



Contra Costa EMS for Children Plan: 2009



The State of EMSC: Contra Costa County Program Evaluation and Update



In Feb 2007 Contra Costa EMS began the process of updating our program plan. This presentation is to inform you of the Contra Costa EMSC accomplishments and findings from the re-evaluation of Contra Costa EMSC program. Since 2002 Contra Costa EMSC has developed a strong ongoing program of pediatric education and training in all our stakeholder agencies including emergency departments, air and ground transport and first responders.

- Appropriate pediatric equipment for all ages is fully integrated into our EMS system consistent with state and national guidelines.
- There is clear communication and decision making mechanisms for rapid transport of critically ill pediatric patients within the resources of our county.
- Pediatrics is now fully integrated into our local EMS QI program approved by the EMS Authority in April 2008.
- Contra Costa has a community of active EMSC participants supporting primary prevention activities throughout our community.
- Numerous stakeholders and EMS have participated in both National and State EMS-C activities.
- The EMS Agency has increased it's staff and network of experts in the area of pediatric emergency care.
- EMS has promoted innovative safety focused prehospital practice (ie: using D10 in the prehospital setting to improve patient safety during glucose administration in pediatric seizure patients by eliminating the need to dilute concentrated glucose solutions).

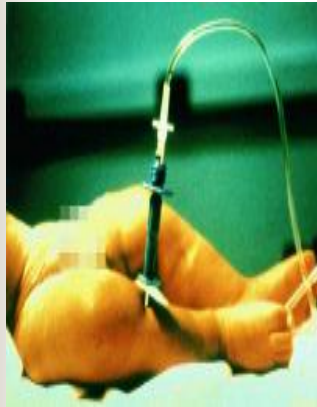
Frequency of Pediatric EMS Transport: 2005-2007

Age Group	2005	2006	2007	Total 2005-2007	%	
Total Patient Transports	47,924	51,800	53,800	153,601	100%	
Neonate 0-1 days	27	23	24	74	> 0.1%	9%
Pediatric 2 days- 14 yrs	2,239	2,882	2,742	7,863	5.1%	
Adolescent 15-18yrs	1,842	2,072	2,070	5,984	3.9%	
Adults > 18 yrs	43,816	46,823	49,041	139,680	91%	

AMR Data Jan 2005 to Dec 2007

- There are approximately 250,00 children in Contra Costa County between the ages of 0-18 according to the 2007 census estimates.
- However pediatrics is a low frequency high risk population and makes up only 9% of our EMS transports.
- AMR data Jan 2005-Dec 2007 (24 months) 7,937 patients < 14 years or 13,921 < 18 years
- Pediatric transports of patients under 14 represent a little over 5% of all EMS transports.
- Using the definition of 18 years and under as done in national studies that number increase to 9%.
- Patients over 14 are generally treated medically as adults because at that age they are physiologically similar to adults.
- That is why Prehospital EMS treatment guidelines define patients age 14 and under as “pediatric”.

Pediatric Field Skill Frequency



AMR data Dec 2005 to May 2007

- Average pediatric contact per medic is 3.6 patients every 6 months.
- EMS system average: 141 pediatric procedures attempts per month
- 0.76 pediatric procedure attempts per medic per month.

- Children present unique challenges to our EMS system because prehospital and ED providers do not see critically ill children that often
- Pediatrics as a small proportion of overall EMS responses creates special training and risk management issues.
- From a risk perspective children are considered a “low frequency high risk” population presenting skill training and competency challenges for our system.
- AMR data Dec 2005-May 2007 (18 months) involving 185 paramedics performing 2401 attempts on 1901 pediatric patients.

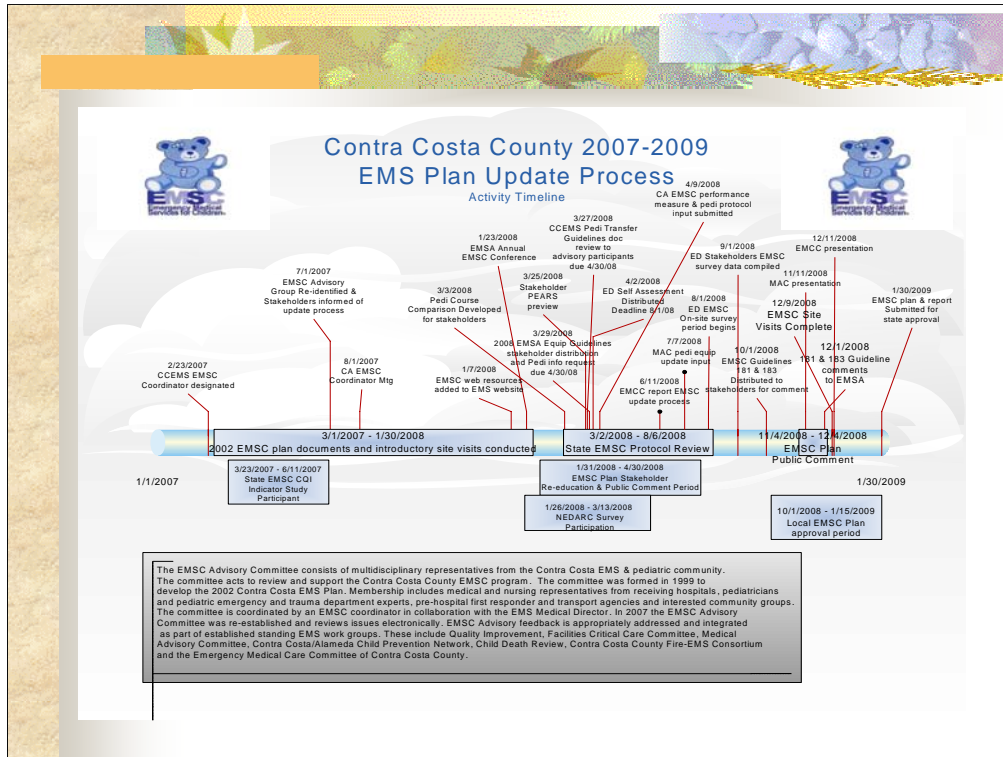
The EMSC Mission & Vision

- National Initiative: To reduce pediatric morbidity and mortality from injury and illness ...within EMS systems.
- To create a seamless system of comprehensive care for children.
 - Injury prevention
 - Prehospital care
 - Hospital care
 - Disaster

New!



- The EMSC program is a national initiative that creates guidelines for the hospital and prehospital community to effectively care of children during emergencies.
- The National EMS-Children Program the mission and vision includes.
- EMSC supports integration of limited and specialized pediatric emergencies services in a community with a strong focus on prevention since the majority of pediatric emergencies are preventable.
- It is different from many of the other EMS Agency programs because it focuses on integration of emergency services for children **throughout the spectrum of care**....not just prehospital.
- The State EMS Authority gives the Contra Costa EMS agency the role of facilitator supporting stakeholders in improving a system of emergency services for children.
- With the advent of Katrina and other national and international disasters EMSC National has been working to raise awareness and encourage communities to plan for the needs of children during disasters.



- Since Feb 2007 EMS conducted a rigorous process of evaluation of the 2000 EMSC plan
- This process included updating the old plan and is now complete.
- The draft plan was posted for a 30 day public comment period was completed on November 30th.
- Contra Costa's EMSC program review process began with an assessment of our current EMS-C plan and pediatric capabilities of our EMS stakeholders.
- The previous plan goals and objectives were reviewed and evaluated and opportunities for improvement identified throughout the update process.
- An integrated approach was used to facilitate the EMSC update process and included numerous stakeholders and pediatric advocates in our community.
- Surveys of our Emergency Departments and stakeholder agencies were distributed and completed by August 2008.
- Educational site visits were conducted and all hospitals participated in the review and evaluation process.
- Opportunities for joint ED-prehospital pediatric training were being explored as part of that process and are being planned.
- Pediatric prehospital and ED protocols are being updated with a renewed emphasis on patient safety and evidence based EMS practice.
- A strong model of BLS training is being emphasized based on best practices.
- The final EMSC plan will be submitted to the state by January 2009.

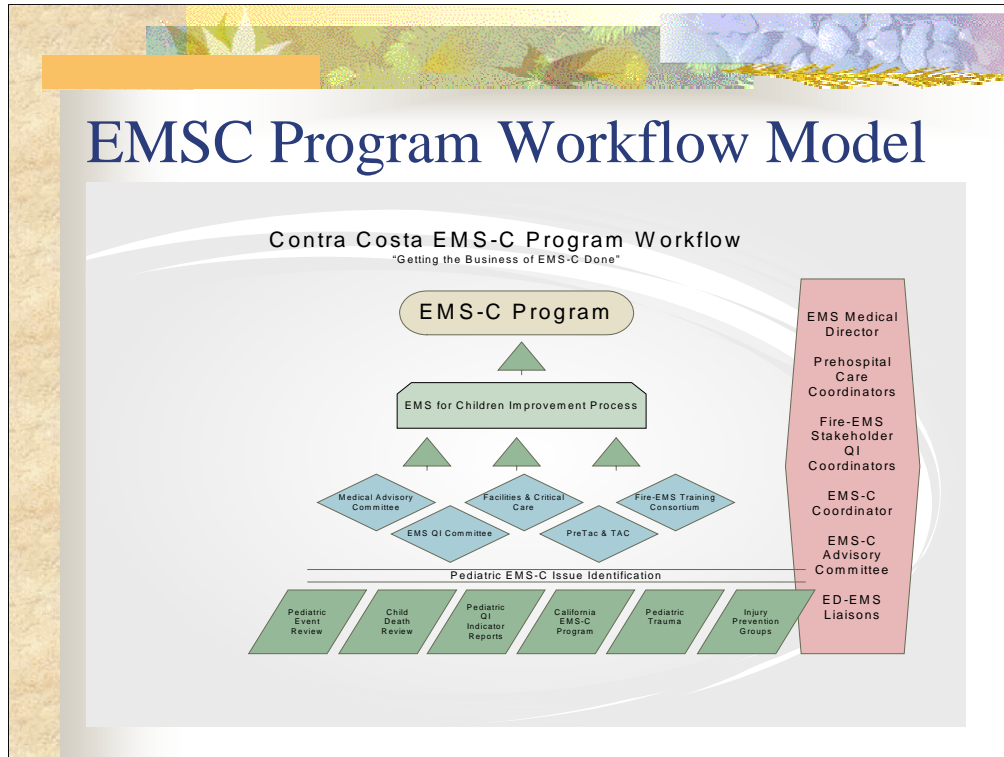
EMSC Advisory Committee

- Multidisciplinary representatives
 - EMS Community
 - Pediatric Community
 - Hospitals
 - Pediatric Prevention
 - SIDS
 - Trauma
 - Child Abuse
 - Injury Prevention



- The EMSC Advisory Committee consists of multidisciplinary representatives from the Contra Costa EMS & pediatric medical community.
- It acts to review and support the Contra Costa County EMSC program.
- It was formed in 1999 to develop the 2002 Contra Costa EMSC Plan. Membership includes medical and nursing representatives from receiving hospitals, pediatricians and pediatric emergency and trauma department experts, pre-hospital first responder and transport agencies and interested community groups.
- It is coordinated by an EMSC coordinator in collaboration with the EMS Medical Director.
- In 2007 the EMSC Advisory Committee was re-established and currently reviews issues electronically.
- EMSC Advisory feedback is appropriately addressed and integrated as part of established standing EMS work groups.
- These include Quality Improvement, Facilities Critical Care Committee, Medical Advisory Committee, East Bay Injury Prevention Network, Child Death Review, Contra Costa County Fire-EMS Training Consortium and the Emergency Medical Care Committee of Contra Costa County.

EMSC Program Workflow Model



- When the EMSC program first began the state & national guidelines emphasized a separate and distinct committee/process structure for working on pediatric emergency issues.
- This approach was resource and time intensive and could not be maintained but this did not mean that the work of EMSC was not getting done.
- Today what is working for Contra Costa is a naturally evolving integrated approach to EMSC.
- Contra Costa's 2009 EMSC program plan will capture this strategy.

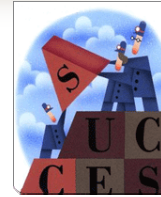
EMS for Children Plan Program Evaluation Conclusions

- EMSC program in Contra Costa met or exceeded it's 2000 program design objectives.
- Opportunities exist for future innovative EMSC program enhancements.



- One of the main ways our EMSC program has matured is in our ability to access and analyze prehospital data. This has been and will continue to be an enormous benefit for our EMS system.
- Pediatrics is a small infrequent population within our EMS community and our ability to retrospectively look at numbers and identify issues and trends presents exciting opportunities.
- As part of our program update a comprehensive status report will be compiled describing our prehospital pediatric utilization and information shared from updated survey of on our emergency department pediatric preparedness.

EMSC for Children Program Looking Back



- 2000 EMSC System Accomplishments
 - Established EMSC stakeholder advisory group
 - Created local guidelines
 - Interfacility Transport & Transfer
 - Prehospital & ED Preparedness & Equipment
 - Established Pedi training expectations
 - Field protocol review and additions
- Foundation for ongoing EMSC Program

- EMS for Children (EMSC) is a national program established in 1984 and has grown to include all 50 states.
- California's program established in 1988 was one of the first to participate in the national program.
- Grants from the California EMSC program funded Contra Costa's EMSC program in early 1999.
- In Feb 2000, the Contra Costa EMSC project began under the leadership of EMSC Coordinator Barbara Center & Dr. Joe Barger EMS Medical Director and was approved April 2002.
- This project created the infrastructure for Contra Costa's current EMSC program.

EMSC for Children Program 2009 Moving Forward

**CHOOSE
WHAT
WORKS**

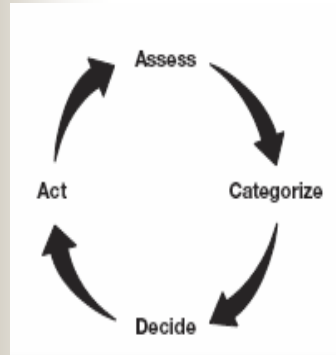


- **Re-established EMSC stakeholder advisory group**
- **Adoption of state and national EMSC guidelines**
 - Interfacility Transport & Transfer
 - Prehospital & ED Preparedness & Equipment

- As EMSC moves into an era of evidence-based medicine and prehospital care there is increasing efficacy for adopting and supporting state and national guidelines instead of directing limited resources to “reinventing” programs.
- As our EMS community moves forward Contra Costa EMSC needs to seek out review and implement “best practices” and adopt state and national guidelines
- The 2000 EMSC plan local guidelines were reviewed and found redundant and state and national guidelines were adopted as part of the Contra Costa EMSC 2009 plan.
- These State and National guidelines are vetted by renown pediatric emergency experts however we need to continue to evaluate these standards in the context of what we can realistically accomplish and what makes “sense” for our EMS community.

EMSC for Children Program 2009

Moving Forward



- Shared Pediatric EMS Assessment Model
 - ACDA: Assess, Categorize, Decide, Act
 - National Model for Pediatric Emergency Assessment
 - AHA & AAP
- A common approach to pediatric emergency assessment.

- An example of this is the new American Heart Association and American Academy of Pediatrics, pediatric emergency assessment model
- This standard approach to children in crisis incorporates the current approaches used by both prehospital and emergency departments nationally
- This creates an opportunity for Contra Costa EMSC to support it as a shared assessment model for the entire EMS community.
- This approach is already taught in PALS and can be easily incorporated into all of the different pediatric emergency courses available to our EMS providers.
- Fire-EMS agencies and Emergency Departments have all expressed their support for this concept and in 2009 it will be adopted as our best practice countywide assessment approach to critically ill children.

EMSC for Children Program 2009 Moving Forward



- Evidenced based Field protocol & resources
 - Charcoal
 - Airway Management
 - Medication Safety
 - Pain Assessment & Mgmt
- Integrated pediatric quality improvement

- Ongoing work that is enhanced by our current CQI review of pediatric prehospital data.
- This is a hand in hand approach supporting evidence based prehospital care.

EMSC for Children Program 2009 Moving Forward



- Identification of Local EMSC system needs & enhancement opportunities
 - Disaster & Pediatric Surge Capability
 - Injury prevention networking
 - Simulation training
 - Improve access to EMSC information and resources

- During the EMSC evaluation process many opportunities were identified to improve and enhance pediatric preparedness in our community.
- One of the priority areas is in pediatric disaster preparedness and quality improvement.

EMSC Facility Evaluation Findings



- 18-23% of ED visits are Pediatric
- 80-95% brought in by private auto
- ED MDs & RNs meet EMSC training standards
- 100% EDs have appropriate transfer practices in place
- QI activities focused primarily on case review
- Disaster preparedness information & resources needed
- Concept of shared pediatric assessment model supported
- Interest in simulation training

•This information reflects the findings from our facilities self assessments and site evaluations.

•Facilities with strong physician and advance practice nurse EMSC advocates had enhanced pediatric emergency training and QI programs.

•All facilities supported ongoing improvements to the local EMSC plan and expressed the need for increased networking to support activities.

EMSC Facility Evaluation Pediatric Bed Capabilities

- Since 2000 several pediatric units closed
- Current Status
 - 1 bed for every 5000 children (<14 years)
- Implications:
 - Pediatric Surge Capability
 - Pediatric Competency & Preparedness



- The EMSC initiative supports directing pediatric care to pediatric specialists and over the last 10 years there has been a steady decrease in the number of general pediatric beds in local communities.
- While this transition is positive under normal conditions it presents implications for communities in the event of community events or disasters that may affect large numbers of children < 14 years of age.
- In Contra Costa County, Doctors San Pablo, JMMC-Concord, CCRMC all have eliminated pediatric beds since 2000.
- This observation raises the following concerns:
 - The risk of erosion of pediatric health provider inpatient competency at facilities that no longer have inpatient pediatric beds.
 - Pediatric disaster and surge capacity and capability within the EMS system.
 - During the site surveys not all ED facilities were aware of recent pediatric bed closures e.g. CCRMC and JMMC Concord suggesting communication gaps between hospitals.

EMSC Facility Evaluation Pediatric Transfer and Transport



- Oakland Children's
 - Regional Trauma & Critical Care Center
 - 100% utilization
 - Online medical consultation
 - Comprehensive pediatric specialists
 - Pediatric & Neonatal Critical care transport

•Oakland Children's is Contra Costa designated regional trauma and critical care center. The facility is in Alameda County and serves as the designated pediatric center for both counties.

•ED representatives of all facilities consistently reported strong pediatric consultative support and effective transfer and transport processes for children needing a higher level of care.

•Other facilities also used for pediatric transfer depending on the level of care required included JMMC-WC, Kaiser Oakland, Sacramento, Santa Clara, UCSF, UC Davis, LPCH, Saint Francis (burns), Shriners Sacramento

•Opportunities exist for facilities to more clearly define "criteria for pediatric consultation & referral".

•Currently most ED providers leave this aspect up to professional judgment of the physician.

•In facilities that have defined this clear communication exists between nursing and ED attending involved that can facilitate rapid transport when a higher level of care is needed.

Top 10 Pediatric EMS Calls

- **Blunt Injury (30.5%)**
- Behavioral Disturbance (14%)
- Seizures (10.2%)
- Respiratory (7.8%)
- Weak/Dizzy/Nausea/Sick (4.7%)
- ALOC (4.6%)
- Abdominal Pain (3.5%)
- Syncope/Near Syncope (3.2%)
- Fever (2.8%)

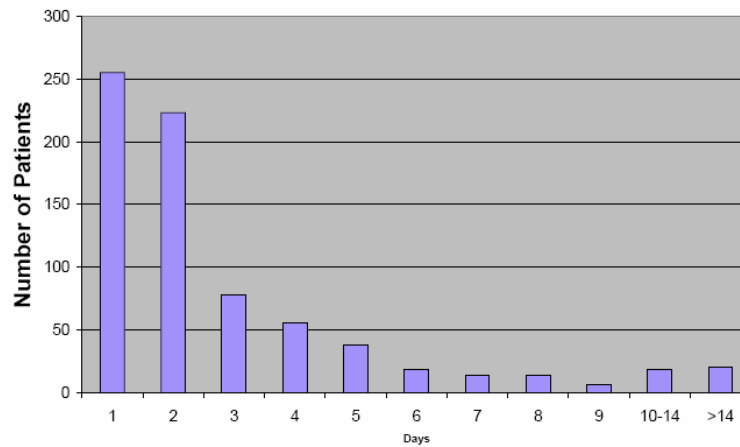


AMR data Dec 2005-May 2007

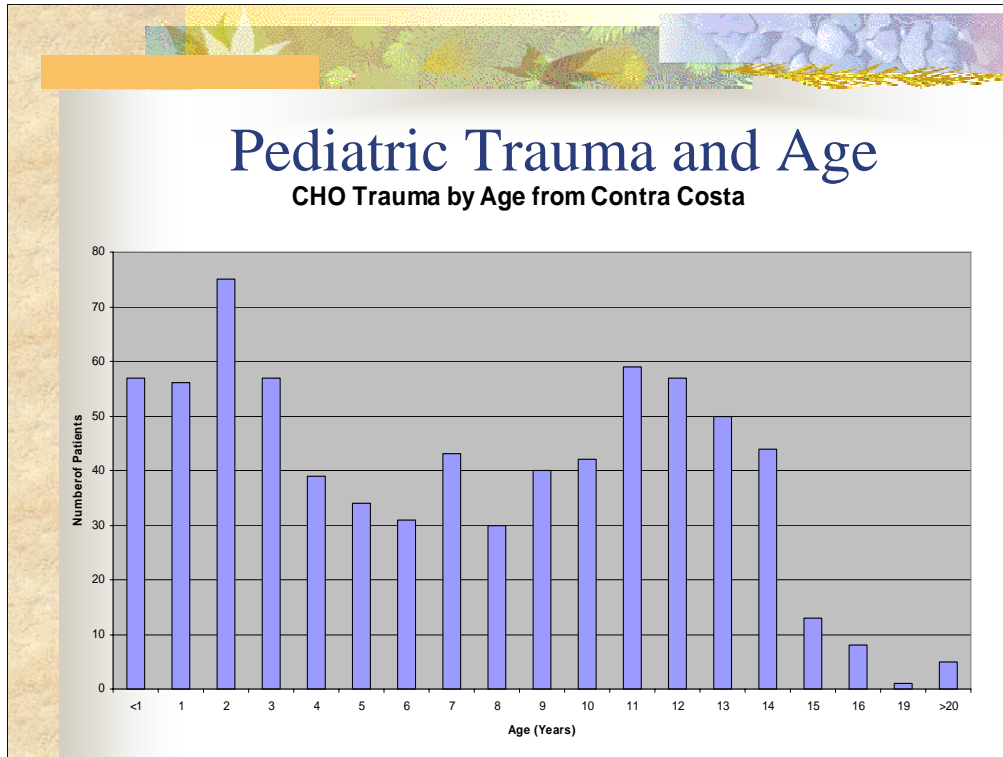
- Contra Costa's EMS top 10 pediatric calls finds blunt injury is number one in all pediatric age groups.
- Frequency of these findings are consistent with state and national injury statistics.
- This data comes from AMR between Dec 2005-May 2007 representing about 1901 pediatric transports or (90%) pediatric transports.
- Not all these cases go to a pediatric trauma center since most do not require that level of care.
- JMMC Walnut Creek acts as Contra Costa's local trauma center acts as a resource for pediatric trauma > 14 years of age.

Pediatric Trauma Length of Stay

Length of Stay - CHO Patients from Contra Costa



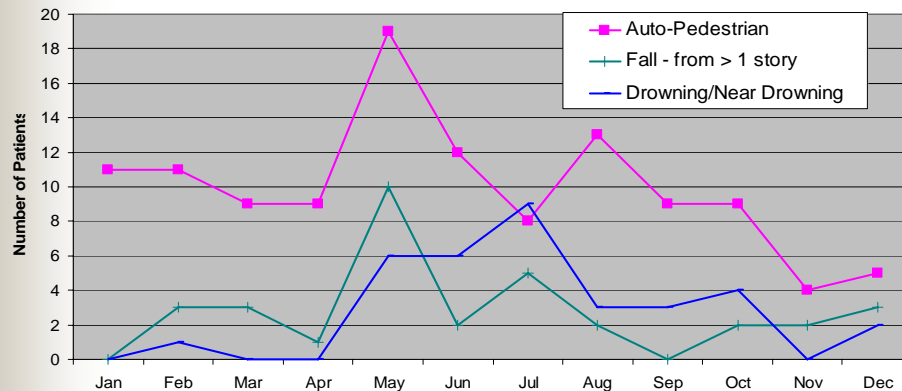
- The following statistics come from the Children’s Oakland Trauma Registry database between 2002 and 2007.
- The data includes trauma statistics transported from EMS and transferred from other facilities.
- Most cases of pediatric trauma do not require long term hospitalization. The majority are less than 48 hours.



- The following statistics come from the Children’s Oakland Trauma Registry database between 2002 and 2007.
- The data includes trauma statistics transported from EMS and transferred from other facilities.
- Trauma varies with age with the highest levels peaking between the age of 0-5 and again from 10-15

Mechanisms by Month

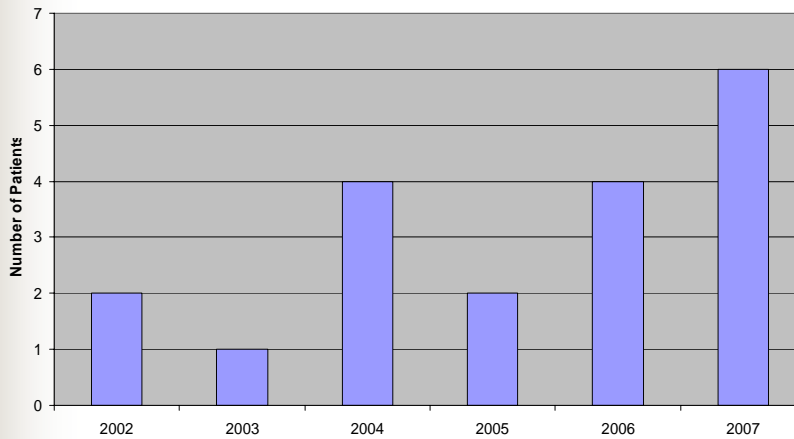
CHO Trauma Patients - Monthly Variation
by Specified Mechanisms - 2002-2007



- CHO trauma statistics have implications for pediatric injury prevention activities within the Contra Costa EMS System.
- When looking at these three major preventable injury categories this information helps injury prevention specialists target activities at particular times of the year.
- This information was recently shared with the East Bay Child Injury Prevention Network.
- Please note that fall from > 1 story are a cause of major injury from April to November.
- Pediatric trauma has a seasonal aspect to it which allows prevention activities to be targeted throughout the year.

Children and Firearm Injuries

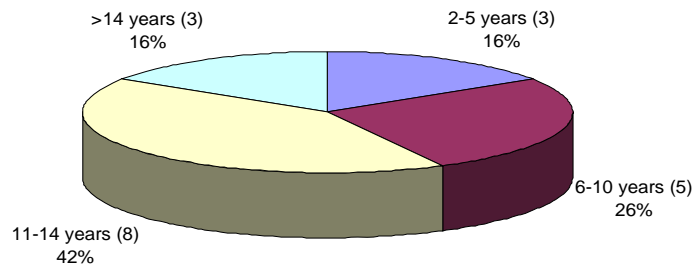
Firearm Injuries to CHO from Contra Costa



- Between 2002 and 2007 Firearm injuries and violence have increased in our county.
- As a result violence related firearm injuries have escalated over the last few years.
- Children are frequently innocent bystanders of these events.
- Young adolescents also participate in gang related activity increasing their risk for violence related trauma.

Fire Arm Injuries by Age

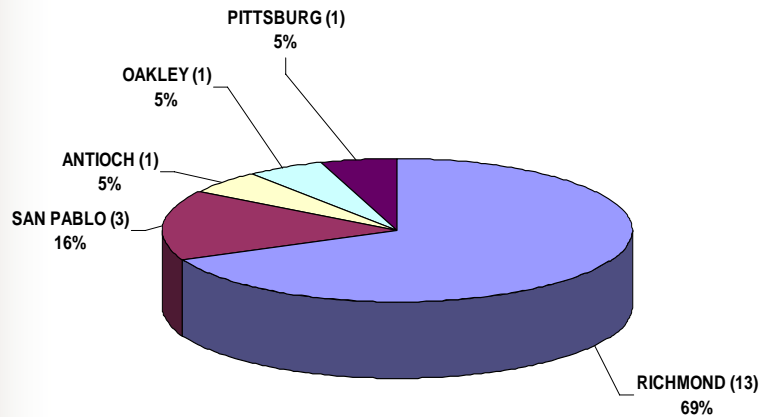
Firearm Injuries by Age Group to CHO
from Contra Costa



- Firearm injuries occur in all age groups

Firearm Injuries by City

Firearm Injuries - CHO Trauma Patients by City



- Pediatric firearm injuries are demographic.
- This information helps our EMS community target violence prevention activities.
- Contra Costa Health Services has targeted over 50 violence prevention activities in 2008 alone to address these problems.

EMSC & Injury Prevention



- **Injury prevention is active within the community!**
- Shrinking funding
- Web accessibility to resources
- Networking & collaboration

- All stakeholders through the EMS system actively participate in Child Injury Prevention activities.
- Innovative programs such as “Every 15 minutes” provide strong messages in the community about the dangers of drinking and driving.
- The Contra Costa EMS community actively supports many child injury prevention programs
- Many stakeholders have web resources directed at both children and adults are readily accessible.
- Age appropriate on line interactive games teaching injury prevention are used.
- Hospitals and community organizations are active in getting information to parents on car seats, bike safety and other injury prevention topics.
- Primary care providers in the pediatric community actively educate injury prevention as part of required check ups throughout the child’s care. However for children and families without access to health care injury prevention information may be limited.
- Injury prevention activities have been deeply impacted by budget cuts. This reality is not likely to change and will require injury prevention specialists to network and collaborate on activities to achieve the same impact in the community.
- EMS will be enhancing it’s website as part of our 2009 plan to improve access to child injury prevention information to our EMS community.

Child Death...When the worst happens are we prepared?

- Support for EMS system providers & families
- Child Death Review
- Child Abuse & SIDS training
- EMS-Coroner collaboration
- Infant safe surrender
- Critical Incident Debriefing



- Dealing with a child death regardless of it's cause is traumatic for all those involved.
- EMS is reviewing current protocols and practices to enhance support of all those involved
- EMS has had an ongoing presence on the Contra Costa Child Death Review Committee and will continue to do so
- Ongoing child abuse and SIDS training is required of all EMS prehospital providers and is covered in (PEPP) Pediatric Education for the Prehospital Professional Course Contra Costa
- EMS stakeholders all support the Safely Surrendered Baby Program. Information about this program was added to EMS website in 2008
- There is a commitment to the educational and emotional support of our EMS providers in the EMS community.

Next Steps.....
Opportunities to enhance EMSC
are just down the road



- Contra Costa EMSC Program has accomplished an enormous amount through the leadership and efforts of our EMSC Champions.
- Contra Costa EMSC will continue to need that strong work and commitment moving forward.

The Future of Contra Costa EMSC

The 2009 Action Plan



- Active participation
- Networking & Collaboration
- Leadership
- Training
- Innovation
- Accessible resources
- Technology solutions

- Moving forward requires ongoing leadership and commitment.
- Shrinking resources will require increased collaboration and networking to support a community of active EMSC champions focused on making improvements in the areas identified.
- Contra Costa EMSC welcomes your participation and support.

Questions?



- I encourage your participation in our program.
- If you would like to be added to our EMS for Children Advisory group contact pfrost@hsd.cccounty.us
- For more information on EMSC visit our website at www.cccems.org.

This presentation was developed by:

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