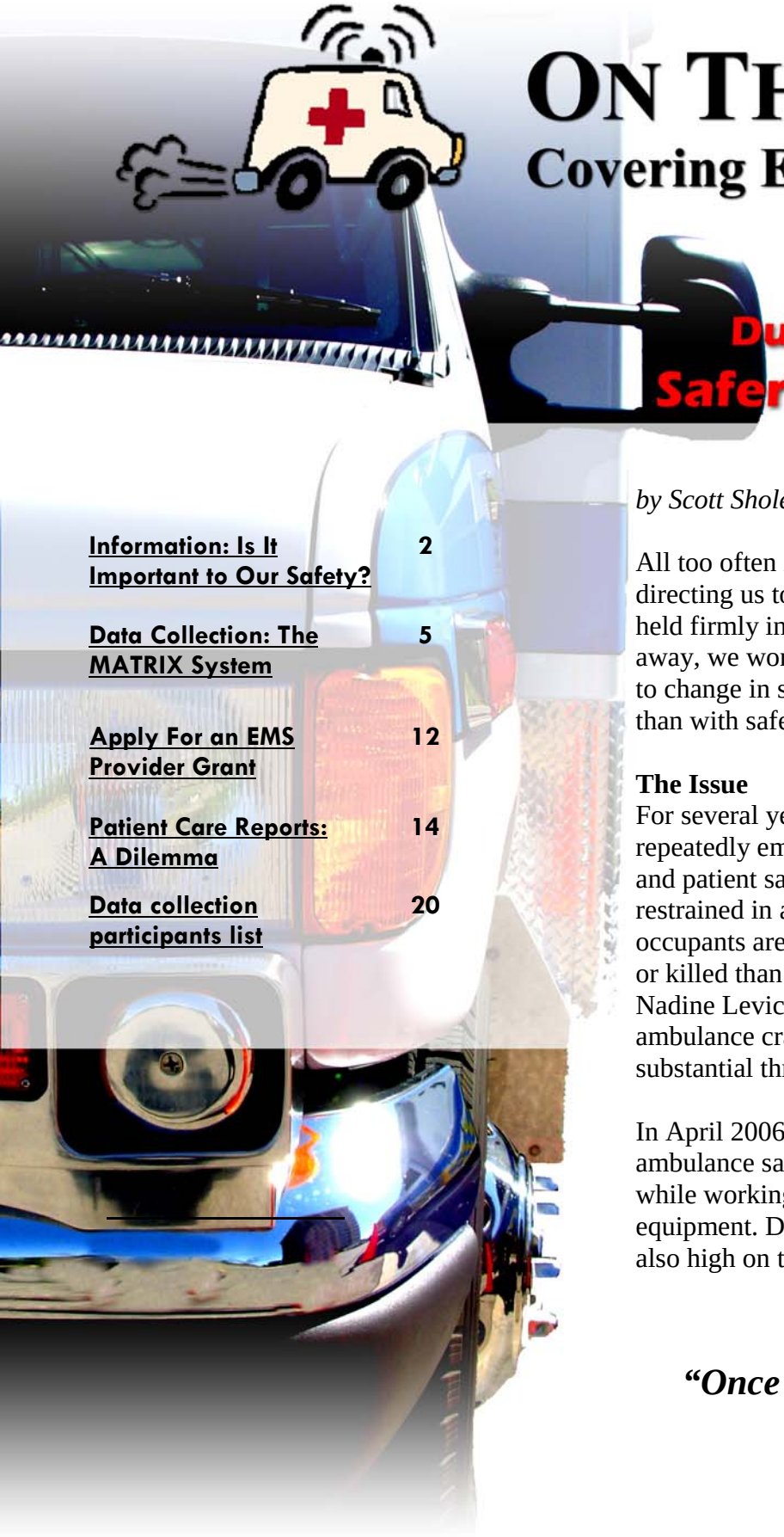


ON THE SCENE
Covering EMS in Colorado

Durango Fire & Rescue on Safer Ambulance Design

Part 1

by Scott Sholes

All too often in EMS we have both experience and data directing us to change our ways, but somehow we remain held firmly in the grip of status quo. Once we finally break away, we wonder why it took so long. Nowhere is reluctance to change in spite of the facts more prevalent, or important, than with safer ambulance designs.

The Issue

For several years now, EMS and medical journals have repeatedly emphasized one clear point regarding personnel and patient safety: everyone and everything needs to be restrained in a moving ambulance. Statistically, unrestrained occupants are more than four times more likely to be injured or killed than those restrained. Even more alarming, as Dr. Nadine Levick demonstrated in her team's ambulance-to-ambulance crash test study, unrestrained personnel are a substantial threat to their own patients in a crash.

In April 2006, we surveyed our staff members regarding ambulance safety. Most felt the biggest threat to their safety while working in an ambulance is unrestrained personnel and equipment. Driver training issues and response urgency are also high on the list.

"Once we finally break away, we wonder why it took so long."

(Continued on Page 16)

Section Chief's Corner
Information Collection

by D. Randy Kuykendall

Information: Is it Important to Our Safety?

For many years, the emergency medical and trauma service community has been working to develop comprehensive information to help us understand how our efforts affect the outcome of the patients we care for each day. We've gathered and tracked information that will provide factual guidance in making decisions regarding what therapies work and what therapies don't. This Herculean effort by national, state, regional and local emergency medical and trauma system administrators historically has met with mixed results, but as technology has improved, Colorado has been able to effectively establish the MATRIX, the statewide patient care reporting system for ambulance services. Combined with the well-established Colorado Trauma Registry, Colorado now has a truly statewide reporting system that will provide the information to become the basis for factual decision-making to guide our treatment of patients. This article represents one of the first efforts to better understand and address a patient care issue identified through the review of data submitted by Colorado ambulance services.

The provision of emergency medical services is a high-risk profession, and any time an emergency vehicle uses its warning equipment to speed responses there is an increased risk of that vehicle being involved in a motor vehicle crash. Although national reporting systems are somewhat scattered, we know that each year in the United States, approximately **50** emergency medical technicians and health care providers are killed as a result of motor vehicle crashes involving ambulances responding to, or transporting patients from, the scenes of emergencies. Additionally, more than **3,000** EMTs are injured each year in such crashes. Most of today's literature indicates that ambulance response time to definitive care makes a difference in less than 10-15 percent of the patients transported by ambulance. Thus, the decision to use emergency lights and siren in transporting patients from the scene of the call to the receiving hospital is one that has significant impact on both patient outcomes as well as safety for EMS crews and the public.

In working with the State Emergency Medical and Trauma Services Advisory Council (SEMTAC) to develop improved safety strategies for ambulance operations, we reviewed the MATRIX data to determine the most common types of calls where EMS personnel transported patients using lights and sirens from the scene of the call to a receiving hospital. A total of 191,042 patient care reports, submitted by 90 ambulance agencies to the statewide EMS data collection system, were included in this review. The reports were from the period of Jan. 1, 2006, through Aug. 9, 2007. Of the total, 141,493 reports (74.1 percent) included the level of transport in terms of emergent vs. non-emergent from the scene of the call to the receiving facility. The data showed that 37,709 patients (19.7 percent) were transported using lights and sirens from the scene of the call to the hospital.

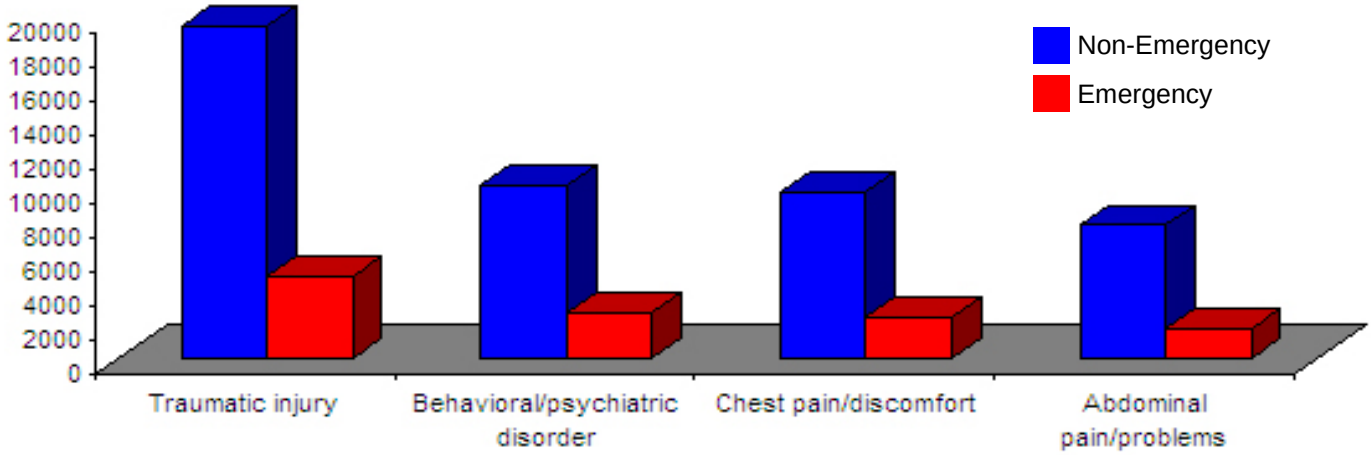
Driving an ambulance under emergency circumstances is a judgment based on the EMT's assessment of patient condition, criticality and the EMS provider's ability to stabilize the patient in the field. It is

(Continued on Page 3)

Section Chief's Corner *continued*

(Continued from Page 2)

important to determine what the medical impressions of the patient are that most often result in emergent returns from the scene to the hospital. Of the total reports reviewed, 58,641 reflected a patient impression by the attending EMT. The four most frequent patient impressions where patients were transported using lights and sirens are traumatic injury, behavioral/psychiatric disorder, chest pain/discomfort and abdominal pain/problems.



While the emergent transport of trauma patients, and to a lesser extent those complaining of chest pain symptoms, can be understood in the context of today's emergency care standards, the transportation of patients complaining of behavioral/psychiatric symptoms using emergency lights and siren seems puzzling in terms of the risks posed to health care providers and patients. The process of determining the use of emergency transportation deserves ongoing review by EMS medical directors and agency directors to ensure that appropriate and safe decisions are being made with an eye toward the safety of our personnel and the public.

Initiatives such as improved safety design of ambulances, the implementation of mandatory EMS driver training programs and the implementation of direct feedback driver surveillance systems appear to be effective in improving the safety of EMTs and patients. However, decisions regarding the use of emergency responses to and from emergencies are clearly paramount in our efforts to make the Colorado EMTS system safer for our patients and those who choose to risk their own safety in the service of others. If we can effectively find ways to make better decisions regarding how we transport patients from the scene to receiving hospital facilities, we can improve the safety of both our patients and ourselves. As always, staff of the Emergency Medical and Trauma Services Section is available to provide support and assistance in this effort at any time.

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.

EMT Certification Online Verification

Colorado Online EMT Verification
The Emergency Medical and Trauma Services Section is pleased to announce online verification of Colorado EMTs will be available starting Oct. 1, 2007. This automated system is free of charge and allows the public to verify EMT certification as an alternative to telephoning section staff. To access the Colorado Online EMT Verification system, go to www.coems.info and click on the "EMT Certification and Education" link.

Trauma Program Updates

by Grace Sandeno

The Top Five Reasons I Love My Job
5. I get to drive cool state cars, like the 1997 Ford Taurus station wagon with no paint.
4. I get paid to nag people to do/turn in/pay/produce any number of items.
3. I get to travel across this beautiful state from the wide-open prairies to the snow-peaked mountains.
2. I work with people who have a vision for a better future (while being fun and wacky, too).
1. EMS providers, nurses, doctors, lab techs, radiology techs, hospital administrators, maintenance workers and a host of other people work hard to provide excellent trauma care for Coloradans, and I get to be part of it.

Oct. 17 Breckenridge
Oct. 25 Children's
Nov. 06 Telluride
Nov. 15 Prowers
Nov. 16 Arkansas Valley
Dec. 17 St. Mary-Corwin

Introducing Jean McMains
I'm pleased to announce Jean McMains as the new trauma program administrative assistant (a role previously filled by Rio Chowdhury). That title does not come close to describing the role Jean plays in helping the trauma program. My children have asked, "Is Jean your boss?" to which I replied, "She tells me where to go, when to go there and what to take with me. Yes, she's my boss."

Contact Information
If you have questions regarding the trauma program, please contact Grace Sandeno at (303) 692-2983, grace.sandeno@state.co.us or Jean McMains at (303) 692-2443, jean.mcmains@state.co.us.

Grace Sandeno is the Trauma Program manager at the Emergency Medical and Trauma Services Section and can be reached at grace.sandeno@state.co.us.

Data Collection
The MATRIX System

by Dr. Holly Hedegaard

Congratulations to the more than 90 prehospital care agencies that are regularly downloading data to the statewide EMS database (listed on pages 20-21). With your effort and commitment, the database now contains more than 200,000 records from January 2006 through July 2007 on the delivery of EMS care in Colorado! Many thanks to all of you for accepting the challenge to create a comprehensive EMS data system in Colorado.

Of course, having a database is just the beginning. Now comes the fun part: using the information from the data for planning, development, education and evaluation. In parallel with our continued efforts to assist agencies to regularly download data, we will be generating standard reports on data quality, comparative results and trends over time. If you have suggestions about the types of analyses you'd like to see from the data, please contact me or Linda Underbrink, chair of the EMS Data Task Force.

Other updates and announcements

1. Steve Boylls joins the Data Program as our new EMS database manager. Steve comes to us with nearly 30 years of experience in database management, analysis and reporting. His expertise comes at a critical time as we begin to move forward from collection to analysis and reporting.
2. Under the skillful direction of Linda Underbrink, the EMS Data Task Force is updating the rules related to prehospital data collection. The goal is to present the draft rules to SEMTAC in January 2008, with an anticipated implementation date of July 2008.
3. For transport agencies applying for an EMS Provider Grant, please note that if you are not actively participating in data collection, you will need to explain why. This is an effort to gain more understanding about barriers that may be precluding transport agencies from participating in data collection.
4. The Second Annual Data Conference is in the planning stages and will be held in the spring of 2008. This conference will build on the very successful First Annual Data Conference that was held January 2007 in Longmont.

This is an exciting time in the development of the EMS data system. As we move forward, our underlying principle remains the same: to create a data system that is useable by all agencies and RETACs and provides useful information that helps all of us understand and improve the ways prehospital care is delivered in our communities. If your agency is not yet participating, please give us a call. Thanks for your interest, support and participation!

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

RETAC Roundup

COLORADO'S 11 RETACs

There are 11 Regional Emergency Medical and Trauma Advisory Councils (RETACs) in Colorado. Four are highlighted here, and others will be featured in the winter edition.

Foothills RETAC, Linda Underbrink
The Foothills RETAC had a busy summer. In May, we hosted a town hall meeting at Evergreen Fire with members from the Emergency Medical and Trauma Services Section present to answer questions from our EMS community. With nearly 50 in attendance, participants engaged in open and honest discussion on all topics related to EMS. The FRETAC Clinical Care Committee, chaired by Sue Kirk, continues to be very active with our regional Patient Care Report CQI study. In July, we rolled out our new Preliminary PCR form. The form was developed with input from our prehospital agencies and facilities and is for use by prehospital when a full PCR cannot be left with the patient. Early results show an increase in written information being passed from prehospital to facilities, which increases good patient care. The FRETAC set goals and objectives for the next two years, and we're excited about the opportunity to pursue these. Two new members joined the FRETAC this summer: Heather Bentler from Kremmling Hospital in Grand County and Brad Keller from Clear Creek EMS. Visit www.foothillsretac.com for more information.

Southwest RETAC, Nancy Falleur
The Southwest RETAC is busy working on a regional project implementing digital voice recorders in each of the facilities in Southwest Colorado. This will enable facilities and prehospital providers to record patient care transmissions for quality improvement purposes. This project was made possible with SWRETAC Special Projects funds. The other exciting endeavor we are involved in is a teen driving program. We will be piloting it in La Plata County schools initially before expanding it regionwide. We have support from other EMTS partners and are excited about this injury prevention project.

Central Mountains RETAC, Melody Mesmer
This has been a busy summer for the Central Mountains RETAC. Most of our agencies and facilities participated in Operation Mountain Move, a fun exercise that showed a couple of small system failures but also showed us several successes. Many of our towns have had large events and have participated in real-time events such as Ride the Rockies, the Courage Classic, Mile Hi Jeep Club All-4-Fun event, and more. Our area benefited from two PEPP classes that trained 28 personnel and secured some new instructors. Most of our facilities are in planning stages for upcoming pandemic flu exercises and will be doing mass drills to implement their programs. The region's Safe Kids programs were busy keeping the little ones safe hosting helmet distribution programs and car seat check points.

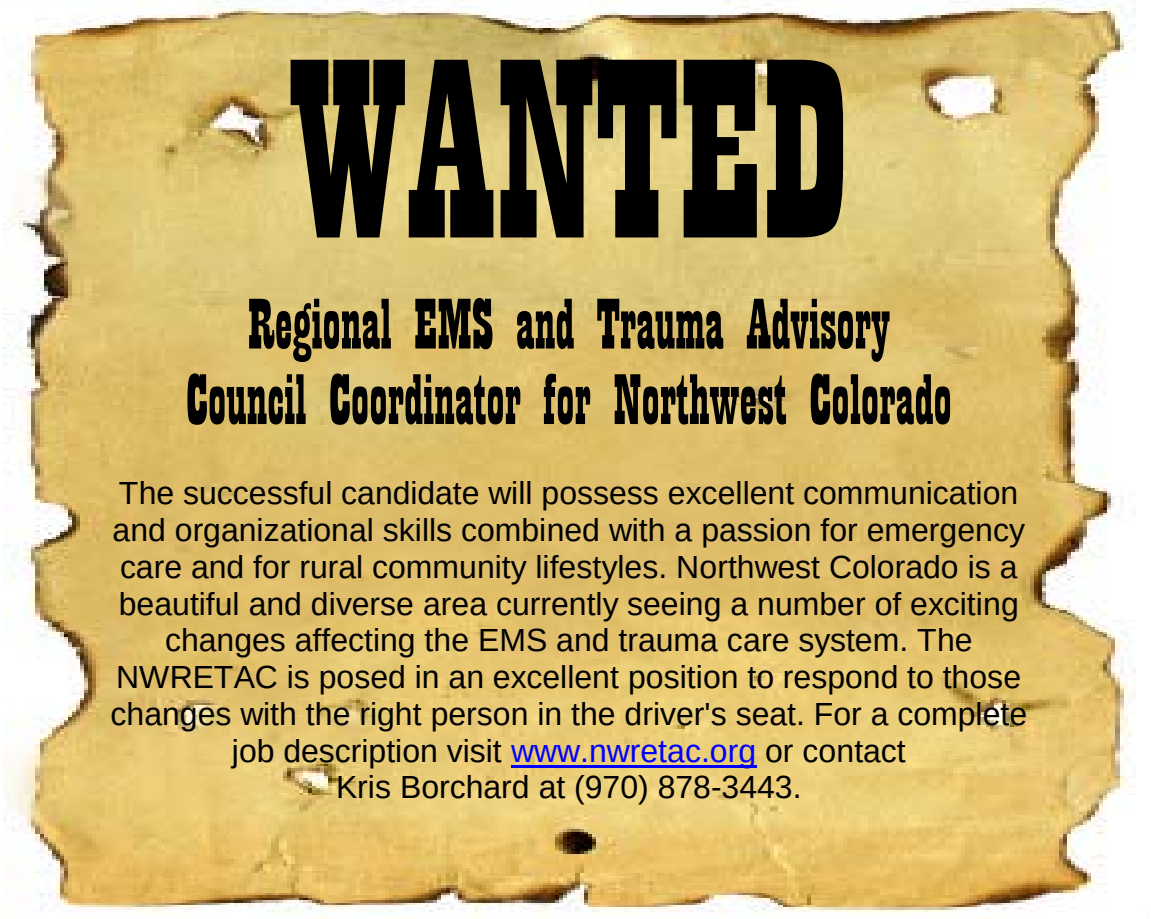
(Continued on Page 7)

RETAC Roundup *continued*

(Continued from Page 6)

Mile-High RETAC, Shirley Terry

The Mile-High RETAC submitted its biennial plan outlining some ongoing goals and identifying new challenges for the region. Visit www.milehighretac.org to view the plan. The newly established Web site is under construction, but will eventually serve as a great resource to all stakeholders within MHRETAC. We hosted a town hall meeting on Sept. 25, 2007, at Porter Hospital with a complimentary dinner provided by Porter, Littleton and Parker Adventist Hospitals' EMS Department. Other projects in the region include the continuance of the CDOT Teen Seat Belt Use Grant. Last year we conducted challenges in six schools, one in each county within the MHRETAC. This year, the project will grow to 10-12 schools, and council members will serve as champions for the schools in their counties. OEMs in MHRETAC are conducting inventory of all caches (EMS and medical surge) within the region to develop a database to facilitate access to supplies and to assist in replenishing and rotating dated supplies. MHRETAC will be actively participating in the statewide needs assessment efforts.



From the State Medical Director's Desk

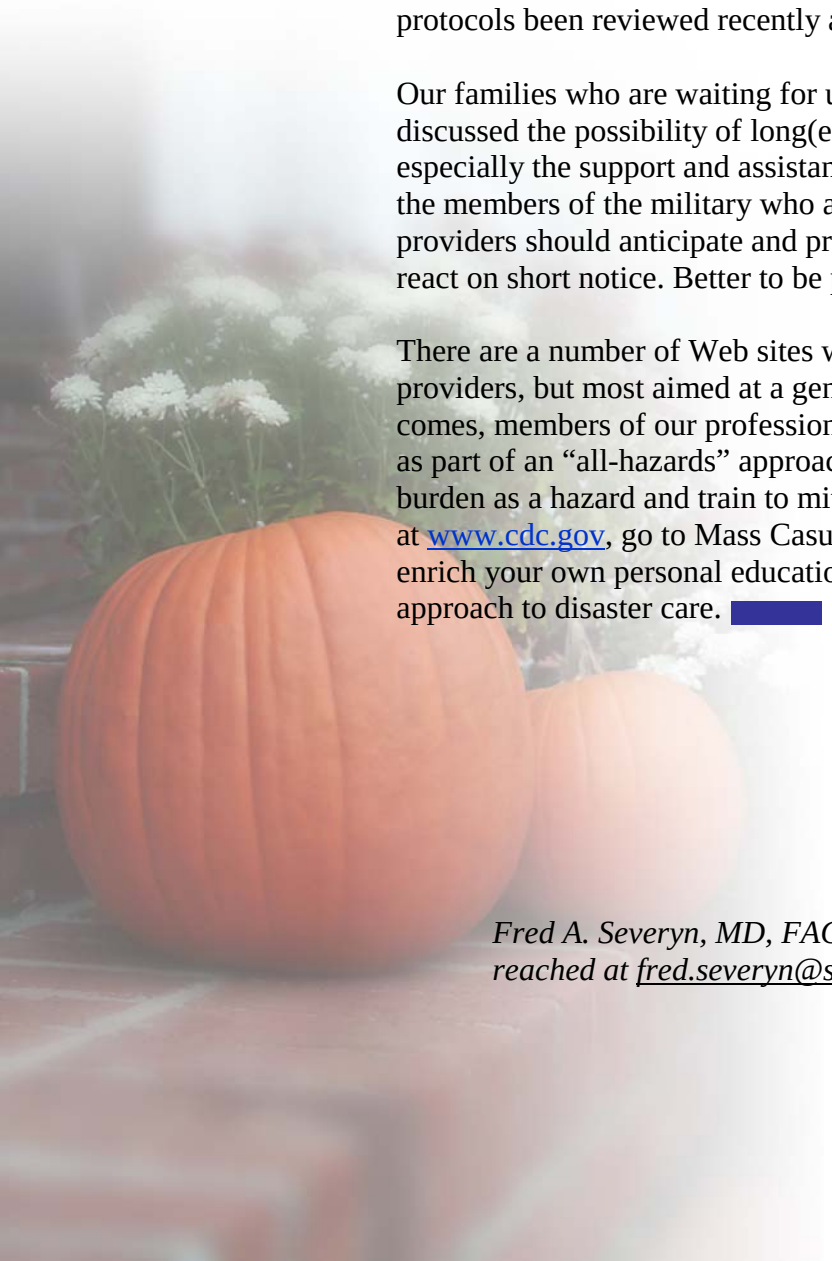
by Dr. Fred Severyn

This past year has been relatively uneventful for Colorado citizens and rescuers alike in respect to potential large-scale threats from fire, disease outbreak or natural disasters. Hurricane season is upon the United States, and the winter months ahead bring the potential for infectious disease in the form of influenza-like illness that can wreck havoc on local populations.

EMS prides itself as a community that is available 24/7/365 for the public at risk. Have you ever considered being there for yourself and family as well? Are you prepared physically for a potential prolonged activation period? Have you planned on updating your immunization status for influenza this year? Has your agency and your medical director met to address disaster management in general, and have your protocols been reviewed recently and/or updated?

Our families who are waiting for us need some preparation as well. Have you discussed the possibility of long(er) periods away from home and family support, especially the support and assistance that you provide to your family unit? Much like the members of the military who are activated for extended deployment, EMS providers should anticipate and prepare in advance and not have to improvise and react on short notice. Better to be proactive and not reactive when the time comes.

There are a number of Web sites with resources available, some aimed at EMS providers, but most aimed at a generic audience. When the proverbial "big one" comes, members of our profession will be looked to for guidance and leadership, and as part of an "all-hazards" approach, I would ask that you consider this potential burden as a hazard and train to mitigate its potential threats. Start at the CDC Web site at www.cdc.gov, go to Mass Casualty Care and start exploring. Not only will you enrich your own personal education, but you will gain some insight into an all-hazards approach to disaster care.



Fred A. Severyn, MD, FACEP, is the state EMS medical director and can be reached at fred.severyn@state.co.us.

Communications Updates
Renaming Radio Channels

by Ron Lutz

Digital Trunked Radio System
The rebanding of the statewide Digital Trunked Radio (DTR) system's user radios (mobiles, portables and consolettes) was completed in early September 2007. Rebanding allows these radios to receive the new frequencies that the DTR tower sites are being changed to as part of the rebanding process. The rebanding of the tower frequencies has commenced with the completion of the user radio rebanding. If a user radio has not been rebanded, it will not work on the new tower frequencies. If your radio has not been rebanded, contact the rebanding project manager at (303) 469-1776 or e-mail tthornberry@psaplogic.com. For more rebanding information, visit the Consolidated Communications Network of Colorado Web site at www.ccncinc.org.

Interoperability Channel Naming
The National Public Safety Telecommunications Council has developed a common naming protocol for public safety's interoperability frequencies. While use is not a Federal Communications Commission mandate, the naming protocol has been receiving wide acceptance within the public safety communications community.

The EMS Provider Grant's Communication Equipment Criteria, found at www.cdphe.state.co.us/em/grants/Downloads/CommunicationsCategoryCriteria.pdf, lists six Very High Frequency (VHF) interoperability frequencies that could be referred to using the new naming protocol. These are shown below.

FREQUENCY	CURRENT NAME	NPSTC NAME
151.1375 MHz	VHF MAC 1	VTAC 11
154.4525 MHz	VHF MAC 2	VTAC 12
155.7525 MHz	VHF MAC 3	VCALL10
158.7375 MHz	VHF MAC 4	VTAC 13
159.4725 MHz	VHF MAC 5	VTAC 14
155.340 MHz	HEAR	VMED 28

Ron Lutz, BS, Mtel, is the State Telecommunications Services liaison to the Colorado Department of Public Health and Environment and can be reached at ron.lutz@state.co.us.

Steve Boylls
New Staff

Please welcome Steve Boylls to the Emergency Medical and Trauma Services Section as the Data Program's database manager. Steve has extensive experience in creating data systems, collecting data from various sources, assessing and improving the quality of data, data analysis, preparing reports for internal as well as external customers, and information dissemination.

He worked for StorageTek in Louisville for 20 years in systems support for Americas Logistics and was instrumental in the design, development and support of the Material Analysis Dispositioning System. Upon leaving StorageTek, Steve joined the Risk Management group for Citigroup Diners Club as a database manager where he designed and developed a Risk Management Web Reporting Application utilizing SAS, which has a worldwide user base. Steve worked for Citigroup for eight years, and was awarded the Innovation Award by Citigroup for his efforts.

He enjoys a wide range of sports, the Colorado outdoors and working out. Please join us in welcoming Steve.

Jean McMains
New Staff

Please welcome Jean McMains to the Emergency Medical and Trauma Services Section as the Trauma Program administrative assistant. Jean helps organize trauma reviews, rule changes, files, committee meetings, plans of correction, travel and more.

Jean joined the Emergency Medical and Trauma Services Section from the Attorney General's office where she worked for three years. Prior to that, she held several office management positions in a variety of settings. She has broad administrative experience and is a wizard at organizing.

Jean's outside-the-office interests include motorcycle riding (check out the purple bike in our parking lot), gardening and reading. Please join us in welcoming Jean.

A New Strategic Plan
Suicide Prevention in Colorado

by Jarrod Hindman

- In 2004, Colorado had the seventh highest suicide death rate in the United States.
- In 2005, more people in Colorado died by suicide than died in motor vehicle crashes (795 and 662 deaths, respectively).
- Older adults ages 70 and older have the highest rate of suicide death in Colorado.
- The highest numbers of suicide deaths each year occur among men ages 35 to 49.
- Suicide is the second leading cause of death among Coloradans ages 10 to 34.
- It is estimated that up to 90 percent of people who die by suicide have a diagnosable mental illness.
- Mental illnesses are highly treatable, suggesting that suicide is preventable.

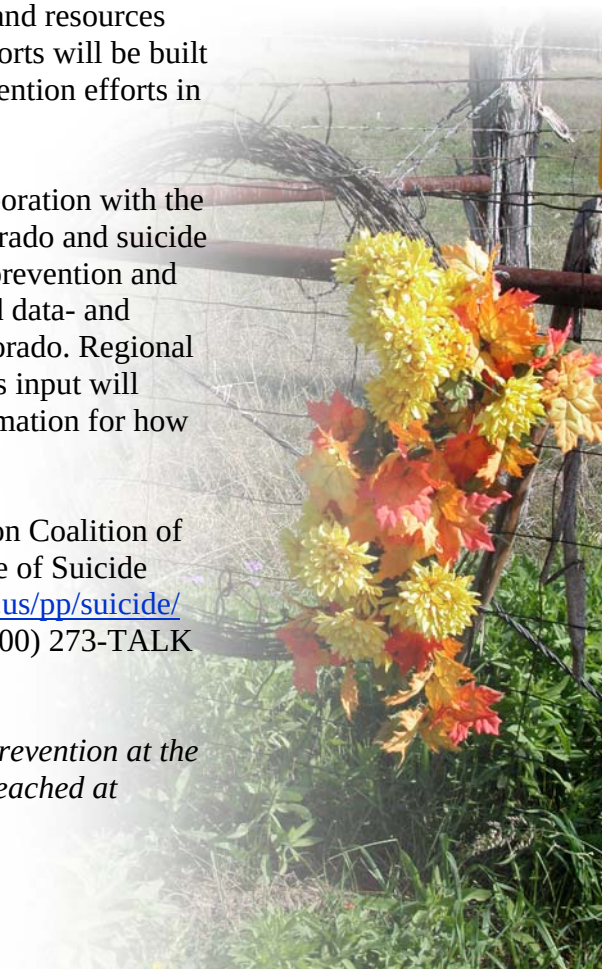
In 2005, more people in Colorado died by suicide than died in motor vehicle crashes.

First Lady Jeannie Ritter has been named honorary chairperson of a new suicide prevention and intervention strategic plan for the state of Colorado. In the spring of 2007, The Colorado Trust released funding to update and build upon the original strategic plan for suicide prevention that was released in November 1998. The 1998 plan, *State of Colorado Suicide Prevention and Intervention Plan: The Report of the Governor's Suicide Prevention Advisory Commission*, presented strategic recommendations in state capacity-building, public information and education, training, and community-based planning. Since its release, the Office of Suicide Prevention, the Suicide Prevention Coalition of Colorado and suicide prevention stakeholders throughout Colorado have dedicated a great deal of time and resources successfully implementing components of the strategic plan. Those efforts will be built upon and expanded in the new plan to further the reach of suicide prevention efforts in Colorado.

Mental Health America of Colorado is coordinating the effort in collaboration with the Office of Suicide Prevention, the Suicide Prevention Coalition of Colorado and suicide prevention partners and stakeholders. Statewide dedication to suicide prevention and collaborative efforts of suicide prevention partners will create a unified data- and community-driven plan that will have a lasting impact throughout Colorado. Regional forums are being held to gather input from stakeholders statewide. This input will influence the direction and priorities of the plan and will provide information for how to best implement suicide prevention strategies.

For more information, contact Miriam Dunnan at the Suicide Prevention Coalition of Colorado at mdunnan@mhacolorado.org, Jarrod Hindman at the Office of Suicide Prevention at jarrod.hindman@state.co.us or visit www.cdphe.state.co.us/pp/suicide/index.html. If you or someone you care about is suicidal, call 911, 1 (800) 273-TALK (8255) or your local crisis line.

Jarrod Hindman, MS, is a program manager in the Office of Suicide Prevention at the Colorado Department of Public Health and Environment and can be reached at jarrod.hindman@state.co.us.



EMS Provider Grants
Getting Ready to Apply

by Jeanne-Marie Bakehouse

Each year, the Colorado Department of Public Health and Environment distributes approximately $1.6 million dollars to support improvements and expansion throughout Colorado's emergency medical and trauma services system. The EMS Provider Grants Program is designed to support Colorado EMS agencies with patient care and transportation services.

This year's EMS grant awards (fiscal year 2008) were made in July 2007, and agencies are presently working to implement their grant projects. Some characteristics of the fiscal year 2008 grant process include the following:

- Ninety-three applications were reviewed, and 69 of them were funded either partially or in full. Seventy-eight percent of these awards went to rural and frontier agencies, and 22 percent went to urban-based agencies.
- The vehicle category was the highest total dollar amount and had a funded amount of nearly $924,000.
- The injury prevention category was the lowest, with no funds awarded, as no application in this category went through the scoring process.
- Just over $84,000 was awarded to the data collection category, and $21,300 went to recruitment/retention.
- Nearly $315,000 went toward EMT training and education.

Next year's grant application cycle (fiscal year 2009) begins Dec. 15, 2007. It's not too early to begin the application process!

Steps in the application process

1. Attend a grants workshop this fall or winter. These offerings are conducted through the Regional Emergency Medical and Trauma Advisory Councils and are extremely helpful in understanding the application and scoring process. Contact your local RETAC coordinator or the Colorado Department of Public Health and Environment for a list of dates and locations.
2. Apply for a CEMSIS Web portal username and password. If you applied for a grant last year, you can use the same username and password. If you need a new username and password, request those now at www.cdphe.state.co.us/em/emtsdata/index.html by filling out and submitting a letter of intent.
3. On Dec. 15, 2007, access the grant application at www.coems.info by logging into the CEMSIS Web portal using your username and password. From there, you can access the grant guide, the agency profile and the grant application.

(Continued on Page 13)

EMS Provider Grants *continued*

(Continued from Page 12)

4. There are 10 grant categories available, including vehicles, training, communication, data collection, EMS equipment, recruitment/retention, injury prevention, defibrillation, extrication equipment and other. You may apply in a maximum of two categories.
5. All applicants must complete both an agency profile and a grant application. Submit them electronically using the CEMSIS Web portal.
6. Print a hard copy of your application, sign in the appropriate places and mail that paper copy, along with any attachments, to the Colorado Department of Public Health and Environment. This documentation must be received at the department by 5 p.m. on Feb. 15, 2008.
7. **All grant applications must be complete and received at the department by 5 p.m. on Feb. 15, 2008. Applications received after the deadline will not be considered for funding.**

Things to remember

- Your RETAC coordinator is a very helpful resource for this program. Find your local RETAC coordinator's contact information at www.cdphe.state.co.us/em/retac/index.html.
- A 50 percent local cash match is required for this program, unless approved for waiver. Details on the waiver application and process can be found at www.cdphe.state.co.us/em/grants/providerfaq.html.
- This program does not fund capital construction, fire apparatus, uniforms, disposables, salaries and infrastructure.
- Eligible applications will be reviewed using a standardized scoring tool (available at www.coems.info). Reviews take place at both the RETAC and state level during March, April and May. Attendance at both the local and state hearings is highly recommended so agency representatives can answer any questions the review panel may have.
- Public notice of grant awards will be posted at www.coems.info by July 1, 2008.

Jeanne-Marie Bakehouse is the EMS Provider Grants program manager at the Emergency Medical and Trauma Services Section and can be reached at jeanne.bakehouse@state.co.us.

Patient Care Reports
A Dilemma

by Linda Underbrink

It's an age-old issue. For those of us involved in EMS for 20 years or more, we can testify that leaving a patient care report (trip report) with the patient has been and continues to be an ongoing issue. Because it's been an issue for so long, does that mean we shouldn't try to address the problem? Last year, the Foothills RETAC decided to tackle the problem and formed the FRETAC Clinical Care Committee with buy-in and attendance from the docs, facilities and many of our EMS agencies. We decided that this multifaceted issue required a multifaceted approach.

Issues identified for prehospital: reasons they aren't able to leave the PCR

- Many agencies are converting from paper to electronic charting, and some systems are not developed enough to link the electronic PCR to the PCR left at the facility.
- There are many different printers at the facilities, and even if systems allow downloading, they don't have all the drivers required to download data.
- Busier agencies may be stacked up with calls and are unable to leave a report.
- Some agencies have many miles to travel, are outside their call areas for extended periods and don't want to add another 20 minutes to their out-of-service time to complete the PCR.
- Motivation may be a factor. We heard complaints about information given not being taken seriously, so there is no motivation to leave it.
- Last but not least, the agencies say they left it, but the facilities say they don't have it.

Issues identified for facilities

- Many facilities are converting from paper to electronic charting.
- Trauma versus medical patients. The trauma programs are more organized because of Colorado's trauma system. Trauma coordinators contact the agencies when a PCR is not present so it will be sent later. For medical patients, many times the issue is not identified unless needed for a specific reason.
- Where did the PCR go? When patients travel through the emergency system at a facility, sometimes the PCR does not go with them. Does the PCR get faxed to the emergency department later or does it get faxed to Medical Records? If the patient was discharged from the emergency department, will the faxed PCR make it to the patient's medical record? Tracking PCRs can be quite arduous.
- Who needs the PCR? We found that trauma surgeons definitely want the information. Our organ transplant programs require the information. Our emergency department docs sometimes feel that they receive what they need from the verbal report, but did the information get passed on as the patient went through the system?

(Continued on Page 15)

Patient Care Reports *continued*

(Continued from Page 14)

Outcomes

- PPCR: We developed the FRETAC Preliminary Patient Care Record (PPCR) with input from all disciplines within EMS, including the docs, facilities and agencies. It is a short form that contains all the pertinent information identified as essential in the transfer of care from prehospital to facilities. The form was designed to take less than three minutes to complete, and it is for use only when a full PCR cannot be left. Our agencies and facilities were given copies of the form in July, and it is available electronically at www.foothillsretac.com or in tablets of 50. The form is not copyrighted and can be changed to include other data points. We'll be updating the form with input from our group, and we're already discussing making it a "no carbon required" form so agency staff members can take a copy back with them to fill in their full PCR.
- Printers/faxes: We are looking into funding for using precisely the same printer in every one of our facilities to address the issue of too many different drivers and printers.
- Fax numbers: We will be maintaining a list of exactly where facilities want PCRs faxed, including the emergency department, the trauma office or Medical Records. The list will be sent to all of our agencies and possibly be placed on the back of the PPCR form.

Next Steps

- Listen to our agencies and facilities. How should the PPCR form be improved?
- Compare compliance. Obtain data on the compliance of use of the PPCR and compare compliance of leaving the full PCR. Did the new printers help? Did the PPCR help?
- Keep up the PI/QI with the project. What do we need to change? Is the project making a difference? Do we need to expand the program?
- Work with other regions that are addressing the issue. By networking, we may find other avenues to pursue.

Conclusion

By working together with a regional approach, Colorado's RETACs can make a real difference in emergency and trauma care. We look at this project as the first of many that we hope will influence and improve our medical system. By bringing together experts in all disciplines within the emergency medical and trauma services system and by putting aside affiliations, we can get a lot accomplished.

Linda Underbrink, RN, is the Foothills RETAC coordinator and the chair of the EMS Data Task Force and can be reached at linda.u@msn.com.

Safer Ambulance Design
continued

(Continued from Page 1)

We began looking for safer designs and found that American Medical Response (AMR) appeared to be taking the lead with its partnership with American Emergency Vehicles (AEV) in designing, building and testing the well-publicized Safety Concept Vehicles. With statistical data, experience and—finally—new designs being tested, surely the manufacturers would soon offer safer options.

Last year we began the annual process of retiring and replacing one ambulance from our fleet. We made the decision to roll over funds to the following year (a risky budget move in the fire service!) to give ambulance manufacturers one more year to respond to the obvious changes needed in their designs. What we wanted simply wasn't ready.

This year, as we began working with various ambulance manufacturers, it became clear any major design changes to the patient compartment would be custom and experimental. Although simpler features such as recessed grab rails, padded surfaces and minimized head-strike areas are available, major internal design changes allowing medics to remain restrained while providing patient care were uncommon, even dismissed by builders as "untested." So it seems, while those of us in EMS are waiting for the manufacturers to build safer ambulances, they are waiting for us to tell them what to build.

A Functional Design

Our design was done with one simple goal in mind: everyone and everything restrained. This meant creating an ergonomically-sound environment conducive to providing patient care while being restrained. We looked at how personnel function in the current units and what supplies and equipment need to be handy.

It was quickly apparent the standard squad bench positioned curbside would have to go. The squad bench routinely serves as the primary patient care position and offers no realistic possibility of being safely restrained while providing any real patient care.

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Safer Ambulance Design *continued*

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We all know most medical personnel prefer this position while working in "the box" and use no restraints. The squad bench often is used to seat two or more unrestrained occupants. Turning to the AMR/AEV Concept Vehicles for ideas, we opted to move the squad bench transversely across the bulkhead and replace it with a captain's chair with drawers, cabinets and electronic controls in easy reach. The monitor was positioned in this area on a slide-out mount.

We replaced the standard "CPR Seat" on the street side with the same type of captain's chair, offset slightly more rearward. Both seats have 9 inches of travel. The standard rear-facing "jump seat" position remains the same. Although we looked at the Stroth "stand-up" harnesses used in some concept ambulances, we decided instead on five-point restraint systems that allow full upper body movement, but keep personnel seated.

The repositioned squad bench, the most substantial design difference, proved to be the most challenging with manufacturers. In fact, only AEV said it would build to our specifications regarding the transverse bench. Realizing we occasionally need to transport more than one patient, we felt having a bench was necessary and the bulkhead position was the obvious placement.

The bench is 76 inches in length and a patient on an LSB can be loaded from the curbside door. We added two more fully restrained positions (four-point) to the bench, one of which also is an integrated child safety seat. The standard "jump seat" positioned at the head of the stretcher also can spin and lock 90 degrees. This design resolved several issues we wanted to address. Transporting a second patient used to mean one or more medics not only were unrestrained, but had no seat! A child restrained in the standard jump seat position configured with a child seat also created safety problems. The medic was either far off on the bench seat or seated on the end of the stretcher positioned to be closer, but likely would impact the child in a sudden deceleration. With this new design, the medic can be fully restrained in the jump seat and spin 90 degrees to be next to a patient on the bench or the restrained child.

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Safer Ambulance Design
continued

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Restraining the Stuff
Space issues (our design resulted in the regrettable loss of 30 percent of interior cabinet space) led us to re-examine exactly what equipment and supplies are needed, then design space for the items. Hard, heavy items have pre-designated stow locations, such as the curbside door mount for a 20-pound pelican box. For stowing bulky items carried only occasionally, we designed features such as a large, adjustable and removable net to the front of the squad bench. Adjustable strapping brackets for heavy items such as a balloon pump or wheelchair are located curbside near the rear doors. Exterior cabinets had to be reconfigured somewhat due to the interior changes and to accommodate some fire gear, including SCBA brackets.

Exterior Safety Features
Although our primary concern was developing a safer patient compartment and medic work environment, numerous external safety features were included. Some of the highlights include highly reflective material used for exterior striping and lettering and a Z pattern stripe assuring all cabinets have reflective material. Cabinet doors have exterior LED flashing lights when open. The rear street-side compartment opens "suicide" fashion so that a medic does not stand in front of the LED light and reflective material when retrieving or stowing equipment. A highly reflective chevron pattern covers much of the back of the unit and commands considerable attention. Two wide-angle external cameras allow the driver to visualize the entire right side and blind spot whenever the turn signal is activated and the rear of the vehicle when backing.

This is the first of a three-part series looking at Durango Fire & Rescue's experience in building safer ambulances. This first part examines the issue of ambulance design safety and illustrates some of the common challenges in making a safer design a reality. The second part will examine the cultural and personnel "change" issues involved with deploying these new ambulances and will discuss how we approached them. Finally, we will put it all together in the third part of the series 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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Safer Ambulance Design *continued*

Overview of Key Safety Features

Patient Compartment

- crew seats, equipment and supplies positioned for optimal patient care while using restraints
- crew seats have six-point harness systems allowing maxim movement while in use
- four fully restrained crew/passenger positions in patient compartment
- "squad bench" moved to transverse position across bulkhead
- integrated child safety seat mounted to bulkhead bench facing rearward
- "attendant seat" swivels to multiple locking positions for fully restrained access to patient on bench or child safety seat
- built-in mechanisms for restraining all equipment, including large devices such as balloon pumps
- switch panels, O_2 and suction accessible from all crew seats
- safety restraint nets

External Features

- highly reflective striping covering all compartment doors
- internal and external flashing lights on all compartment doors
- highly visible rear chevron pattern
- hydraulic O_2 lift system
- external cameras allowing drivers to see blind spots

Data Collection
Participating Agencies

Central Mountains RETAC	Aspen Ambulance District
	Chaffee County Emergency Medical Service
	Platte Canyon Rescue Service
	Snowmass-Wildcat Fire Protection District
	St. Vincent Hospital Ambulance Service
	Western Eagle County Ambulance District
Foothills RETAC	Elk Creek Fire Protection District
	Evergreen Fire Protection District
	Highland Rescue Team Ambulance District
	Inter-Canyon Fire/Rescue
Mile-High RETAC	American Medical Response - Denver-Boulder
	Castle Rock Fire and Rescue Department
	Elizabeth Fire Protection District
	Englewood Department of Safety Services
	Franktown Fire Protection District
	Larkspur Fire Protection District
	Parker Fire Protection District
	Platte Valley Medical Center - EMS
	South Metro Fire Rescue
Northeast Colorado RETAC	City Of Wray Ambulance
	East Phillips County Ambulance
	Estes Park Medical Center Ambulance
	Haxtun Ambulance Service
	Morgan County Ambulance Service
	Poudre Valley Hospital Emergency Medical Services
	South Y-W Ambulance Service, Inc.
	Thompson Valley Emergency Medical Services
	Washington County Ambulance Service
	Weld County Paramedic Services
Northwest RETAC	Clifton Fire District
	North Routt Fire Protection District
	Oak Creek Fire Protection District
	Rangely Hospital District Ambulance Service
	Rio Blanco Fire Protection District
	The Memorial Hospital
	Yampa Fire Protection District
Plains to Peaks RETAC	American Medical Response - El Paso County
	Cheyenne County Ambulance Service
	Limon Ambulance Service
	Lincoln Community Hospital Transport Service
	Ute Pass Regional Ambulance District

Data Collection *continued*

San Luis Valley RETAC	Alamosa County Ambulance
	Baca Grande Property Owners Association
	Center Fire Protection District
	Conejos County EMS
	Del Norte Community Ambulance, Inc.
	Mineral County Ambulance Service
	Monte Vista Community Ambulance Service
	Northern Saguache County Ambulance District
Southeast Colorado RETAC	Bent County Ambulance Service
	Crowley County Ambulance
	Fowler Rural Fire Protection Dist.
	Kiowa County Ambulance Service
	La Junta Rural Ambulance Service
	Manzanola First Response Unit
	Rocky Ford Emergency Services
	Two Buttes Ambulance
	Walsh Ambulance Service
Southern Colorado RETAC	American Medical Response - Canon City
	American Medical Response - Pueblo
	Custer County Ambulance
	Huerfano County Ambulance Service
	Penrose Volunteer Fire Department
	Ramrod - Arkansas Valley Ambulance
	Transportation Technology Center
	Trinidad Ambulance District
Southwest RETAC	Los Pinos Fire Protection District
	Silverton-San Juan County Ambulance Association
	Southwest Memorial Hospital Ambulance
	Upper San Juan Hospital District
	Ute Mountain Ute Tribal EMS
Western RETAC	Delta County Ambulance District
	Gunnison Valley Hospital - EMS
	Montrose Fire Protection District
	North Fork Ambulance Association
	Norwood Fire Protection District
	Nucla-Naturita Fire Department Ambulance Fund, Inc.
	Ouray County Emergency Medical Service
	Telluride Fire Protection District

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- **January SEMTAC meeting.** Jan. 10, 2008. Sabin-Cleere Room, Colorado Department of Public Health and Environment, Denver, Colo.
- **April SEMTAC meeting.** April 10, 2008. Sabin-Cleere Room, Colorado Department of Public Health and Environment, Denver, Colo.

If you would like to receive this newsletter via e-mail, please send your request to jeanne.bakehouse@state.co.us. We welcome comments and content submissions.

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