centers in the State of Arizona.

Two separate statistical analysis methods were used: The Z-statistic and the Barell Matrix (BM) in conjunction with Survival Risk Ratios (SRR). These allowed for the evaluation of trauma mortality outcomes and the examination of trauma survival and the trauma system from different perspectives.

The Z-statistic, as described in the Major Trauma Outcome Study (MTOS), measured performance by comparing expected mortality to actual mortality based on data from Level I trauma centers. To do this, three interrelated statistics were calculated: an M-score was calculated to ensure the case mix being examined closely matches the case mix of the MTOS used to calculate the expected mortality; a Z-statistic was calculated to determine if the difference between the actual and expected number of deaths is statistically significant, and a W-score was calculated comparing the actual number of survivors to the expected number of survivors. A positive W-score indicated that more trauma patients survived than was expected.

For the purposes of this analysis the trauma patients were divided into three groups: Adult Patients with penetrating trauma injuries, Adult Patients with blunt trauma injuries, Pediatric Patients (< 15 years old). The second method used the BM in conjunction with SRR. The BM organized injury frequency by body region and injury nature, and the SRR compared total number of trauma cases to discharged (surviving) cases. The closer the SRR was to 1, the greater the likelihood of survival.

The results from the Z-statistic analysis showed that all Level I trauma centers had a higher than expected survival in the Adult patient blunt injury group, three Level I trauma centers had significantly higher than expected survival in the Adult patient penetrating injury group, while only two Level I trauma centers had a higher than expected survival in the pediatric patient group. The Barell Matrix (BM) in conjunction with Survival Risk Ratios (SRR) measured relative performance by organizing injuries by body region and nature of injury and used SRRs to compare traumatic injury survivors to the total number of trauma cases. Additionally, this BM with SRR method of examining trauma care allowed for further detailed inspection of which nature of injury categories had the lowest relative survival and which had the highest relative survival, while still allowing a comparison at both the hospital level and statewide. Focusing on identifying differences in trauma outcomes for specific injuries may further assist in understanding the strengths and weaknesses of the systems, both at a statewide level and at the hospital level.


1 MEASURING TRAUMA OUTCOME USING THE Z SCORE STATISTIC

STATUTORY COMMITTEES - 2012 CALENDAR

<table>
<thead>
<tr>
<th>MEETING</th>
<th>TIME</th>
<th>DATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Trauma Advisory Board</td>
<td>9:00 AM</td>
<td>January 19, April 19, September 20</td>
</tr>
<tr>
<td>Medical Direction Commission</td>
<td>10:30 AM</td>
<td>January 19, April 19, September 20</td>
</tr>
<tr>
<td>Emergency Medical Services Council</td>
<td>11:30 AM</td>
<td>January 19, April 19, September 20</td>
</tr>
<tr>
<td>Trauma &amp; EMS Performance Improvement (TEPI)</td>
<td>9:00 AM</td>
<td>February 2, May 24, November 15</td>
</tr>
<tr>
<td>Education Committee</td>
<td>10:30 AM</td>
<td>February 2, May 24, November 15</td>
</tr>
<tr>
<td>Protocols, Medications &amp; Devices Committee</td>
<td>12:00 PM</td>
<td>February 2, May 24, November 15</td>
</tr>
<tr>
<td>Rules Committee</td>
<td>10:00 AM</td>
<td>November 15</td>
</tr>
</tbody>
</table>

All meeting are held in the 150 N. 18th Ave, Building 5th Floor conference room 540A.
The ADHS Rule Moratorium has been extended until June 30, 2012

AZ’s 2010 Trauma Registry identified MTV-related trauma as the most common mechanism of injury (41.2%) with a case mortality rate of 2.63%.
The Pulse

By Joel Bunis, MBA

In 2004 the Bureau of Public Health Emergency Preparedness (BPHEP) was established within the Arizona Department of Health Services (ADHS) to guide statewide planning and enable local health departments to plan for and respond to public health emergencies. The BPHEP obtains federal funding through a cooperative agreement with the CDC for Public Health Emergency Preparedness (PHEP), as well as through the Department of Health and Human Services Hospital Preparedness Program (HPP) grant. To satisfy the terms of the agreements/grants, BPHEP partners with all 15 County Local Health Departments, 12 Tribal Nations, and 82 hospitals and clinics throughout the state. These partnerships serve to better prepare the public healthcare system to plan and work together effectively to be prepared and able to respond to public health emergencies.

BPHEP collaborates with hospitals and public health entities to develop preparedness training for health care professionals. The BPHEP also conducts discussion-based tabletop exercises as well as functional and full-scale exercises which test the plans developed as a result of the grant. Trainings and exercises are designed according to grant guidance and the needs of the numerous ADHS stakeholders to collaborate and execute a planned response.

On November 3-6, 2011, the BPHEP, in collaboration with its community and governmental partners, participated in just such an exercise to test Arizona’s response plans and capabilities in responding to an improvised nuclear device being detonated in downtown Phoenix. This exercise was the largest of its kind in the state and was designed to test the integration of federal response assets (Disaster Medical Assistance Teams, the National Guard and the Army) with the resources available within the state. The exercise included participation from all grant-funded hospitals in Arizona as well as all 15 Local Health Departments. Each hospital successfully deployed their decontamination equipment and simulated decontaminating exposed patients, many of whom wore make-up to make their injuries more realistic. The value of exercises such as this is to show how Arizona’s healthcare system would function in a real emergency situation of this magnitude.

One BPHEP program is the Arizona Emergency System for the Advance Registration of Volunteer Health Professionals (AZ-ESAR-VHP). AZ-ESAR-VHP is a secure, Web-based system used to register, qualify and credential Arizona health care professionals before a major public health or medical emergency. The advance registration of volunteer health professionals enables ADHS, local health departments and emergency management to rapidly identify and mobilize health care volunteers. The system also enables hospitals and other medical entities to meet crisis and surge capacity needs and ensure the continuance of critical health care services. AZ-ESAR-VHP is administered by ADHS/BPHEP and provided through EMCredential. ADHS is seeking health care professionals who are willing to volunteer in the event of a large-scale public health or medical emergency. For more information on AZ-ESAR-VHP and how you can register as a volunteer, contact the State Health Volunteer Coordinator at esar-vhp@siren.az.gov or (602) 364-3318.

For more information on BPHEP and all of its programs and services, please call (602) 542-3289 or click http://www.azdhs.gov/phs/edc/edrp/#.

The Arizona Emergency Information Network is the state's online source for real-time emergency updates, preparedness and hazard information, and multimedia resources.

The Pulse

Arizona Influenza Pandemic Response Plan

The State’s Pandemic Influenza Response Plan promotes an effective response during an influenza pandemic by agencies and organizations working to ensure an effective overall

Just in case arizona

Knowing what to do in advance of emergencies, how to make an emergency kit, and staying informed can mean the difference between life and death

AZ’s 2010 Trauma Registry identified Firearms mechanism of injury represented the highest rate case mortality (15.2%).
EMT BRIDGE COURSES

By Douglas Crunk BS, NREMT – P

Periodically EMT educations standards are revised to ensure education keeps pace with what EMTs practice in the field. The last time this occurred was in the 1990s, and the process was pretty simple. Instead of taking a refresher course during their certification period, EMTs took a “bridge course.” Another education standards revision is approaching and, except for one change, we will use the same process this time around. The one change is that new names of EMTs will be introduced.

<table>
<thead>
<tr>
<th>Old Name</th>
<th>New Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMT-Basic</td>
<td>EMT</td>
</tr>
<tr>
<td>EMT-Paramedic</td>
<td>Paramedic</td>
</tr>
</tbody>
</table>

What do I need to do?

At this point, nothing. Over the next year, the Education Standing Committee will identify the bridge requirements so that training programs can develop their course offerings. This will happen in PLENTY OF TIME and no additional training hours will be required for the EMT-B to EMT or EMT-P to Paramedic bridge course. Here is the tentative time frame:

<table>
<thead>
<tr>
<th>CERTIFICATION LEVEL</th>
<th>TIME FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMT-B to EMT</td>
<td>2015/2016 – Hours equivalent to one refresher course</td>
</tr>
<tr>
<td>EMT-I 99 to Paramedic</td>
<td>2017 – Similar to the existing I-99 to EMT-P transition course already in place in AZ</td>
</tr>
<tr>
<td>EMT-I 99 to AEMT</td>
<td>Assuming that AZ adopts this level, there would be no transition required</td>
</tr>
<tr>
<td>EMT-P to Paramedic</td>
<td>2015/2016 – Hours equivalent to one refresher course</td>
</tr>
</tbody>
</table>

We will send out updates via E-mail and also post them to our website (www.azdhs.gov/bems). In the meantime, please contact Douglas Crunk, Education and Training Manager at crunkd@azdhs.gov or (602) 364-3189 if you have any questions.

EXCELLENCE IN PREHOSPITAL INJURY CARE (EPIC) TBI PROGRAM

Dan Spaite, MD & Ben Bobrow, MD

EPIC Project educators will train Arizona prehospital providers on the latest nationally-vetted Traumatic Brain Injury (TBI) guidelines and the EPIC data team will assist with TBI data collection. EPIC, a five-year project, is a large, prospective, historically controlled, observational study. EMS records of severe TBI victims taken to Trauma Centers, both prior to and after implementation of evidence-based TBI treatment guidelines, will be compared for changes in mortality, ICU/hospital length of stay, and other outcomes. Key quality of care information will be given to participating agencies to assist in their on-going internal QI program to impact TBI outcomes.

About 1.4 million people suffer TBI each year; 235,000 are hospitalized; 50,000 die; and 5.3 million Americans (2%) require long term assistance with daily activities. There is growing evidence that the management of TBI in the early minutes after injury profoundly impacts outcome. EMS operates in the ultra-acute setting, usually providing the first care for TBI victims when treatment matters most. Reports on implementation of evidence-based TBI treatment guidelines inside the hospital are very promising. However, no studies to date have evaluated their impact in the prehospital setting. Arizona EMS agencies have already proven their ability to dramatically improve cardiac arrest survival and, thus, Arizona was selected by the National Institutes of Health to do the same with TBI. To participate simply provide your agency's contact person and we will work with them to implement data collection and education on the treatment changes that will optimize TBI care and patient outcomes in your EMS system. For more information, please contact Bruce Barnhart, RN at bbarnhart@aemrc.arizona.edu or 602-827-2140.
RESOURCES

FOR YOUR INFORMATION

FACTSHEETS & RESOURCES:
- Thanksgiving Week 2011 Factsheet
- Seasonal and Other Factsheets
- PULSE Newsletter Issues

THE PULSE NEWSLETTER:
The PULSE Newsletter is published by the Data and Quality Assurance (DQA) Section of the Bureau of EMS and Trauma System. To be added to or stay on the PULSE Newsletter mailing list send your email address to David Harden hardend@azdhs.gov.

Suggestions on article topics are welcome and can be submitted to David Harden at: hardend@azdhs.gov.

RESOURCES

RELATED WEBSITES:
- Arizona Ambulance Association (AzAA)
- American Ambulance Association (AAA)
- American College of Surgeon (ACS)
- Arizona Department of Health Services
- Arizona Public Health Association (AZPHA)
- Emergency Medical Services for Children (EMS-C)
- Federal Emergency Management Agency (FEMA)
- National Association of State EMS Officials (NASEMSO)
- National Highway Traffic Safety Administration (NHTSA)
- National Registry of Emergency Medical Technicians (NREMT)
- National SAFE KIDS Campaign
- Save Hearts in Arizona Registry and Education (SHARE)

EMS REGIONAL COUNCILS:
- Arizona Emergency Medical Systems (AEMS)
- Northern Arizona Emergency Medical (Systems NAEMS)
- Southeastern Arizona EMS Council (SAEMS)
- Western Arizona Council of EMS (WACEMS)

USEFUL TOOLS:
- AZ Guidelines for Field Triage Pocket-Card