



ON THE SCENE

Covering EMS in Colorado

Durango Fire and Rescue on Safer Ambulance Culture

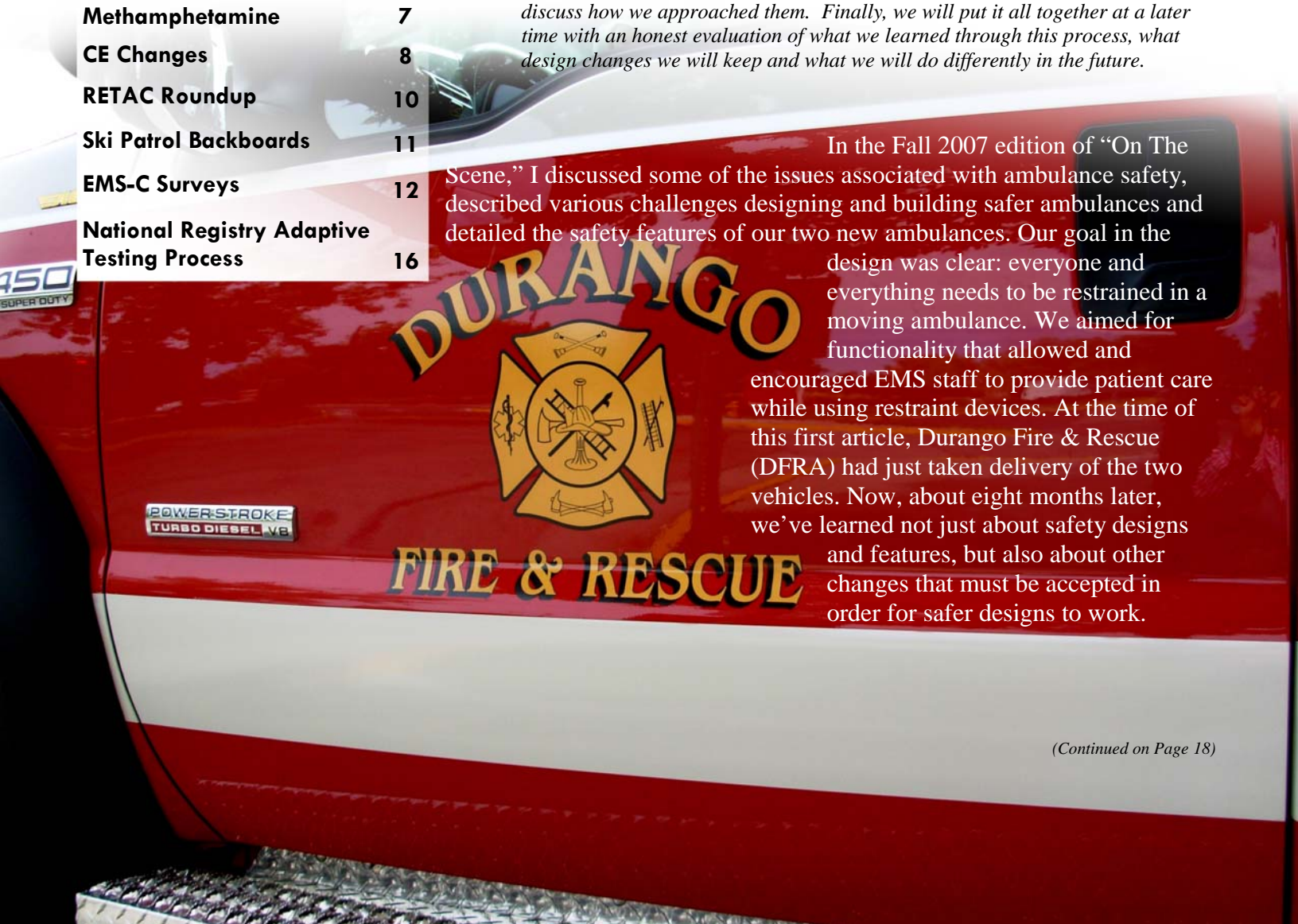
Part 2

by Scott Sholes, EMS chief, Durango Fire & Rescue

This is the second of a three-part series looking at Durango Fire & Rescue’s experience in building safer ambulances. Part One (Fall 2007) examined the issue of ambulance design safety and illustrated some of the common challenges in making a safer design a reality. This second part will examine the cultural and personnel “change” issues involved with deploying these new ambulances and discuss how we approached them. Finally, we will put it all together at a later time with an honest evaluation of what we learned through this process, what design changes we will keep and what we will do differently in the future.

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In the Fall 2007 edition of “On The Scene,” I discussed some of the issues associated with ambulance safety, described various challenges designing and building safer ambulances and detailed the safety features of our two new ambulances. Our goal in the design was clear: everyone and everything needs to be restrained in a moving ambulance. We aimed for functionality that allowed and encouraged EMS staff to provide patient care while using restraint devices. At the time of this first article, Durango Fire & Rescue (DFRA) had just taken delivery of the two vehicles. Now, about eight months later, we’ve learned not just about safety designs and features, but also about other changes that must be accepted in order for safer designs to work.



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Section Chief's Corner

Colorado's Trauma Care System



by D. Randy Kuykendall, EMTS section chief



Of the many duties and responsibilities of the Colorado Department of Public Health and Environment, none is of more significance than that of supporting and maintaining our statewide trauma care system. Although trauma is but one component of the overall health care system our citizens enjoy, it's the one that has the most potential impact on the lives of our otherwise healthy constituents. Unlike many chronic disease processes, traumatic injury does not respect age, gender, economic status or any other human demographic. Since 1995, Colorado has taken on the challenge of creating a trauma care system that is responsible for "getting the right patient to the right facility at the right time." Although this process hasn't always been easy, nor does everyone ever fully agree with some of the technical decisions that have been made, current evidence supports the notion that Colorado's trauma care system works and that it has been effective in our collective efforts to reduce mortality and morbidity from this "disease of modern society."

The reason trauma is the subject of this quarter's article is to recognize the significant energy and effort that has been put forth in the continued development of the Colorado trauma care system over the past few years. One of the most significant milestones is the recent completion of new draft rules governing the designation of Level I and Level II trauma centers. As the facilities responsible for providing the most advanced trauma care in our state, Colorado's 14 Level I and Level II trauma centers are the core resources and leaders ensuring that the most critically injured patients have every reasonable chance of not only survival but also of rehabilitation and return to productive lives.

Given the complexity and high stakes involved in developing statewide standards for these facilities, the work group that took on this challenge was faced with many important decisions that balance the realities of providing advanced medical care in Colorado against accepted national standards and expectations. The rule development task force for this project was made up of the 14 trauma directors, or their designees, along with numerous interested individuals and department personnel. The first meeting of this group was held in January 2006, with the group meeting every month through April 2008. This gargantuan task involved the complete revision of the designation criteria for all Level I and Level II trauma centers in Colorado, using the recently updated standards of the American College of Surgeons (the green book) as the basis of minimum requirements. Although it took more than two years and a tremendous amount of discussion, consideration and sometimes compromise, the final product is a set of rules that meet the most current trauma center designation standards of the American College of Surgeons and expand on these standards to meet the specific needs of patients in our state.

At this point, the draft rules have been preliminarily approved by the Facilities Committee of the Statewide Emergency Medical and Trauma Services Advisory Council (SEMTAC) and will be considered for final recommendation by that body at its quarterly meeting on July 10, 2008. Once this recommendation is

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Section Chief's Corner

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finalized, the proposed rules will be considered by the Colorado Board of Health for promulgation at the October 2008 meeting of that body. During the interim, the Board of Health will solicit input from the public in making its final decision. If this timeline holds, we anticipate that these new rules will become effective by the beginning of 2009.

It's important to recognize the ongoing efforts of not only our Level I and II trauma centers, but also of the other 54 designated trauma centers each of which put a tremendous amount of time and energy into maintaining this vital medical care system. Colorado's Level III, IV and V trauma centers provide care on a daily basis to victims of injuries, ensuring that patients are ultimately cared for by qualified physicians and nurses. They commit to vigorous quality improvement to ensure that patients are getting the best quality care with the resources available. They provide training for personnel both within and outside their institutions, and they work with their communities, both large and small, to prevent injury and minimize the disability caused by injury.

Yet another integral component of the trauma system encompasses both ground and air transportation by which each of our state's trauma facilities ensure that "the right patients get to the right facility at the right time." Both prehospital and interfacility transport of trauma patients provide unique challenges to EMS providers and facilities alike. Without the collaborative effort between our facility-based and EMS providers, we could not enjoy the improved outcomes that have become the expectation of care in our state.

Finally, I would suggest that this process of developing new rules, as arduous and sometimes difficult as it is, has resulted in a new policy standard from which our emergency medical and trauma services system can continue to develop and become yet more comprehensive and integrated. It has allowed staff the opportunity to work closely with the providers whose concern is, first and foremost, to meet patient needs in the context of a diverse state such as ours. Debates will continue as medicine and technology change as to whether Colorado's trauma system meets all of the commonly accepted standards of a "model trauma system." Although national standards and expectations are important and must be respected, I would suggest that the most important standard to meet is that of our patients in Colorado. Let's hope we can collectively remember that quality care at the bedside is the most important standard of all.

D. Randy Kuykendall, MLS, NREMT-P, is the chief of the Emergency Medical and Trauma Services Section and can be reached at randy.kuykendall@state.co.us.

A Team in Touch Communication with Dr. K



by Dr. Arthur Kanowitz, EMTS medical director

I am honored to have been chosen for the position of Colorado's Emergency Medical and Trauma Services Medical Director. Thank you for giving me this opportunity to contribute to the advancement of Colorado EMS and trauma.

William Foster wrote: "Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives." As Colorado's emergency medical and trauma services medical director, my role is to be a champion for the ongoing advancement of EMTS in Colorado and the delivery of quality patient care in the out-of-hospital setting. This is best accomplished, not as an individual, but through the team effort of many individuals who care deeply about EMS and the citizens we serve. I will try, alongside the EMTS Section Chief Randy Kuykendall, to provide the leadership necessary for that team to flourish.

For our Colorado EMTS team to be successful, we must be able to communicate effectively. The "On the Scene" Newsletter is an important tool for the Emergency Medical and Trauma Services Section to communicate with Colorado's EMS and trauma providers. My quarterly column, "A Team in Touch" will allow me to communicate some important topics. However, for communication to be effective it must be a two-way proposition. Several avenues are available for you to communicate directly with me when you have a question or an issue you need to discuss. The best method is by e-mail: arthur.kanowitz@state.co.us. You can try to reach me at my Colorado Department of Public Health and Environment office at (303) 692-2984, but I plan to be out in the field more often than in the office so please leave me a message. I also plan to make five road trips each year to the rural areas of Colorado, to meet personally with the medical directors and EMS providers throughout the state. I want to address your concerns through problem-solving and support. Together, as a team, we will improve the quality of care provided throughout the state of Colorado.

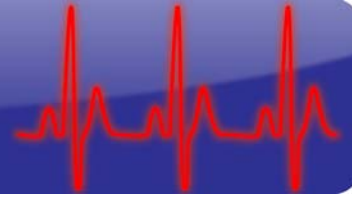
One of my priorities is to ensure that all Colorado EMS system medical directors have the tools they need to provide quality medical oversight and hold them accountable for their responsibilities. I plan to meet with as many medical directors throughout the state as I can, listen to their needs, and share any expertise or EMS education and quality management tools available. At the same time, I will encourage the formation of regional groups of medical directors for the purpose of sharing ideas, protocols, practice concepts and educational programs that are pertinent to their local needs. I have seen the value, through the Denver EMS Medical Director's Group, of networking with colleagues rather than "going it alone" and believe that concept will work at local levels throughout the state.

I believe EMS medical directors should be involved in both the education and medical oversight of their agency and not function solely as a figurehead and signature. A second priority of mine is to ensure that all medical directors will be actively involved in their agencies' education, medical oversight and quality management.

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A Team in Touch

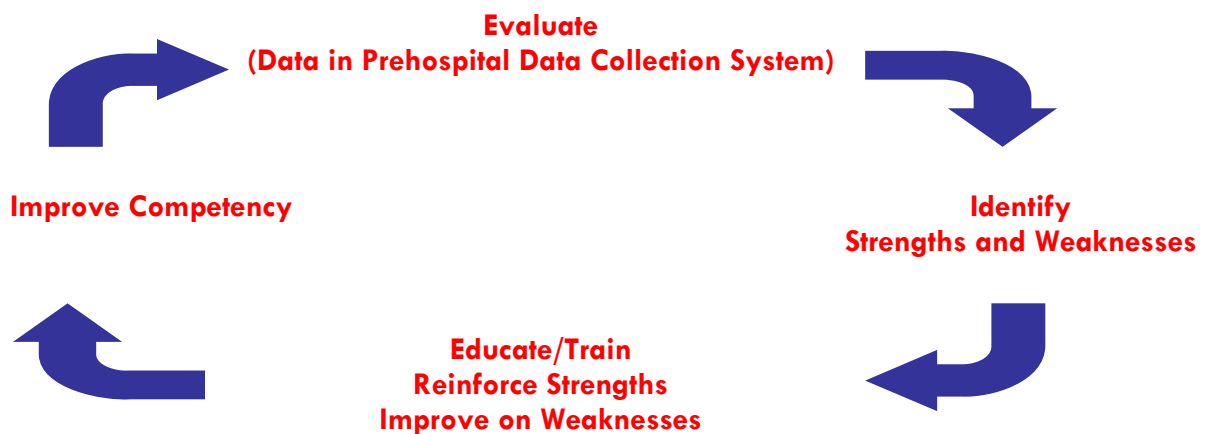
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It is important for the EMTS medical director to provide as much support to EMS medical directors as possible, early in their career. I will regularly update and present a Medical Directors Course and Practicum that will provide a firm foundation for EMS medical directors.

Data-driven quality management is important. Statistics currently being collected by the Emergency Medical and Trauma Services Section can be applied to the quality management cycle, so that meaningful improvements in delivery of prehospital patient care will evolve, resulting in improved patient outcomes.



I would like to define state benchmarks based on a series of key data points collected from Colorado and publish that information to agencies throughout the state. That information will assist agencies in developing education and training programs in relation to the state benchmarks. Agencies would be recognized for exceeding benchmarks or showing significant improvement in performance.

Winston Churchill said: “Every day you may make progress. Every step may be fruitful. Yet there will stretch out before you an ever-lengthening, ever-ascending, ever-improving path. You know you will never get to the end of the journey. But this, so far from discouraging, only adds to the joy and glory of the climb.”

I hope that, along with the EMS medical directors and EMS providers of Colorado, I can contribute to the climb.

Arthur Kanowitz, MD FACEP, is the EMTS medical director and can be reached at arthur.kanowitz@state.co.us.

Improving Roadway Safety Colorado's Strategic Plan

by Marcee Allen, safety and traffic engineer, Federal Highway Administration

In Colorado, we have witnessed a significant decrease in the number of fatalities and injuries due to motor vehicle crashes. It is our mission to continue this downward trend as Colorado continues to be one of the fastest-growing states in the nation. As the state grows, the need for an efficient and safe transportation system necessitates coordination and planning at all levels of government.

October 1, 2006, marked an unprecedented step in roadway safety planning in Colorado with the release of the inaugural Colorado Strategic Plan for Improving Roadway Safety (SPIRS). The Colorado Department of Transportation (CDOT) is the champion of this statewide plan. It is a data-driven planning document that integrates safety planning efforts of safety stakeholders into one document and serves as a tool for future planning efforts across the state. The SPIRS will be updated every three years to ensure that the most current crash data available is driving the identification of focus areas and strategic actions to be taken to maximize safety on our roadways. The SPIRS is a statewide collaborative effort with safety stakeholders who play an integral part in contributing to its development and implementation. Our SPIRS goes beyond the traditional engineering solutions. It focuses on the "four Es" of roadway safety: education, enforcement, engineering and emergency medical services. These roadway safety priorities have been further refined into the following 18 focus areas. The SPIRS brings together all of the focus areas as a comprehensive plan to address roadway safety in the state and includes both strategic and action elements.

Focus areas

Locations With Potential for Crash Reduction	Rockfall	Railroad Crossings
Traffic Crash Data Systems	Access Management	Work Zones
Roadway Engineering Safety	Wildlife	Occupant Protection
Aggressive Drivers and Distracted Drivers	Impaired Drivers	Young Drivers
Aging Drivers	Motorcycles	Bicycles and Pedestrians
Safe Routes to School	Large Trucks	EMS Vehicles

Next year our state will have another opportunity to revisit the SPIRS to look for ways to improve and enhance the document as well as discuss implementation strategies. The Colorado Department of Transportation, the Federal Highway Administration and the National Highway Traffic Safety Administration, along with other key safety stakeholders, will facilitate a gathering of safety stakeholders from all over the state to revisit the SPIRS and make recommended improvements to the plan to ensure we are aligning our efforts where they will do the most good. As partners in roadway safety, we are committed to continuing to move the SPIRS forward as a unified team to reduce fatalities and injuries in Colorado. Stay tuned for more information on updating the SPIRS. Download a copy of the 2006 Colorado Strategic Plan for Improving Roadway Safety at www.dot.state.co.us/Traffic_Manuals_Guidelines/Problem_ID_and_Annual_Report.asp, available in both English and Spanish versions.

For questions regarding the SPIRS, contact Marcee Allen, FHWA-Colorado Division by phone at (720) 963-3007 or by e-mail at marcee.allen@fhwa.dot.gov.

Methamphetamine

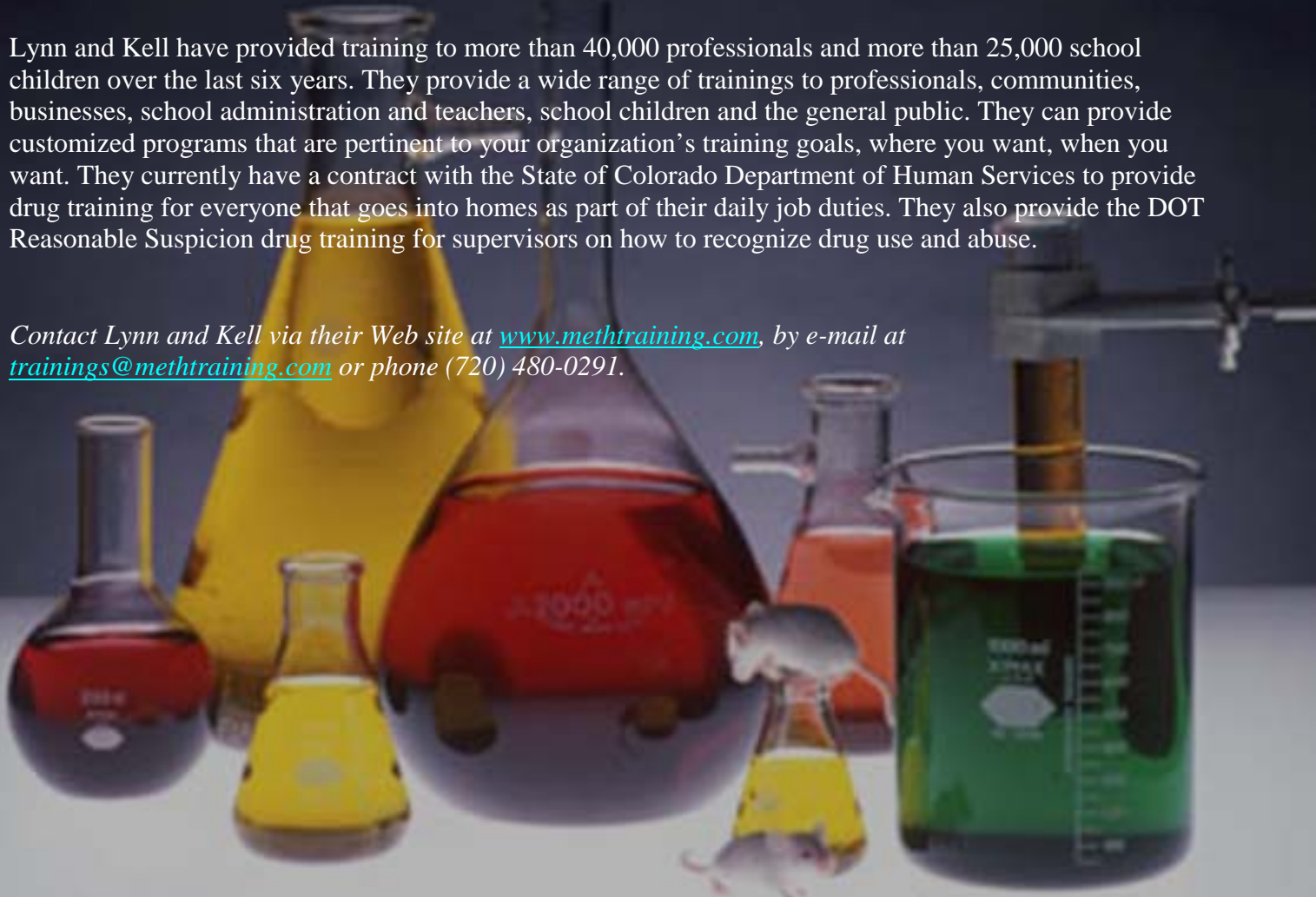
Learn How to Identify a Lab

The Western RETAC hosted the Statewide Quarterly RETAC Forum on June 4 and 5 in Montrose and included a dynamic presentation on methamphetamines presented by Lynn Riemer, North Metro Task Force, and Kell Hulsey, a sergeant with the Greeley Police Department. This special program included the history of meth use and abuse, the effect methamphetamine has on the user and society, hazards associated with the manufacture of meth and the chemicals involved, as well as impacts to first responders upon entering suspected meth labs or coming into contact with users. Lynn and Kell provided a detailed demonstration on the hazards of the chemicals and the contamination left behind from manufacturing, as well as identifying and understanding meth users and meth labs. The session was well-received and eye-opening for many attendees.

Methamphetamine isn't just a drug; its manufacturing breeds toxic waste and deadly vapors. Consumption or even accidental contact can cause everything from extreme rashes to violent and paranoid behavior. Meth is the fastest growing drug threat and the most prevalent synthetic drug in the United States. The problem of meth is complex and will require all aspects of society to provide an appropriate response. Training and education are key, and Lynn and Kell can help. Through their company, Meth Heads, Inc., this epidemic has been brought to the public's doorstep. Training provides tools to be better informed and to have the opportunity to help those who have become victims to this drug.

Lynn and Kell have provided training to more than 40,000 professionals and more than 25,000 school children over the last six years. They provide a wide range of trainings to professionals, communities, businesses, school administration and teachers, school children and the general public. They can provide customized programs that are pertinent to your organization's training goals, where you want, when you want. They currently have a contract with the State of Colorado Department of Human Services to provide drug training for everyone that goes into homes as part of their daily job duties. They also provide the DOT Reasonable Suspicion drug training for supervisors on how to recognize drug use and abuse.

Contact Lynn and Kell via their Web site at www.methtraining.com, by e-mail at trainings@methtraining.com or phone (720) 480-0291.



CE Changes

New Continuing Education Requirements in Effect

by Marilyn Bourn, EMS training coordinator

The new continuing education requirements became effective July 1, 2008. The required hours for the EMT-Basic remained the same, but the required hours for EMT-Intermediate increased from 36 hours to 50 hours. The required hours for EMT-Paramedic also increased from 45 hours to 50 hours. Additionally, the content requirements were revised to be more in line with those of the National Registry of Emergency Medical Technicians.

EMT-Basics are required to have no less than 36 hours of education/training. These hours may be obtained in one of two ways:

1. A refresher course at the EMT-Basic level conducted or approved by a department-recognized EMS education center or group. Additional continuing education topics then may be taken to equal the total requirement of no less than 36 hours.
2. Continuing education topics consisting of no less than 36 hours of education that is conducted or approved by department-recognized EMS education centers or groups consisting of the following minimum content at the EMT-Basic level:
 - one hour of preparatory content that may include scene safety, quality improvement, health and safety of the EMT, or medical legal concepts
 - three hours of OB and pediatric patient assessment and treatment
 - six hours of trauma patient assessment and treatment
 - five hours of patient assessment
 - three hours of airway assessment and management
 - six hours of medical/behavioral emergency patient assessment and management
 - 12 hours of elective content that is relevant to the practice of emergency medicine

EMT-Intermediates and EMT-Paramedics are required to have no less than 50 hours of education/training. These hours may be obtained in one of two ways:

1. A refresher course at the EMT's level conducted or approved by a department-recognized EMS education center or group. Additional continuing education topics then may be taken to equal the total requirement of no less than 50 hours.
2. Continuing education topics consisting of no less than 50 hours of education that is conducted or approved by department-recognized EMS education centers or groups consisting of the following minimum content requirements at the EMT's level:

No less than 25 hours as described below

 - eight hours of airway, breathing and cardiology assessment and treatment
 - four hours of medical patient assessment and treatment
 - three hours of trauma patient assessment and treatment

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CE Changes *continued*

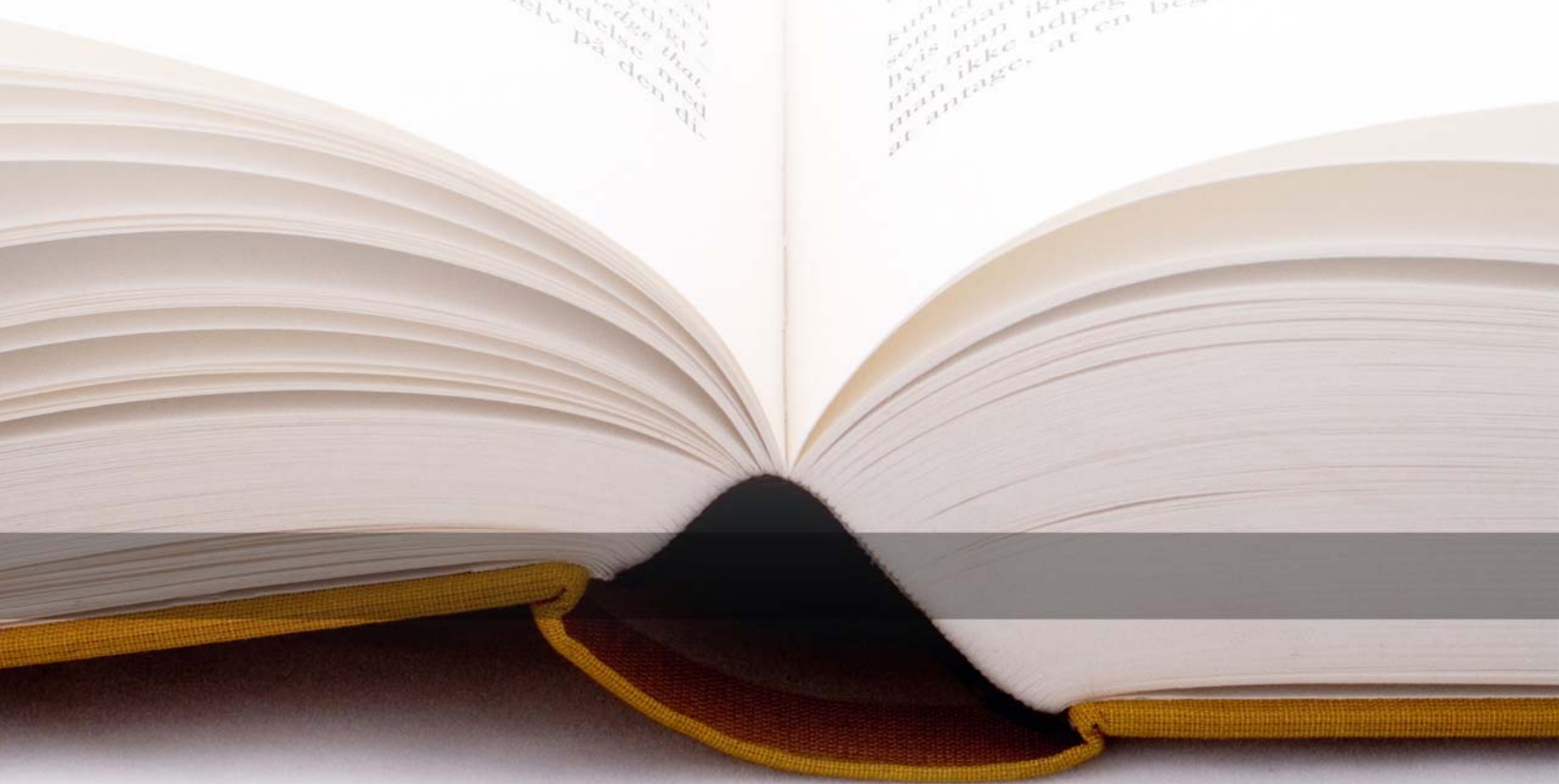
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- eight hours of OB and pediatric patient assessment and treatment
- two hours of operational tasks
- plus no less than 25 hours of elective content that is relevant to the practice of emergency medicine

As before, continuing education hours may be obtained through both direct instructor contact and non-instructor contact. Direct instructor contact is defined as lectures, conferences, hands-on sessions, etc. Non-instructor contact is defined as self-study programs, online courses, video programs, etc. A department-recognized EMS education center or group can help determine if non-instructor contact education is acceptable for recertification. In general, non-instructor contact hours should not exceed 50 percent of the total hours required for recertification.

Again, it is important to discuss this with an EMS education center or group. In most cases, the EMS center or group is affiliated with a provider agency (whether volunteer or paid), a medical director, a community college or local hospital. If you are not affiliated with an agency or do not know where to find a department-recognized EMS education center or group, go to www.cdphe.state.co.us/em/CertificationEducation/Education/programs.pdf.

Marilyn Bourn RN, MSN, NREMTP, is the state EMS training coordinator and can be reached at marilyn.bourn@state.co.us.



RETAC Roundup

There are 11 Regional Emergency Medical and Trauma Advisory Councils (RETACs) in Colorado. Learn more about the RETACs at www.cdph.state.co.us/em/retac/index.html.

San Luis Valley RETAC



A fourth fire truck was donated to the San Luis Valley by Golden Fire Department. It will go to Sanford Fire Department in Conejos County. This truck is a 1982 Seagraves with a 1,250 gallon-per-minute pump, and it was contributed courtesy of Chief John Bales and the Golden Fire Department.



Wes Moores, District Fire Chief of Saguache County; Chief Chuck Wisecup, Oak Creek Fire Department; Deputy Chief Tony Morgan; Saguache Fire Chief Robert Lambert.

A fifth fire truck, a 1985 GMC 5-ton, 4 wheel drive type 3, was donated to the San Luis Valley from Oak Creek Fire Department and will go to Crestone Fire Department. This donation was made possible by Chief Chuck Wisecup.



Captain Bob Jefferson, Chief Don Taylor, Wes Moores.

This sixth fire truck goes to Romeo Fire Department, given to the San Luis Valley by the Salida Fire Department.

Contact Jon Montano at (719) 587-5274 for more information.

Mile-High RETAC

The Colorado Department of Transportation Teen Seat Belt Use Grant was presented to the Western Trauma Association where MHRETAC members and stakeholders were present. Recently six schools finished their challenges, which once again has proven that these efforts do increase seat belt use.

After visiting all the hospitals in the MHRETAC, it was felt that some standardization of the radio programming needed to occur for consistency. A committee was formed and developed standardization for radio programming for the hospitals 800 Megahertz radios.

The MHRETAC Needs Assessment Committee is working on developing some components specific to the MHRETAC for the upcoming needs assessment to be completed by June 30, 2009.

Contact Shirley Terry at (303) 300-4704 for more information.

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RETAC Roundup

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Northeast Colorado RETAC

The Northeast Colorado RETAC, in partnership with Poudre Valley Health Systems, Poudre Fire Authority, Aims Community College, Morgan Community College, East Morgan County Hospital, Colorado Plains Medical Center, Morgan County EMS Council, City of Yuma Ambulance and Washington County Ambulance, sponsored four seminars titled “TERROR AWARENESS and PREPAREDNESS: What started it? What fuels it? When will it end?” presented by Lt. Col. Joe Ruffini, a nationally recognized terror expert, author and a featured presenter with the renowned Keppler Speakers of Washington D.C. Topics included Understanding the Hatred; How Terror Organizations Recruit, Plan, and Operate; Know your Enemy; Terror at Beslan; and What Citizens and Communities Can Do Now to Prepare for and Prevent Terror. The central theme of the seminar is the role that every American can take in defending our country against terror attacks, and how the knowledge gained empowers citizens to be smarter voters, effective participants in city government and school affairs, and proactive civic leaders.

Contact Jeff Schanhals at (970) 774-3280 for more information.

Ski Patrol Backboards

Announcement Concerning Our Backboard Recovery Program

Keystone Ski Patrol thanks you for supporting our backboard recovery program. For reasons beyond our control, the reward program has ended. It would be greatly appreciated if the efforts of returning our backboards were continued! If you see one of our boards, please call and we will come get it. Phone Patrol Headquarters at (970) 496-3100 or at (970) 496-3878 during the summer.



EMS for Children Surveys Highlights

by Dr. Holly Hedegaard, EMS for Children and data program manager

Each year, the Emergency Medical and Trauma Services Section at the Colorado Department of Public Health and Environment receives funds from the national Emergency Medical Services for Children (EMS-C) program to support efforts to improve delivery of EMS care to pediatric patients. To direct efforts and measure specific outcomes, the national EMS-C program has outlined several performance measures that states must follow. (For details, see <http://bolivia.hrsa.gov/emsc/PerformanceMeasures.aspx>.)

As part of the national effort, in February 2008, the Colorado EMS for Children program sent surveys to EMS agency directors and hospital emergency department nurse managers on three performance measure topics: 1) the availability of online pediatric medical direction and protocols, 2) the availability of pediatric equipment on ambulances, and 3) interfacility transfer protocols and agreements for pediatric patients. Written surveys were sent to 186 ambulance agencies and 78 hospitals, requesting return of the completed survey by March 15. Surveys were received from 118 EMS agencies (63 percent) and 61 hospitals (78 percent).

With regard to the availability of online pediatric medical direction, 77 percent of the responding EMS agencies indicated that their providers always had online pediatric medical direction available to them (Figure 1). Another 15 percent indicated that they usually had access to online medical direction, although availability was sometimes limited by reception issues from remote locations. The person providing the online medical direction was most frequently an emergency medicine physician (Figure 2). Only 2 percent of respondents indicated that the person providing online medical direction was a pediatrician.

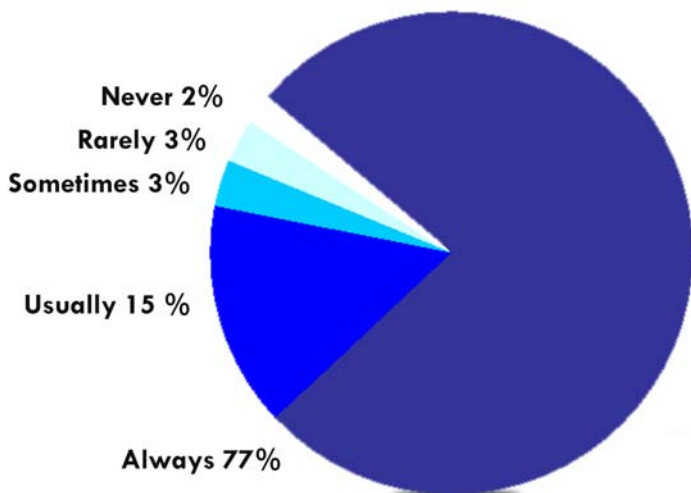


Figure 1. When your providers need pediatric online medical direction, is it available to them?

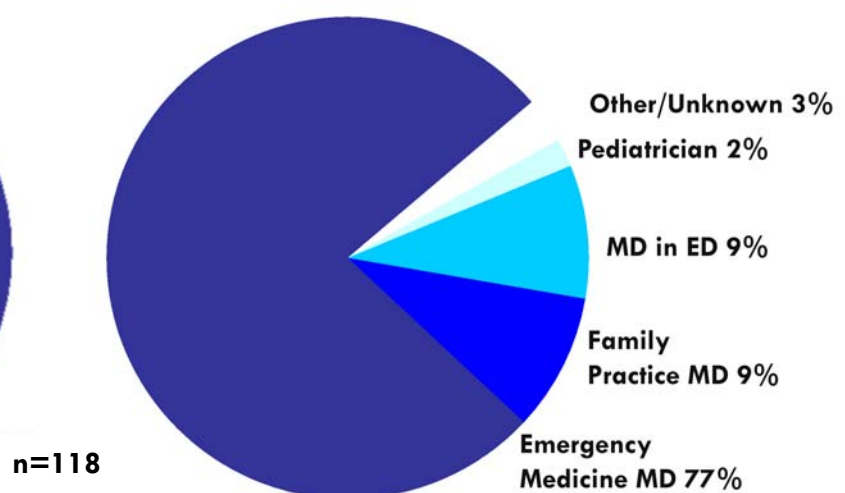


Figure 2. What is the level of training of the person who provides your agency with online pediatric medical direction?

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EMS for Children Surveys

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With regard to the availability of pediatric protocols, 92 percent of agencies indicated that they had written or electronic pediatric treatment guidelines/protocols, and 89 percent reported that these items were either on the ambulance, carried by the provider or the provider was expected to have memorized the protocol.

With regard to the availability of pediatric equipment, the national EMS for Children program recommends that all ambulances should carry the equipment outlined in the 1996 American College of Emergency Physicians (ACEP) guidelines. These are slightly different from the current regulations in Colorado. With regard to BLS equipment, Colorado differs from the 1996 ACEP guidelines in not requiring simple oxygen masks (Figure 3); with regard to ALS equipment, Colorado does not require nasogastric tubes, nebulizers or needles (Figure 4).

- Oropharyngeal airways
(size 00 to 5)
- Self-inflating resuscitation bag
(child and adult sizes)
- Masks for BVM device
(infant, child and adult sizes)
- Simple oxygen masks*
(infant, child and adult sizes)
- Non-rebreathing mask
(pediatric and adult sizes)
- Pediatric stethoscope
- Pediatric backboard
- Cervical immobilization device
(infant, child, adolescent and adult)
- Blood pressure cuff
(infant, child and adult sizes)
- Portable suction unit with a regulator
- Suction catheters
(various sizes)
- Extremity splints: pediatric sizes
- Bulb syringe
- Obstetric pack
- Thermal blanket
- Water soluble lubricant*

*Not specifically included in Colorado minimum list

Figure 3. 1996 ACEP Recommended BLS Equipment for Pediatric Patients

- All BLS equipment
- Transport monitor
- Defibrillator with adult and ped paddles
- Monitoring electrodes (peds sizes)
- Laryngoscope (various blade sizes/types)
- Endotracheal tube stylets (peds and adult sizes)
- Endotracheal tubes (various sizes)
- Magill forceps (peds and adult sizes)
- Nasogastric tubes (various sizes)*
- Nebulizer*
- IV catheters (various sizes)
- Intraosseous needles
- Length/weight-based drug dose chart or tape
- Needles (various sizes)*
- Resuscitation drugs and IV fluids per medical direction protocols

*Not specifically included in Colorado minimum list

Figure 4. 1996 ACEP Recommended ALS Equipment for Pediatric Patients

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EMS for Children Surveys

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There were 44 agencies that reported having at least one BLS ambulance. Of these agencies, 57 percent reported having all the ACEP-recommended equipment on **all** their ambulances; 66 percent reported having all the ACEP-recommended equipment on **at least one** ambulance. The equipment most frequently not available included pediatric stethoscopes, pediatric backboards, size 6 (smallest) suction catheters, infant-size simple oxygen masks, and infant and adolescent cervical immobilizers. Of the 19 agencies that didn't have all the ACEP-recommended equipment, the most common reason cited was limited funding and infrequent use to justify the expense.

There were 99 agencies that reported having at least one ALS ambulance. Of these agencies, 68 percent reported having all the ACEP-recommended equipment on **all** their ambulances; 81 percent reported having all the ACEP-recommended equipment on **at least one** ambulance. The equipment most frequently not available included nasogastric tubes (not required by Colorado regulations and out of scope of practice for many providers), needles (not required by Colorado regulations), infant- and child-size simple oxygen masks (not required by Colorado regulations), pediatric non-rebreather masks, and pediatric stethoscopes. The most frequent reasons cited for not having all the ACEP-recommended equipment included: 1) limited funding and infrequent use to justify the expense, 2) no state requirement to carry a specific piece of equipment (for example, simple oxygen masks and needles), and 3) the item was out of scope of practice for the agency providers (for example, nasogastric tubes).

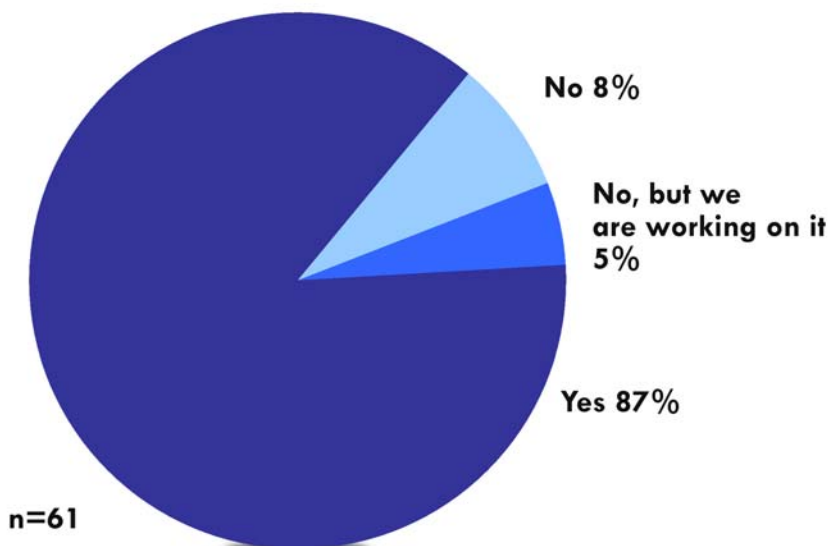


Figure 5. Does your hospital have written guidelines/protocols that specify a decision-making process for identifying patients needing transfer to another facility?

The final survey, focusing on interfacility transfer protocols and agreements, was directed to emergency department nurse managers at acute care facilities. Surveys were received from 61 hospitals. Of the respondents, 87 percent indicated that they had written guidelines/protocols for identifying patients that needed transfer to another facility (Figure 5) and 89 percent indicated they had written transfer agreements.

In terms of the contents of the interfacility transfer protocols, most facilities reported having a specific process for initiating the transfer, selecting the appropriate facility,

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EMS for Children Surveys

continued

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Item	Percent reporting "Yes"
Process for initiating transfer	94%
Process for selecting the appropriate facility	85%
Process for selecting the appropriate transport service	66%
Process for patient transfer (informed consent)	95%
Plan for transfer of the medical record	91%
Plan for transfer of signed transport consent	92%
Plan for transfer of the patient's personal belongings	79%
Directions and referral facility info to family	72%
Process for return transfer of pediatric patient to the referring facility	25%

n=53

Figure 6. Content of the Transfer Guidelines/

obtaining patient consent for transfer, and transferring the medical record with the patient (Figure 6). Fewer hospitals reported having a defined process for identifying the appropriate transport service, transferring the patient's personal belongings, and providing the patient's family with information and directions to the receiving facility. Only 25 percent of the facilities identified a process for return transfer of the pediatric patient to the referring facility.

The results of these surveys suggest that, in general, Colorado is doing well in the availability of services and equipment for care of the pediatric patient. Possible steps for improvement in these areas include sharing pediatric treatment protocols with those agencies that currently don't have

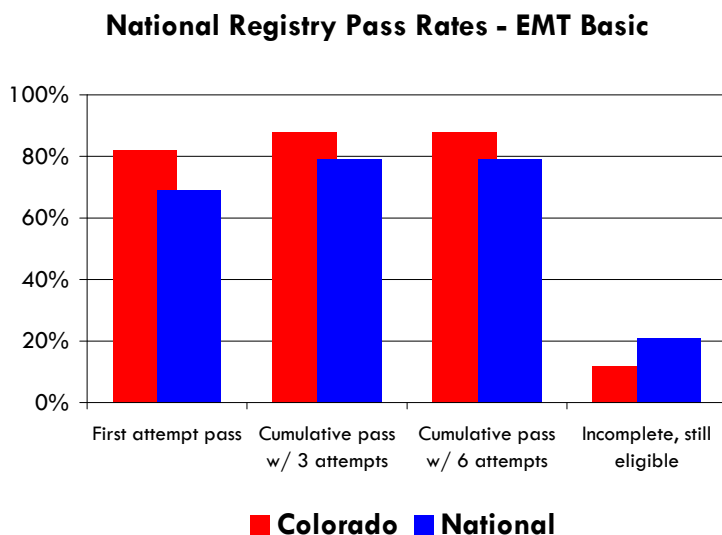
them; providing additional resources, perhaps through the provider grant program, to purchase and maintain pediatric equipment; and developing and distributing template protocols and agreements for interfacility transfer of pediatric patients to hospitals throughout the state. These and other efforts will continue to improve the delivery of high-quality care to pediatric patients throughout Colorado.

Holly Hedegaard, MD, is the Emergency Medical Services for Children and EMS Data Program manager and can be reached at holly.hedegaard@state.co.us.

National Registry Adaptive Testing Process Colorado Update

by Marilyn Bourn, EMS training coordinator

In January 2007, the National Registry began Computerized Adaptive Testing (CAT) at the basic and paramedic levels.* CAT is an important part of the Computer Based Testing (CBT) process, and is a valuable tool for those responsible for the safety of the public and the integrity of their EMS community. In implementing CAT, a computer algorithm determines the difficulty level of a candidate's next test question, based on how the previous question was answered. Computer adaptive exams are customized according to the candidate's ability, are individualized according to the candidate's performance, target the questions' difficulty to match the candidate's performance, and measure every candidate against a predetermined minimum competency level.



“We believe the public and EMS community deserve the benefits Computerized Adaptive Testing offers,” said NREMT Associate Director Gregg Margolis. “This superior form of testing is quickly becoming the ‘standard of care’ when it comes to high stakes testing.” With CAT, candidates are measured more precisely, and high and low performers can be determined quicker using fewer questions. Since fewer questions are necessary for reliably determining competency, security of the test is increased. In most cases the results are available the next business day, helping to fill vital EMS positions with qualified, licensed professionals more quickly.

Graduates of initial EMS education programs complete the National Registry testing process as the first step toward Colorado state certification. Upon receipt of a valid National Registry certification, students then can make application to Colorado for state certification. The state certification process also includes the required CBI and/or FBI background check, current CPR and ACLS (for ALS providers) credentials and supporting documents.

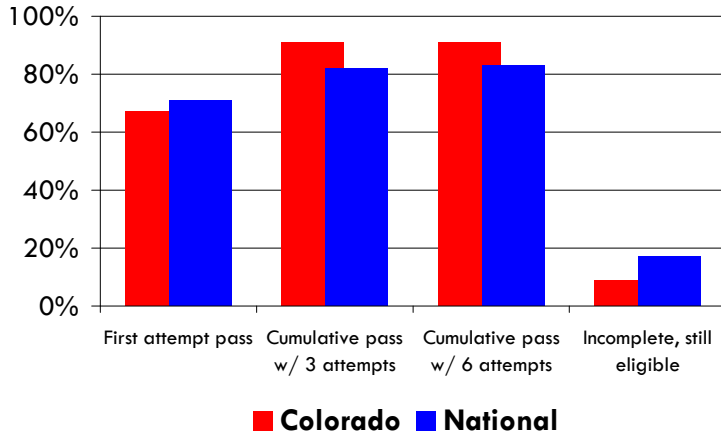
*The Intermediate-99 computer-based testing process is a “linear” examination and does not utilize CAT.

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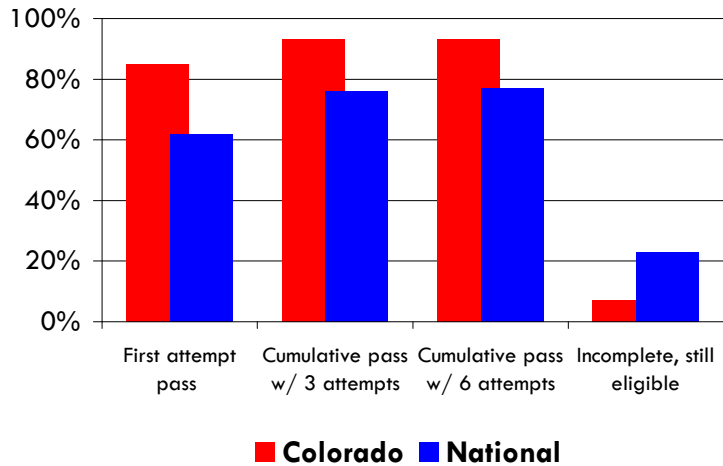
National Registry Pass Rates - EMT Intermediate



Consistently, since the implementation of the National Registry CAT program, Colorado graduates have exceeded national pass rates. The preceding and following charts compare the Colorado pass rates to the national pass rates for all three levels of certification. Remember the Intermediate-99 written examination is a “linear” examination and does not use the adaptive testing process. In addition to outstanding pass rates by the graduates, Colorado EMS education programs have an excellent reputation nationwide. Our programs draw students

from not only their own local areas but also from neighboring states (New Mexico, Utah, Wyoming), distant states (Alaska, California, South Dakota, New Jersey, Hawaii, Maine, New York, Tennessee) and internationally (Great Britain, Canada, Turkey, Philippines, Cuba) as well. Colorado paramedic programs are viewed as role models for other programs and often are consulted for their ideas and suggestions. Because of our high standards and pass rates, Colorado paramedic programs have been asked by National Registry to participate in a research study examining predictive indicators of educational success.

National Registry Pass Rates - Paramedic



For more information about Colorado’s EMS education programs, please contact Marilyn Bourn, state training coordinator, at marilyn.bourn@state.co.us or (303) 692-2995. For additional information about National Registry, visit www.nremt.org.

Sources: National Registry, HealthOne EMS, St. Anthony Prehospital Services

Safer Ambulance Culture

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The Feedback

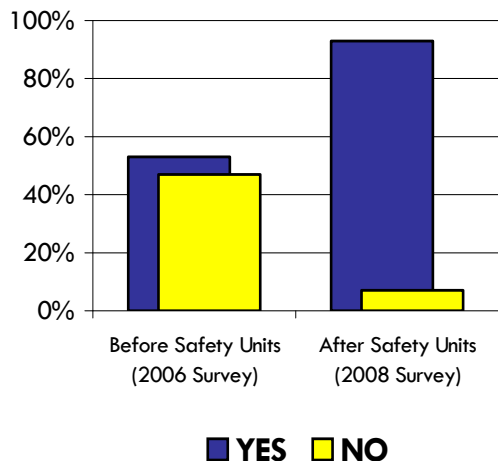
In April 2006, prior to starting any design or development work, DFRA conducted a staff survey on ambulance safety. We concluded that our EMS staff—not just managers—have safety concerns and are open to accepting design changes that make them safer. Even further, our medics were cautiously open to making changes in the way they provide care in the interest of safety during transport. More than two years later, we conducted a follow-up survey after adding the two safety ambulances to the fleet. Overall, the results were positive and encouraging.

We started off by asking the EMS staff members to rate their concern for their own safety while working “in the box.” On a scale of 1 to 10, with 10 being very concerned, the average was 8.65, similar to the impressions gained from the 2006 survey.

In 2006, the staff responded overwhelmingly that unrestrained personnel and loose equipment were the biggest safety threats while working in an ambulance. In 2008, however, not a single survey respondent cited these concerns. The unease changed decidedly to drivers and vehicle handling.

To gain a snapshot of staff perception on workplace safety, we asked the following question in both surveys: “Do you feel DFRA is doing all it can to provide you with a safe environment while working in the back of an ambulance?” While only 53 percent answered yes in 2006, 93 percent answered yes in 2008. (See Figure 1.)

Fig 1- Staff Perception: Is DFRA Doing Everything It Can for Ambulance Safety?



Given our original goals, perhaps the area of most success has been the increased use of restraint devices. Important to note is when deploying the safety vehicles, we did not mandate the use of the patient compartment restraints (other than cot restraints) in favor of allowing staff members to use their best judgment given the situation. They were, however, encouraged strongly (and repeatedly) to use them whenever possible and to provide regular informal feedback on how the design was working. We wanted the design of the units to be functional enough to encourage restraint use, as opposed to a directive that could have created staff push-back souring the project, or worse, detracting to patient care. The shift toward a far greater use of the restraints has been encouraging. Figure 2 shows how the staff anonymously reports on its own use of those restraints.

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We asked each individual to approximate a percentage of how often the restraints were used in general by everyone working in the units. This provided some interesting results. Staff members responded with a score of anywhere from 10 percent of the time to 90 percent, with the average of 52 percent. Not surprisingly, those who perceived exceptionally low percentages of overall use also had lowest concern for their own personal safety.

When asked to cite barriers to using patient compartment restraints, most

responded that the need to do patient care often prohibits them. Seat placement, equipment location and the functionality of the restraints themselves also were cited frequently. But when asked what feature represented the biggest step toward safety, the patient compartment restraints, places to secure equipment and the functional design to keep them seated were cited most often.

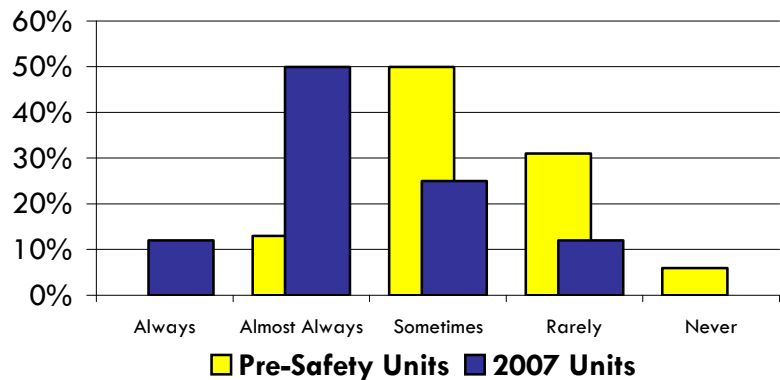
Culture Versus Care

Last summer, American Emergency Vehicles displayed one of our safety ambulances at Fire-Rescue International in Atlanta. Being present to explain the features, I experienced chief officers grabbing my hand to shake it, but some of the line staff appeared more likely to grab my throat. The fact is, when we talk patient compartment restraint devices, many EMS personnel are quick to tell you patient care will suffer. But in most EMS systems, severe trauma and other critical patients requiring rapid transport make up a relatively small percentage of our call volume. In Colorado, we are collecting the data now. I believe it will show we can slow down in many ways—to the scene, on the scene and from the scene—without jeopardizing our patients. One option in favor of safety is to do more on scene and less while in motion, allowing personnel to stay belted. But there are numerous barriers to this, not the least of which is cultural.

About the time I started researching safer ambulance design options, I had a brief but concerning conversation with a long-time Denver-area firefighter/paramedic that had me nearly certain medics will never accept any changes emphasizing restraint systems. He said very simply, “You’d never tie me down. I live to fly around in the box, getting as much done as possible before we hit the ED doors.” The statement rings so true with many of us. We have been conditioned to believe that one measure of a good paramedic is how much you can get done in motion in a short period of time. What’s more, ED staff members often reinforce that measurement by openly questioning your skills if you present them with a patient packaged and presented with anything less than a bow on top. Given the data, this appears more about expectations

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Fig 2 - Patient Compartment Restraint Use



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than actual patient outcomes. But that instant feedback is hugely important to EMS personnel, making it even more challenging to provide only necessary interventions with an increased emphasis on safe transport.

One of the 2008 survey questions was related to this issue. When asked, “Has the safety ambulance changed the way you provide care?” 86 percent of the staff said yes. Most went on to explain they do more on scene as opposed to while in motion. During staff training on the safety units, we had discussions about providing more care prior to transport, when appropriate. Some commented in the survey that they still provide the same care, only now while being restrained. In response to the most commonly cited barrier to being restrained, “needing to provide patient care,” many felt that continued development of a workable design would help greatly. In other words, in a fairly short period of time, staff members adapted to the working environment of the new units and began thinking of even better ways to do it. We now see them providing more care while restrained, while also spending more time preparing patients for transport when time is not as critical. And in those situations in which the medics simply must move around, at least the equipment is secure.

Getting Sideways With the Safety Data

Immediately after distribution of the Fall 2007 edition of “On The Scene,” I heard from Dr. Nadine Levick of Objective Safety. “Your ambulances are dangerously unsafe,” she proclaimed in an e-mail, and sent along more than 50 pages of crash test data on sideways facing seats. I know. I know. Sideways facing positions are hugely unsafe at even moderate forward deceleration impacts. We had tried so hard to find a design that included a forward or rear-facing primary care position in the 2007 versions, but never managed it due to space and other constraints. Admittedly, one of those constraints was staff buy-in. But given what we’ve learned from using this design and some potential new options available, the next version built this year should have a multi-position seat in this location, capable of being forward when in motion.

Lessons Learned

On the plus side, using staff involvement throughout the project helped garner buy-in as well as good ideas, starting with the original survey essentially telling us to build something safer. Just asking the right questions may have been our biggest forward step. This led to open dialog and honest feedback regarding the results. During the design phase itself, input was solicited frequently as staff members were encouraged to provide both criticism and ideas of their own. I actually think some of the medics were afraid to come into my office for fear I would make them look at yet another set of drawings! The final design team included our fleet manager, a staff paramedic with considerable flight experience (very helpful) and myself. Once the ambulances were completed, we provided training emphasizing the “prototype” nature of the project and solicited continual feedback. Then, as mentioned, the change to the new units never included policy-mandated use of the restraints. We let the design work for itself.

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Regrettably, we never surveyed the staff regarding its concern for the patient's safety during transport. In fact, much of the focus of ambulance safety nationwide has been on the risk to EMS personnel. But, as evidenced by the limited but telling crash test studies to date, loose personnel and equipment create a highly unsafe environment for our patients. Even if some medics prefer to accept risk as part of the job, we still have a duty to transport our patients as safely as possible. As to the personnel "change" issues I anticipated, we found that EMS staff members will accept both ambulance design and the associated procedural changes, as long as those changes make good sense and they feel brought along—not pushed along—with such a project. But we're not done yet. We found several improvements needed in the design for functionality, not to mention the issue of seat direction. Also, we have added more equipment to secure. The final part of this series will detail the design changes we made in the next generation safety ambulance, as well as recommendations for developing a culture of safety in EMS.

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Pictured is fire fighter/paramedic James O'Connor demonstrating one of the two types of restraint devices used in the 2007 unit. To his left, the monitor is secured in a bracket mounted to a two-position

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