



**Contra Costa Health Services
Emergency Medical Services**



**EMS Quality Improvement Program (EQIP)
Annual Report
January – December
2008**

**Contra Costa County Emergency Medical Services
Quality Improvement Annual Report Jan 2008-Dec 2008
Executive Summary**

Advisory Body

Contra Costa County Quality Improvement Committee

Mission

Contra Costa EMS Quality Improvement’s mission is to ensure that quality emergency medical services are available for all people in Contra Costa County and that the medical care is consistent with best practices and evidence based medicine.

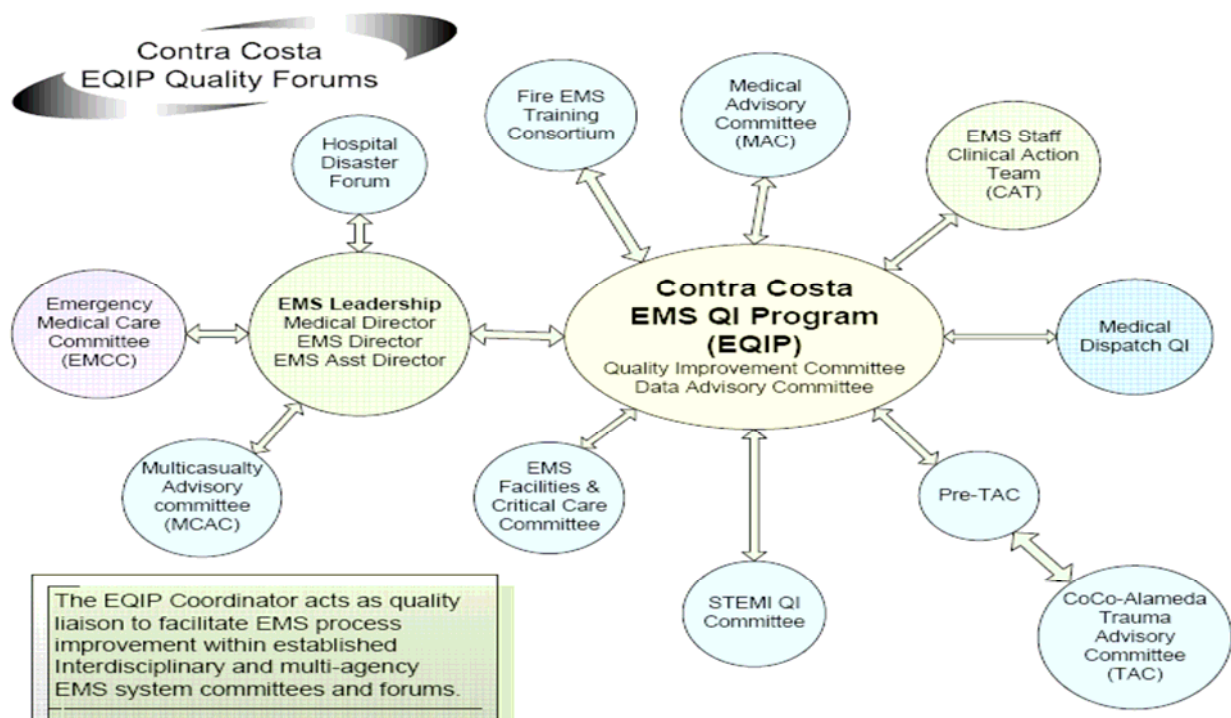
Membership

Participation includes EMS Medical Director, QI Coordinator and EMS Staff assigned to clinical programs and representatives of BLS provider and first responder programs, Fire Districts with ALS and BLS programs: Medical Dispatch centers; Private ALS provider and Base Hospital and Trauma Center, Receiving Hospitals and Air Ambulance Providers. Currently Hospital, Private ALS and Dispatch QI participation is facilitated by appropriate EMS Staff who acts as QI liaison.

Medical Director Oversight: Joe Barger MD, EMS Medical Director

Chair: Patricia Frost PNP, EMS QI Coordinator

EMS Clinical Program Coordinators: Pam Dodson RN, Public Safety, Dispatch, Fire First Responder Programs, Judy Smith RN, Trauma Coordinator, Bruce Kenagy, EMT-P, Contract Compliance and Data Management, Pat Frost EMSC Coordinator & STEMI Project Manager.



**Contra Costa County Emergency Medical Services
Quality Improvement Annual Report Jan 2008-Dec 2008
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Accomplishments




- Successful year two of three year plan to establish a comprehensive Quality Improvement Program for Contra Costa County.
- Contra Costa County QI Plan approved by EMSA April 2008.
- >50 EMS QI data related QI studies conducted as of December 2008
- Five out of the seven 2008 QI Program goals were met with the remaining goals substantially met.
 - QI plans substantially complete for 11/12 Fire EMS Stakeholders
 - Quarterly stakeholder QI Activity reporting implemented
 - QI meetings and activities continue with active stakeholder participation
- Successful development and launch of STEMI System with rigorous QI oversight
 - 5 hospitals designated as STEMI Centers
 - >600 prehospital providers trained in STEMI protocols and 12 leads
 - Training established & implemented for all ED providers on STEMI system
- Evidenced based communication standard for patient report and base contact adopted Situation, Background, Assessment, Recap/Rx (SBAR) for prehospital providers to enhance patient safety and improve patient handoff communication.
- Biannual EMS System performance reporting incorporated into QI, MAC & EMCC
- Data advisory subcommittee membership expanded to include all Fire stakeholders with numerous activities to effectively address Fire EMS provider ePCR utilization and data management.
 - Core Data Indicator report for prehospital skills, ePCR completion, ED drop times built.
 - Fire EMS consultants contracted to support successful Zoll implementation.
 - Zoll Users Group meeting Oct 2008
 - Zoll and MEDS upgrades in progress to achieve improved
 - Fire EMS Zoll resource website established Nov 2008
- Best Practice Patient Safety Reporting program (EMS Event Reporting) system-wide implementation making substantial progress among stakeholders.
- Fire EMS Training Consortium Quality Partnership produced 4 Best Practice curriculums incorporating field simulation training resources.
- Electronic Newsletter EMS Best Practices 9 issues published.
- Electronic Newsletter STEMI News developed with 4 issues published
- National EMSC Data Analysis Resource Center (NEDARC) study participant
- Expanded utilization of EPCR data to support decision-making on protocol and treatment guideline update and revision.
- Pediatric intubation removed from county protocols based on patient safety and poor clinical efficacy effective January 2009.
- EPCR data consistently utilized to evaluate effectiveness of EMS field treatment and identify training issues.
- Second Fire EMS Training Consortium Field provider needs assessment conducted May 2008 and data used for curriculum planning.
- Update and completion of EMSC Plan to be submitted to state in 2009.
- EMS Virtual Advisor program utilized to provide input on Prehospital QI issues.
- EMS website enhanced with QI, STEMI, EMSC & Fire EMS Consortium content.





2008 EMS Provider Agency Stakeholder QI Participation Recognition							
Outcome: EMS stakeholder participation improved from 57% in 2007 to 80% in 2008!							
Agency	QI Plan	CQI Role assigned	QI Meetings attended	Quarterly Reports Submitted	Uses EMS Event Program	Data Advisory Group Participant	Fire EMS Consortium Member
Quality Improvement Goal	Y	Y	11	Y (4)	Y	Y	Y
AMR	Y-OP	Y	11	Y (4)	Y	Y	Y
MOFPD	Y-PC	Y	10	Y (4)	Y	Y	Y
SRVFPD	Y-PC	Y	9	Y (2)	Y	Y	Y
CCCCFPD	Y-OP	Y	9	Y (3)	Y	Y	Y
El Cerrito Fire	Y-OP	Y-ES	9	Y (3)	Y	Y	Y
Pinole Fire	Y-OP	Y-ES	8	Y (1)	Y	N	Y
Rodeo-Hercules Fire	Y-OP	Y-ES	10	Y (4)	Y	N	Y
East Contra Costa Fire	Y-OP	Y	9	Y (3)	Y	N	Y
Richmond Fire	Y-OP	Y-ES	10-ES*	N (0)	Y	N	Y
Crockett Fire	N-PC	N-ES	10-ES*	NA	Y	NA	Y-ES*
CALSTAR	Y-OP	Y	1	N (0)	?	NA	Y
REACH	Y-OP	Y	5	Y (4)	?	NA	Y
JMMC Base & Trauma	Y-OP	Y	8	NA	Y	NA	Y
CCCCFPD Dispatch	Y-EMD	Y-ES	10-ES*	NA-EMD	N-EMD	Y	NA
Richmond Dispatch	Y-EMD	Y-ES	10-ES*	NA-EMD	N-EMD	N	NA
SRVFPD Dispatch	Y-EMD	Y-ES	10-ES*	NA-EMD	N-EMD	Y	NA


Legend: Y = Yes; N = No; OP = Own plan PC = Policy using county plan; ? = Unknown; EMD = Emergency Medical Dispatch QI Participant; ES = EMS staff liaison facilitates participation; ES* = Participation limited to EMS staff liaison, NA = Not Applicable

Long Term Objective (3 year goal begun in Jan 2007): Develop and implement a comprehensive Quality Improvement Program for Contra Costa County Emergency Medical Services.

2008 Quality Improvement Goals- A Productive year of Accomplishments: Based on an assessment of EMS system resources and processes begun in 2007, eight EMS QI goals were identified for 2008 supporting the long term objective stated above. Six of the eight goals were accomplished with the two remaining having been substantially met.

Progress as of December 2008		Outcome
2008 EQIP Goal		 Goal Met
Compliance with Title 22 requirement for QI Plans	<ul style="list-style-type: none"> ▪ QI meetings previously not held since May 2005. Monthly QI meetings held since Feb 2007. ▪ Contra Costa County EMS Quality Improvement Plan approved by EMSA in April 2008. One of two approved QI plans by EMSA. ▪ In Jan 2007 only 1 agency was in compliance with Title 22 requirement for a written QI plan. As of December 2008 100% are now in compliance. ▪ Stakeholder participation in QI Committee Meetings increased from 57% to 80% in 2008. With 100% of stakeholders involved in CQI program. 	
Patient Safety Goal: Improve Field Handoff Communication	<ul style="list-style-type: none"> ▪ SBAR Best Practice communication standards adapted for prehospital and adopted system wide for all EMS patient handoff and base contact communication. ▪ Education and training to EMS providers and ED stakeholders provided with Fall 2008 EMS Update. ▪ Numerous articles in newsletter reinforcing importance of communication ▪ EMS event reporting system in place to capture communication problems when factor in EMS safety events. ▪ Full implementation planned for 2009 with CQI coordinators to utilize new standards and remediate providers as needed. 	 Goal Met
Fully Implement EMS Event Reporting and QI Activity Tracking	<ul style="list-style-type: none"> ▪ EMS Patient Safety reporting system not captured from 2/15/05 thru 12/28/06 re-established 12/28/06. ▪ Biannual reporting of EMS events to stakeholder forums established in Jan 2007 ▪ EMS event reporting program launched system-wide in Jan 2008 with all EMS providers and stakeholder agencies oriented emphasizing accountability. ▪ Web page resources including training made available at www.cccems.org ▪ CQI Coordinator self study developed to facilitate utilization of QI data analysis portion of event reporting. ▪ Program still evolving with technology challenges in database implementation among CQI users. ▪ Survey distributed Dec 2008 to assess effectiveness and explore opportunities to enhance program among stakeholder CQI coordinators. ▪ Education process for implementation and change of culture from punitive safety reporting model to non-punitive safety reporting model will require continued reinforcement and remediation to achieve optimal utilization within the EMS system. Ongoing process in place to support. 	 Goal substantially met

<p>EMS Patient Care Improvement Opportunities</p>	<ul style="list-style-type: none"> ▪ STEMI system launched in September 2008 with 911 to intervention times of 91 minutes, almost 30 minutes less than AHA benchmark of 120 minutes. ▪ Pediatric Pan Dose Guidelines developed compatible with length based color coded Broselow system ▪ Removal of Pediatric Intubation from field scope ▪ Replacement of D25 to D10 in pediatric hypoglycemia protocol to decrease risk of calculation and dilution errors and preserve vascular access in the child. ▪ Expanded training and content developed in Prehospital Care Manual on Pediatrics, Geriatric Trauma and obese patient care. ▪ New advanced airway protocol effective in Dec 2007 utilizing King Tube improving airway success in adult patients. ▪ CPAP utilization decreasing need for high risk advanced airway improving patient safety in conscious patients. ▪ 12 lead performance in chest pain improving with STEMI system implementation. ▪ Ongoing process in place to support. 	 <p>Goal Met</p>
<p>EMS Education and Training Opportunities</p>	<ul style="list-style-type: none"> ▪ Fire-EMS Training consortium active partnership with EMS and CQI in developing standardized training curriculum. ▪ Topics included End Tidal CO2 monitoring, Behavioral Emergencies, Geriatric Trauma, obesity and Bariatric Unit Utilization and EMS Update 2008. ▪ Expanded Fire-EMS Meti Simulation training use in MCI drills and PEPP as well as quarterly consortium training. ▪ Highly productive collaborative model working with excellent results. ▪ Purchase of ACLS Meti Simulation program and numerous materials for PEPP and 12 lead training including manikins and simulators. ▪ Consortium webpage added to EMS website 	 <p>Goal Met</p>
<p>EMS-Children Plan update</p>	<ul style="list-style-type: none"> ▪ EMSC Program Plan evaluation and update submitted to state Dec 31, 2008. ▪ 100% stakeholder participation in process ▪ Review, update and enhancement of all pediatric protocols completed ▪ BLS/ALS Equipment lists updated consistent with State and National EMSC standards. ▪ ED Survey and site visits completed. ▪ Network of EMSC Champions established ▪ Accomplishments and opportunities identified and articulated in State of EMSC report to stakeholder groups ▪ Web page created for EMSC with further enhancements planned. 	 <p>Goal Met</p>
<p>Improve patient safety and EMS quality information exchange</p>	<ul style="list-style-type: none"> ▪ More than 50 clinical studies conducted over the last year in various areas and reported biannually to stakeholder groups. See addendum for details. ▪ Biannual QI reporting in place and enhancing QI activities and awareness among stakeholders ▪ STEMI Newsletter developed and published 4 issues in 2008 ▪ EMS Best Practices Newsletter developed and published 7 issues in 2008 	 <p>Goal Met</p>

Facilitate County wide QI data Integration	<ul style="list-style-type: none"> ▪ Expectation established with stakeholder agencies to assure mechanisms to distribute newsletters to each EMS provider. ▪ EMS Best Practice Virtual Advisor Program increased from 19 in 2007 to 30 with a goal of 50 participants ▪ Zoll user website with portal access for CQI ePCR compliance access for Zoll stakeholders implemented. ▪ Website enhancements with availability of training resources available to EMS system participants. ▪ Zoll reporting began in December 2007 with improved implementation in 2008 with support of Data Advisory members and Zoll Fire EMS consultants being added. ▪ Code cracked to match First responder and Transport records thru First Watch in early 2008. ▪ Monthly Data Advisory Group meetings with increased stakeholder participation facilitating process. ▪ Full development of Quality indicators identified in 3/2007 made slow progress due to data infrastructure challenges. See summary of core indicator development. ▪ Cardiac Arrest Registry to Enhance Survival (CARES) CDC program participation exploration in progress. ▪ Zoll CQI and user website developed in Nov 2008 and Zoll end user meeting conducted Oct 2008 ▪ Ongoing processes to support in place. 	 <p>Goal substantially met</p>
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Quality Improvement EMS System Recommendations

Continued support and resources need to be facilitated by the EMS Agency in the following areas:

1. Explore technology solutions for 12 lead ECG transmission and CARES registry participation.
2. Continue to support utilization of clinical and communication best practices models to improve efficiencies in the EMS system.
3. Support FTE for data analysis and core indicator development compliant with CEMISIS..
4. Incorporate clear realistic QI expectations during contract review process.
5. Encourage provider agency leadership to support FTE for QI and Training activities to assure effective & competent workforce.
6. Continue to promote a culture of safety for patients and providers throughout the EMS system
7. Continue to engage agency leadership in supporting EMS QI as an important risk management strategy.
8. Continue to explore regional solutions for specialty populations & limited resources such as Trauma, Pediatrics, Burns and Air Transport.
9. Continue to explore partnerships with county and regional injury and risk prevention efforts ie: Senior Falls, Stroke, Heart Safe Community, CPR Anytime, Public Access Defibrillation, Disaster preparedness, Violence, Domestic, Elder and Child Abuse.
10. Support pediatric disaster preparedness as component of overall disaster plan for EMS system by providing resources, training and compliance with EMSC guidelines.
11. Support adoption of the new national pediatric emergency assessment model ACDA (Assess, Categorize, Decide Act) among EMS system providers.

2009 EMS Quality Improvement Goals

Overall Goal (beginning last year of 3 year plan) : Establish a comprehensive county-wide quality improvement program focused on best practices and improved patient outcome. In 2009 emphasis will be on EMS data system performance measures development and automation.

Priorities	Criteria
County-wide QI Data integration infrastructure development	Core performance measures developed. CARES- Cardiac Arrest Registry to Enhance Survival implementation plan developed. Zoll and MEDS data set updates. Improvements in ePCR hospital delivery completion and delivery. Improved backend Zoll reports. County wide first responder short form PCR developed.
Stakeholder QI plan update and QI reporting compliance	QI Stakeholder quarterly reporting implemented and operational. All agencies have final QI plans functional and in place.
Patient Safety Focus	Standards in Field handoff communication fully implemented EMS Event reporting fully implemented. Improve patient safety and EMS quality information exchange
Dispatch Integration into EMS QI Program	Core performance QI reporting to EMS established
EMS Patient Care Improvement Opportunities: EMS Clinical Issues (pediatric & adult) monitoring and protocol enhancement	STEMI system management. Pain assessment and treatment. Behavioral emergencies and restraint. Unexpected death scene support. Implementation of new helicopter task force protocols.
EMS Education and Training Opportunities	Standard building: Documentation, ePCR compliance, County wide first responder paper PCR development, STEMI documentation. SBAR implementation. Fire EMS Consortium Collaboration. Enhance training and provide educational resources for EMSC stakeholders in the area of pediatric emergency assessment and disaster preparedness. Medic Preceptor-Mentorship curriculum developed.

Table A: EMS QI Program Core Indicator Report Development
“Our EMS System Vital Signs”

2008 Status Report

NS = Not started IP = In-progress C = Complete NA = Not applicable

Indicator Name	ZOLL Crystal Reports (CR)	MEDS Business Objects (BO)	Comments
1 Utsteins Report	IP	IP	Non-mapped ePCR data entered in Local cardiac arrest database with long term plan to participate in CARES registry.
2 Cardiac Arrest	IP	IP	Reports defined and being generated pm. Map of report process required. CARES implementation will include this indicator.
3 Pediatric Report	NS	C	Reports defined. Using EMSC vetted quality core measures. Supplementing with others pm.
4 Documentation	C	C	Core reports for ePCR completion in place. Other reports yet to be defined.
5 Trauma and Trauma Triage Destination Report	C	C	*Uses trauma registry in tandem with ePCR data. Reports being generated but Core reports yet to be defined and automated.
6 Patient Safety and EMS Event Reporting	C	C	Non-ePCR system data collection program. Biannual reporting in place and automated.
7 Airway Management	IP	IP	Preliminary parameters defined. Variety of reports being generated but core measures yet to be developed and automated.
8 Chest Pain/STEMI	C	C	Non-ePCR data collection program. EPCR fields not mapped to STEMI database for auto-population. Reports based on EAGLES evidenced based performance measures and AHA/ACC standards.
9 Pain Evaluation and Treatment	NS	C	Reports defined. Map of report process required. Will include Pedi and adult breakdowns when complete.
10 Shortness of Breath Report	NS	IP	Preliminary parameters defined. Reports being generated but core measures yet to be defined and automated.
11 Destination Decision Report	NS	IP	Preliminary parameters defined. Reports generated pm. Still evolving.

12	AMA/Patient refusal Report	IP	IP	Preliminary parameters defined. Reports feasible but not being utilized consistently . Core reports yet to be fully defined and automated.
13	General Activity Report (dispatch related)	C	C	Non-ePCR system data collection program. Medical Priority Dispatch System (MPDS) used.
14	Customer Satisfaction	Some IP Others NS	C	Agency-based survey system Non ePCR system data collection program. Contracted transport provider reporting routinely covering 90% of all 911 transports.
15	Infrequent Skills	IP	C	Improved report breaks out patient ages. Zoll reports in progress. Trending and automation still evolving.
16	EMS-ED Drop time reports	C	C	First watch data reports. Core indicator added in 2008. Reports automated but data points still being refined for reliable and appropriate interpretation.

Core Indicator Development Summary		
Core Measure Status	2008	2009
Not Started	12	4
In Progress	11	12
Complete	8	16

The Core Indicator Development Project is supported by the Data Advisory Group (DAG). DAG is a subcommittee of the Contra Costa EMS QI Committee.

DAG participants represent EMS provider agencies that utilize electronic patient care record technology. Contra Costa EMS would like to express our appreciation for the commitment and hard work of these individuals. Core indicator development is a challenging technical process that requires expertise in information technology, medical information systems, EMS performance improvement, training and development.

Addendums

- Contra Costa County EMS 2008 State EMSA Summary
 - EMS Event (Patient Safety) Reporting
 - Prehospital Patient Care Records at Receiving Facilities
 - Patient Satisfaction
 - Chest Pain Protocol Compliance
 - Hospital Off-Load Data
- Replication Study: Effectiveness of 2005 CPR Guidelines on Patient Survival
 - STEMI System Performance
 - Pediatric Studies
 - Infrequent Skills and ROSC
 - Pediatric Trauma
 - Pain Assessment
 - Advanced Airway Trauma
 - Field Medication Utilization: Furosemide (Lasix)
 - Prehospital Vascular Access
- 2008 Fire EMS Training Consortium Needs Assessment: Summary of Findings
 - Acknowledgements

CCCEMS 2009 State EMSA Summary

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>ePCR ED/hospital delivery</p> <p>Expectation: Draft paper PCR being delivered by Zoll providers at the time of patient handoff with ePCR delivery faxed to ED within 24 hours for all Fire Transports. MEDS providers to provide draft ePCR delivery at handoff with final ePCR delivery within 24 hours.</p>	<p>Jan 2007 to present</p> <p>Ongoing complex system issue</p>	<p>Timely delivery of completed ePCR to ED/hospital.</p> <p>Zoll Fax server problems identified</p> <p>Compliance issues identified with Zoll ePCR completion and MEDS draft ePCR printing</p> <p>Hospitals vary in ePCR intake creating barriers to effective delivery of prehospital ePCR.</p> <p>Zoll agencies work practices creating barriers to ePCR completion within 24 hours.</p> <p>Server and IT infrastructure barriers identified for Zoll</p> <p>Long term solution would be to PUSH ePCR into electronic hospital record system currently not feasible.</p>	<p>MEDS completion compliance reports in place and being monitored on quarterly basis.</p> <p>Zoll ePCR completion reports developed and assessable to Zoll users for compliance monitoring.</p> <p>Zoll Fax server issues being addressed with Zoll consultant to prioritize transport ePCR delivery.</p> <p>QI liaison to Facilities meeting addressing EMS/Hospital delivery issues.</p> <p>Monitoring and feedback to agencies involved to improve delivery.</p> <p>Ongoing education and training of providers on ePCR completion and delivery to facilities.</p> <p>Task force in progress to develop county-wide draft PCR to facilitate communication of first responder care delivery to transport providers and ED.</p>	<p>Best Practice fax option demonstrated as most reliable to achieve ePCR delivery (see addendum)</p> <p>Corrective action and education to employees based on audits ongoing for Zoll and MEDS systems.</p> <p>Zoll average rate of completion 65.8%.</p> <p>Zoll users completion rate varied from 2.9% to 96%. Wide variation due to technology barriers, implementation barriers and user compliance issues.</p> <p>Majority of technology issues have been resolved as of December 2008 and user training ongoing.</p> <p>Compliance and technology issues being actively reviewed and addressed by all stakeholders.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Prehospital-ED Base contact, Pre-arrival and Handoff Communication</p> <p>Expectation: Handoff communication will be clear, concise and complete.</p> <p>Complex ongoing system issue.</p>	<p>July 2007 to present</p>	<p>Review of EMS Events (Patient Safety Reporting Program) revealed that communication key factor in prehospital patient safety events 60% of the time.</p> <p>Incomplete communication at handoff resulting in lack of adequate information to ED providers.</p> <p>Impacts on patient care in hospital when critical information fails to be effectively communicated.</p> <p>Inconsistencies in handoff communication between providers affecting provider relationships adversely.</p>	<p>Best Practice communication models TeamSTEPS communication curriculum reviewed in Fall 2007.</p> <p>In 2008 SBAR (Situation, Background, Assessment, RX/Recap) evidence-based patient hand off communication model adapted to Prehospital.</p> <p>Stakeholders adopted SBAR standard for patient handoff communication throughout EMS system.</p> <p>All EMS providers trained in new communication standard during Fall 2008 EMS Update.</p> <p>Communication topics featured in EMS Best Practice newsletter.</p> <p>Field audit and base calls incorporated into training</p> <p>EMS Update curriculum shared with MICNs to assure clear expectations on patient communication within the system.</p>	<p>SBAR already in use at all receiving facilities allowing prehospital providers and ED providers to speak the same language.</p> <p>All communication issues will be evaluated based on new model and remediation will occur based on new standard.</p> <p>Communication and patient safety events being tracked as part of EMS event reporting.</p>
<p>Destination Decision Making</p>	<p>June 2007 to present</p>	<p>Ineffective communication during base contact for destination or trauma triage contributing to less optimal destination and trauma decisions. Impacts in pt care in hospital.</p>	<p>New SBAR communication model implemented in January 1, 2009</p> <p>All MICNs and providers trained in SBAR communication.</p>	<p>Field Care Audit and Base Call review to be re-established to monitor trauma destination issues.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Patient Safety Reporting</p> <p>Expectation: All stakeholders utilize best practice patient safety reporting system focusing on non-punitive positive corrections.</p>	<p>Jan 2007 to present</p>	<p>Unclear EMS patient safety reporting processes.</p> <p>Numerous factors impacting effective reporting processes. Redesign in progress.</p> <p>Implementation of electronic EMS event data base presented technology challenges.</p> <p>Adoption of best practice model requiring change in culture of reporting throughout system.</p> <p>Long term goal is to have web-based portal for all provider agencies to use.</p>	<p>Policy and process re-designed and new patient safety reporting data management system in 2007.</p> <p>All providers and agencies trained on new system Fall 2007.</p> <p>EMS Event reporting implemented in January 2008 with summary reports generated and feedback to stakeholders biannually.</p> <p>Support and training of QI coordinators developed to improve compliance and stakeholder EMS QI Coordinator responsibilities.</p> <p>Continuous review of process in place to facilitate utilization throughout system.</p>	<p>EMS event reporting quarterly reporting and blinded aggregate data analysis being conducted and reported into the system.</p> <p>Agencies are slowly implementing as new non-punitive patient safety reporting culture being supported.</p> <p>System being adopted by largest transport provider.</p> <p>Current electronic system and EMS event reporting program being re-evaluated for further opportunities to improve.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Prehospital-ED Relations</p> <p>Expectation: Prehospital and ED providers will work as a team.</p> <p>Ongoing complex system issue</p>	<p>May 2007 to present</p>	<p>Ineffective communication between providers affecting relations between ED and prehospital.</p> <p>Goal to promote culture shift from one of blame to one of team oriented process improvement.</p> <p>Misconceptions about roles and responsibilities between EMS system providers which affect interpersonal and interagency relations.</p> <p>Decreased opportunities to develop team approach due to the number of medics in the system and the rapid turnover of patients at facilities</p>	<p>Efforts to improve communication through site visits, best practices</p> <p>Root causes identified as lack of understanding between EMS stakeholders on roles and responsibilities.</p> <p>Communication survey conducted was conducted in 2008 and shared with stakeholders.</p> <p>Newsletters and access to EMS website materials being used to facilitate communication between stakeholders</p> <p>Interagency task force workgroups, EMSC Update and STEMI system development created new opportunities for stakeholders to build relationships.</p>	<p>EMS Best Practices and STEMI News being distributed to all EMS System providers to provide clear messages and support team relationships.</p> <p>STEMI system development in 2008 has provided enhanced opportunities for EMS providers and ED providers to work collaboratively.</p> <p>All stakeholder CQI Coordinators working more collaboratively to assure positive corrections when events go sideways between providers.</p> <p>Listerves between groups being considered to facilitate networking.</p>
<p>Increased Prehospital-ED off-load times</p> <p>Expectation: Patient care will be safely handed off to ED providers within 20 minutes 90% of the time.</p>	<p>Jan 2007 to present</p>	<p>Contra Costa implemented no diversion in 2007.</p> <p>Numerous factors impacting increased off load times.</p> <p>Increased EMS events reported in 2008 on excessive off-load times some increasing risk at various facilities.</p> <p>EMS and Facility feedback</p>	<p>Hospital ED working to determine root causes and identify effective strategies to address issues.</p> <p>Significant patient flow improvements have occurred due to elimination of destination per hospital ED directors.</p> <p>Problem solving pathways being formalized when appropriate.</p> <p>Active EMS agency monitoring in</p>	<p>Preliminary indicator reports being developed with plan to share routinely with facilities.</p> <p>Patient handoff data points need to be developed to reliably measure off load times in both Zoll and MEDS systems.</p> <p>EMS event reporting system being used to capture events affecting patient care.</p>

<p>Ongoing complex system issue</p>		<p>mechanisms required to address. Indicators need to be developed to appropriately monitor off load times.</p>	<p>progress with focus on collaborative effective problem resolution. ED's working with hospital administration to improve patient flow. Resources disseminated to stakeholders on patient flow and ED drop time delay management strategies.</p>	<p>Facility surge plans and rapid response teams being tapped into to support timely patient offload.</p>
<p>Zoll ePCR Implementation Expectation: Zoll ePCR stakeholders will fully implement ePCR with appropriate compliance and back end performance monitoring utilization.</p>	<p>Jan 2007 to present</p> <p>Complex implementation of new ePCR for Fire providers affected by multiple internal and external resource, education, IT interface issues. Consultants assisting in problem resolution. Multiple end-user, IT and receiving facility issues. Hardware, software upgrades pending for 2009-2010 with needs for support of personnel and materials.</p>	<p>Fire EMS consultant hired to determine root causes and identify effective strategies to address issues in November 2007. In 2008 Data advisory group (DAG: QI subcommittee) actively involved to support consultant and prioritize problem solving. Zoll user group meeting held in Fall of 2008. Website for Zoll users and stakeholders created by EMS-Zoll consultant to facilitate compliance monitoring. Preliminary reports identified with first time data evaluation of providers created. 2009 will focus on further developing indicator reports and supporting infrastructure for full implementation.</p>	<p>Consultant in place and actively pursuing improvements in collaboration with QI data advisory subcommittee. Zoll user website created to support CQI coordinators and stakeholders in implementation, training and compliance activities. Participation on DAG has grown from 3 to 7 stakeholders. Group highly effective in problem-solving and facilitating solutions for end-users and stakeholders. Mid 2008 Zoll ePCR data being used and incorporated into field performance reports on clinical issues including skills, chest pain, STEMI etc.</p>	

<p>Adult Airway Management</p> <p>Expectation: EMS providers will successfully place advanced airways in appropriate patients 90% of the time.</p> <p>Ongoing EMS system issue.</p>	<p>July 2007 to present</p> <p>Intubation success 33-80% in adults. In 2008 root cause of intubation failure identified and tied to patient selection with poor outcomes in patients with pulse and appropriate success in patients without pulse.</p> <p>Changed to King airway to improve patient safety and medic success.</p> <p>CPAP adopted for improved management of patients with respiratory distress in 2008. Patients with pulses require RSI for effective airway management which is not within local scope.</p> <p>In patients with advanced airway failures BVM was successfully utilized to manage the airway.</p> <p>King tube acceptable as primary advanced airway under new airway protocol.</p>	<p>King tube implemented with competency training early 2008. Will continue to monitor effectiveness with quarterly infrequent skills and airway management case reports.</p> <p>Fire EMS Consortium Modules on advanced airway, end tidal CO2 monitoring and video materials distributed for standardized training of all providers in EMS System.</p> <p>Levitan Best Practice hands on seminar sponsored.</p> <p>EMS Best Practice electronic newsletter articles focus on advanced and BLS best practice airway management.</p> <p>Case review of airway management of trauma patients part of TAC.</p> <p>ETCO2 study planned to enhance provider ability to assess adequate ventilation.</p> <p>Providers reporting high acceptance of King airway and utilization.</p>	<p>With implementation of King tube advanced airway success 87-89 % compared to 80% with combitube.</p> <p>Overall advanced airway success all agencies is 84-87% using current advanced airway protocols and devices.</p> <p>Intubation success is 68-72.9% in patients in arres and 31% in non-arrest patients.</p> <p>More training and guidelines on regarding patient selection need further development and implementation.</p> <p>Continued emphasis on consortium training to improve intubation success and avoid advanced airways in inappropriate patients.</p> <p>Ongoing competency testing and enhanced training in place.</p> <p>Ongoing data reporting of advanced airway performance planned for stakeholders.</p> <p>Improved protocol to emphasize patient selection planned in 2009.</p>
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QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Pain Assessment and Control</p> <p>Expectation: Pain will be appropriately assessed, managed and documented in the prehospital setting in 90% of patients with painful primary impressions and</p> <p>Ongoing EMS system issue</p> <p>Evidenced based performance measure</p>	<p>Quarter I 2007 to present</p>	<p>Poor compliance with assessment of pain in all patient populations.</p> <p>Pain only documented in 4% of pediatric patients and 7% of chest pain patients requiring MS for control in 2007.</p> <p>STEMI System brought up in Fall of 2008 with high emphasis on chest pain management and documentation.</p> <p>Stakeholders report that data reflects lack of documentation and not lack of pain assessment.</p> <p>No EMS events regarding lack of pain management or assessment reported in 2008.</p>	<p>Pain assessed 50% of time with adult chest pain patients and 91% of patients assessed with having pain had improvement after treatment with O2, NTG or MS</p> <p>Assessment and management of pain with patients under chest pain treatment protocol.</p> <p>Other primary impressions associated with pain demonstrated 16-40% compliance with pain assessment.</p> <p>Pain protocol for pediatrics developed with enhanced color coded drug cards to with faces pain scale to facilitate pain assessment and decision-making in the field.</p> <p>Prehospital Providers trained on new protocol and pedi medication tool Fall 2008.</p>	<p>Pain assessment and treatment prioritized for 2008 QI topic.</p> <p>Training and standards to be improved in this area.</p> <p>Core pain indicator report to be built and monitored.</p> <p>By end of 2009 appropriate data reports need to be generated and fed back to stakeholder in timely fashion to demonstrate improvement.</p>
<p>Provider Agency QI Plan and QI activity tracking</p> <p>Expectation: 100% stakeholders will be in compliance with QI plan & reporting requirements</p>	<p>Jan 2007 to present</p>	<p>In 2007 Only one agency compliant with QI Plan. Other agencies had not reviewed old plans in several years or did not have one in place. County plan not up to date.</p> <p>April 2008 Contra Costa QI Plan approved by EMSA</p>	<p>EQIP plan updated completed Dec 2007 awaiting admin approval.</p> <p>Templates made available to agencies to facilitate completion.</p> <p>Tools shared for QI program implementation.</p> <p>Compliance monitoring in place.</p>	<p>As of Dec 2008 all agencies have QI plan development in process or completed. (see tracking)</p> <p>Quarterly reporting began in March 2007 with good progress to first year of Quarterly reporting.</p> <p>Plan to facilitate back end reporting based on core indicators for performance monitoring.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>12 lead performance</p> <p>Expectation: 12 leads will be reliably performed and repeated appropriately in chest pain patients > 90 % of the time.</p> <p>Ongoing EMS and STEMI system performance issue</p> <p>Evidence based performance measure</p>	<p>January 2007 to present</p>	<p>Issues with 12 lead use in the field and problem solving in preparation for implementation of STEMI program. 12 lead did not increase scene time 49% <15 min and 76% <20min compared to scene time for all chest pain pts of 16min. 51% chest pain got 12 lead.</p> <p>Repeat 12 leads shown to be of high importance to catch evolving STEMIs and false positives.</p> <p>12 Lead transmission not yet feasible with current system resources.</p>	<p>System in place for review of 12 lead and to give appropriate medic feedback with transport provider AMR.</p> <p>12 lead problem solving addressed in EMS Best practices and STEMI News.</p> <p>Expanded prehospital training for 12 lead implemented in Spring 2008.</p> <p>EMS sponsored best practice expert Tim Phelan to 2 hands on presentations.</p> <p>12 leads being reviewed with STEMI system QI process to give timely feedback to providers.</p> <p>2nd Quarter 2008 12 lead review planned prior to implementation of STEMI program in July 2008.</p>	<p>Directed feedback improved performance in the first half of the year. 12 lead reliability improved to 81% but requires ongoing improvement.</p> <p>Long term plan to implement 12 lead ECG transmission, evaluating vendors every 6 months to identify turn key solution for both ePCR systems.</p>
<p>Helicopter activation</p> <p>Expectation: Helicopter utilization compliant with county policy 90% and total time in the field is not longer than ground transport.</p> <p>Ongoing system wide issue</p>	<p>Nov 2007 to present</p>	<p>High volume of helicopter activations with questionable benefit to patients.</p> <p>Communication factors between multiple stakeholders affecting optimal decision-making</p> <p>Confusion on roles and responsibilities a factor in optimal decision-making</p> <p>Reluctance to cancel helicopter</p>	<p>Helicopter ad hoc task force to be developed and studied root causes.</p> <p>New helicopter utilization and policy guidelines put in place with large stakeholder participation in First quarter 2009.</p> <p>New policy and training developed to roll out in first Quarter of 2009.</p> <p>Case review and data elements being collected to evaluate</p>	<p>Helicopter utilization data collection in place. Plan to evaluate compliance with new policy for helicopter utilization.</p> <p>Positive corrections to providers will continue to be utilized.</p> <p>Exploring opportunities to get data from Air Transport providers directly. Ongoing issue.</p>

<p>activations barrier in supporting improved utilization</p> <p>Early activation key factor in improving response times.</p>	<p>Need for improved LZ areas to be identified in some areas in the county to facilitate appropriate utilization.</p> <p>New practice of early activation and cancellation when appropriate developed.</p>	<p>Need for improved LZ areas to be identified in some areas in the county to facilitate appropriate utilization.</p> <p>New practice of early activation and cancellation when appropriate developed.</p>	<p>Controls appear to be working with no other near miss or medication errors reported to EMS agency as of December 2008.</p> <p>Continue to monitor.</p>
<p>Medication Safety: Carpujet Versed and MS labeling</p> <p>Expectation: Medication errors due to labeling will not occur</p>	<p>Manufacturer labeling on carpujets for Versed and MS very similar with reports of near miss medication errors in the field.</p>	<p>Alert to provider agencies to put controls in place using color coding implemented in 2007.</p> <p>Double check process for carpujets strongly recommended.</p> <p>Manufacturer notified.</p> <p>EMS event reporting capturing medication error rate</p>	<p>Controls appear to be working with no other near miss or medication errors reported to EMS agency as of December 2008.</p> <p>Continue to monitor.</p>
<p>Patient Safety and reporting practices</p> <p>Expectation: 100% of EMS system stakeholders will use EMS event reporting</p> <p>Evidenced based system change</p>	<p>No system of patient safety reporting in place among stakeholders leading to missed opportunities to capture and analyze patient safety events.</p> <p>Current patient safety work practices and reporting practices are unknown in the county.</p> <p>Patient safety practices surveyed among medics county wide with anonymous survey to assess baseline patient safety practices and reporting habits</p> <p>Missed opportunities for system wide safety controls and measures to be developed due to lack of information about safety issues.</p>	<p>Plan to study data and address in training, policy development and reassess in 1 year after implementation of new reporting program for county to assess if there were changes. Need to re-educate identified.</p> <p>Plan to work on changing patient safety reporting culture</p> <p>Paramedic electronic survey conducted in 2007. Findings showed 14% did not use broselow or medication charts by self report. 30% failed to report a safety event. 30% would report if anonymous reporting an option.</p> <p>Best practice EMS event reporting program developed and implemented in January 2008.</p>	<p>Patient EMS event reporting data being routinely incorporated and fed back to EMS system.</p> <p>Expanded utilization in first year of implementation.</p> <p>More education and training needs to be incorporated.</p> <p>See report on EMS event reporting attached in this document.</p> <p>EMS event reporting being used by the 100% of fire and transport prehospital stakeholders.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Pediatric Airway Management</p> <p>Expectation: 100% compliance with best practice pediatric airway management</p> <p>Evidenced based system change</p>	<p>May 2007 to January 1, 2009</p>	<p>Inubation 0-50 % success in peds. 23 ETT attempts for 16 patients from Dec 2005 to May 2007 with 1.4 ETT attempts per patient.</p> <p>Cases reviews found evidence of patient deterioration due to ETT when BLS airway effective.</p> <p>Contra Costa EMS does not allow for RSI in county scope.</p> <p>Air transport providers have expanded scope for pediatric intubation with RSI</p> <p>Evidenced based review of prehospital pediatric intubation demonstrates no efficacy in the field without RSI.</p>	<p>Literature review and best practice Pediatric airway management Fire-EMS training module developed and all providers trained in June 2007 emphasizing BLS airway and preparing for removal of pedi intubation from scope.</p> <p>In 2008 comprehensive analysis of 5 years of pediatric data clearly demonstrated intubation not effective in our pediatric patients and can adversely affect outcome.</p> <p>Fall 2008 mandatory training of all prehospital provider implemented. Pediatric ETT tubes removed from equipment.</p>	<p>Pediatric intubation removed from Contra Costa County paramedic scope for patient <40kg (length of broselow tape) effective 1/1/2009.</p> <p>Plan to monitor in 2009 airway issues through ePCR data and EMS event reporting.</p> <p>Changes in pediatric airway management communicated to ED's who are prepared to manage airway definitively with RSI.</p>
<p>Infrequent Skills Assessment</p> <p>Expectation: Prehospital providers will be competent in their patient care interventions 90% of the time</p>	<p>Jan 2007 to present</p>	<p>In 2008 overall skills success rate in all groups peripheral IV 85%, Intubation 68%, Jugular 68%, IO 98%, King 100%, CPAP 100%</p> <p>Age of patient is a factor in skill success Training and repetition improves skill performance.</p> <p>Fire agency stakeholder skills performance data not as accessible as transport provider data.</p>	<p>Skills reporting redesigned to capture success by age range in May 2007 to analyze competency by population.</p> <p>Ongoing training in progress and competency check off in place with METI simulation enhancing training.</p> <p>EMS agency supporting Fire EMS Consortium acquisition of simulators and skills training devices for IO, 12 lead, IV, Advanced airway.</p>	<p>New reporting model provides data helpful in addressing age differences in supporting provider competency.</p> <p>Will assess over next year how expanded use of EZIO impacts vascular access decision making in the field.</p> <p>Vascular access decision-making protocol identified as needed to</p>

<p>Trauma Advanced Airway</p> <p>Expectation: Trauma airway management will emphasize BLS best practice airway. Advanced airway success in trauma patients will be 90% in appropriate patients.</p>	<p>June 2007 to present</p>	<p>Patient selection for appropriate intervention key factor in provider success.</p>	<p>12 lead and advanced airway best practice provider training conference completed in 2008.</p> <p>Infrequent skills list revised in 2008.</p>	<p>facilitate improved field performance.</p>
<p>Trauma patient non-arrest airway management in 2008 demonstrates BVM management 55% of patients, 32% BVM after advanced airway failure and 13% advanced airway success</p> <p>Overall advanced airway success in traumatic arrest 80% up from 59% for significant improvement</p> <p>Plan to continue to monitor and refine protocols and training.</p>	<p>RSI key to success in conscious perfusing patients if advanced airway is required.</p> <p>Advanced airway best practice training implemented in 2008</p> <p>Continued emphasis on BLS airway management and rapid trauma transport.</p> <p>Reviewed of protocols for air transport RSI resources in select populations.</p>	<p>Retrospective study from 7/1/05 to 6/30/07. Success rate of intubation in perfusing rhythm 33.3%. In pre-arrest 50%. In arrest 59.3% with overall success in 49.5% Outcomes showed those who required advanced airway 94.4% died due to their injuries while patients with perfusing rhythms who had failed advanced airway had a 50% survival rate. Overall trauma airway</p> <p>Advanced airway in trauma patents indicator of poor outcome. ETT success but does not improve outcome</p>	<p>Continue to evaluate efficacy of dopamine use in the field</p> <p>Do retrospective review appropriateness of dopamine use in the field for 2008.</p> <p>Consider removal if no evidence of efficacy.</p>	<p>Use of dopamine continues very limited with unclear efficacy.</p> <p>Consider removal with expanded discussion to include stakeholders.</p>
<p>Use of Dopamine in the field</p> <p>Expectation: Inotropic support will be used according to protocol 90% of time</p>	<p>Sept 2007 to present</p>	<p>Retrospective review of dopamine use in the field from 1/1/05 to 9/15/07. Indications cardiac arrest 49% and non arrest hypotension 51%. Very small numbers 57 cases.</p> <p>Minimal or no change in BP in 57% of cases. BP increased by > 10 mm systolic in 39% patients. Most common use in cardiogenic shock 46%.</p>		

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Pediatric Parenteral Medication utilization</p> <p>Expectation Parenteral medications will be given safely 100% of the time</p> <p>Ongoing system issue</p>	<p>Aug 2007 to present</p>	<p>Retrospective review of pediatric medication administration between Jan 2005 to Aug 2007</p> <p>167 patients out of 6400 pediatric transports in 32 months.</p> <p>For all ages MS used 45% of the time. Midazolam 22%, Epinephrine 11%, Diphenhydramine 9%, Adenosine 1%, tropine 2%, Dextrose 3%, Epi SQ 4%, Glucagon 1%, Nalozone 2% and Sodium Bicarbonate 0%.</p> <p>Medication errors more common in children than adults due to weight based calculations.</p> <p>Use of pediatric drug reference materials not uniformly used.</p>	<p>Simplify medication decision making in the field to promote patient safety.</p> <p>Replaced D25 with D10 as pediatric medication safety measure with appropriate protocol changes implemented Jan 1, 2009</p> <p>D10 protocol changes, new length-based tape colored medication cards consistent with Broselow developed in 2008.</p> <p>Training on new medication resource and tool implemented in Fall 2008.</p> <p>Morphine with pre-calculated dosing incorporated in new pediatric drug cards.</p> <p>Routine reporting on medication use now age based</p>	<p>Monitor for medication errors in children.</p> <p>Evidenced based studies support development of tools to facilitate provider success in pediatric population</p>
<p>Base Hospital Performance measures</p> <p>Expectation Base hospital CEMESIS performance indicators utilized to assess performance</p>	<p>June 2008 to present</p>	<p>Base data available and not fully evaluated at regular intervals</p> <p>Base Hospital QI plan not in place to support these activities.</p> <p>Base QI disproportionately focused on case review of base station calls.</p> <p>No mechanism in place for lapse time capture in data analysis</p>	<p>Base QI plan in final approval phase as of Dec 2008.</p> <p>EMSA performance indicators used to evaluate and retrospective review of data from 2002 to 2008 conducted.</p> <p>Additional analysis of calls conducted.</p> <p>Mechanisms in place to give targeted feedback thru base coordinator</p>	<p>Contra Costa has only 1 base hospital with an daily average of 9-12 calls per day decreasing from 2002 to 2007. 77% are Trauma, 19% are medical, 4% are arrest related.</p> <p>1 MICN dedicated to base calls in place 24/7. Explore mechanisms to enhance data collection.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Chest pain protocol compliance</p> <p>Expectation ASA, Ntg and 12 lead will be performed on all appropriate chest pain patients 90% of the time</p> <p>EMS and STEMI system performance measure</p>	<p>Jan 2008 to present</p>	<p>69% compliance in 12 lead in Jan 2008</p> <p>Cardiac paramedic impressions make up 49% of all 12 leads performed.</p> <p>Chest Pain non specific and cardiac non-specific paramedic impressions in Jan 2008 had 43% compliance with 12 lead</p> <p>12 lead performance in atypical presentations was 7-20% In January 2008</p> <p>No routine performance measures surveyed for NTG and ASA</p>	<p>Increased monitoring and feedback to providers to improve performance.</p> <p>Increased training with STEMI System implementation on chest pain protocol.</p> <p>EMS Notes section enhanced for 12 lead.</p> <p>ASA and NTG included in STEMI system data collection</p> <p>Retrospective for 2008 use of ASA and NTG completed</p>	<p>Total number of 12 leads steadily increasing with education, training and STEMI system implementation.</p> <p>Increases in 12 lead noted in percentage of all transports not just chest pain. Up to 89% in Oct 2008.</p> <p>Chest Pain non specific and cardiac non-specific paramedic impressions in Jan 2008 had 65-72% compliance with 12 lead</p> <p>12 lead performance in atypical presentations was 16-36% in October 2008</p> <p>NTG compliance for 2008 83.4% and ASA compliance 78% with 12 lead end of year compliance 81%.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>Pulmonary Edema Protocol evaluation</p> <p>Expectation Protocol compliance appropriate to patient condition 90% of the time</p> <p>EMS and system performance measure</p>	<p>Jan 2008 to present</p>	<p>In 2007 Pulmonary Edema patient data revealed 6% received MS 32% received Lasix 67% received NTG</p> <p>New protocol developed using CPAP, eliminating lasix and encouraging the use of NTG with double dose for b/p of 150 and single for below 150 implemented system wide in Dec 2007. MS also discouraged due to respiratory adverse effects.</p> <p>Administration of lasix prehospital had shown no significant efficacy based on local studies and evidenced based literature review.</p>	<p>Small retrospective sample of 64 patients looking at various aspects of treatment guideline compliance was done.</p> <p>Information was distributed and discussed in MAC and QI with stakeholders.</p> <p>EMS Best Practice topics addressed finding and reinforced compliance.</p> <p>CPAP data again reviewed in March/April 2008</p> <p>Key indicators to be developed for consistent monitoring and performance evaluation.</p> <p>Continue provider educational efforts and corrective actions.</p>	<p>January 2008 findings 42% received single dose NTG 48% received double dose NTG. Patients with B/P < 150 and CHF appear to be undertreated with NTG</p> <p>Use of CPAP more common in patients with lower B/P</p> <p>March 2008 data CPAP being used 50% of the time with suspected pulmonary edema with 88% patient improvement</p> <p>Other respiratory complaints demonstrate 70% improvement.</p> <p>5% of patients do not tolerate CPAP.</p> <p>Lasix uses in pulmonary edema steadily decreasing from 40.7% in 2005 to 32.4% in 2008</p>
<p>Customer Satisfaction</p> <p>Expectation: Prehospital Customer satisfaction will be > 90%</p>	<p>Jan 2007 to present</p>	<p>Customer satisfaction assessed by contracted transport provider AMR.</p> <p>Fire agency customer satisfaction not being routinely assessed at present</p>	<p>Customers surveyed by transport provider.</p> <p>Work with Fire providers to include assessment of customer satisfaction in their performance.</p> <p>Develop core measure for customer satisfaction.</p>	<p>Satisfaction >90% consistently with 4% return rate and high level of customer satisfaction.</p> <p>Core indicator for customer satisfaction developed.</p>

QI Issue Indicators Monitored	Date identified	Key Findings/priority Issues Identified	Improvement Action Plan	Outcome/Followup
<p>STEMI System performance</p> <p>Expectation: STEMI system performance will meet or exceed national standards consistently</p> <p>EMS system and STEMI system performance measure</p>	<p>Sept 2008 to present</p>	<p>STEMI system implemented in Contra Costa September 2008.</p> <p>National and local benchmarks established</p> <p>Properly identified STEMI patients benefit from rapid intervention</p> <p>911 to intervention national benchmark 120 minutes</p> <p>Local scene time benchmark <15 minutes</p>	<p>QI processes and performance measures based on AHA STEMI system criteria developed and implemented.</p> <p>STEMI News electronic newsletter feeding back system performance to all stakeholders</p> <p>30,60, 90 and 120 day reviews conducted</p> <p>Over 1, 146 prehospital providers trained in STEMI system protocol in Spring 2008.</p>	<p>Oversight meetings to start in 2009</p> <p>First 90 days data:</p> <p>STEMI alert patients to PCI with EMS to intervention time of 78-83 minutes.</p> <p>EMS scene time of 14.3-15 minutes.</p> <p>911 to Intervention times of 85-93 minutes</p>
<p>Transport of Cardiac Arrest Non-traumatic Protocol Compliance Adult and Pediatric</p> <p>Expectation: Cardiac arrest patients will be appropriately transported appropriately.</p> <p>EMS system ongoing complex issue</p>	<p>Aug 2008 to present</p>	<p>Comparison study to identify frequency of transport of cardiac arrest patients after implementation of new protocols for cardiac arrest based on AHA updated standards.</p> <p>EZIO and King tube devices resulting in increased transports of patients who would normally be called in the field.</p> <p>Total cardiac arrest in adults has relatively stable 415-460 since 2005</p> <p>Pediatric arrest has been stable between 14-17/year</p>	<p>Retrospective data review since 2005 conducted for both peds and adults</p> <p>Training, stresses, lack of guidelines and resources for those involved identified as key factors that influence decision to transport.</p> <p>Unexpected death protocols in development in collaboration with coroner, child death review and stakeholder agencies.</p>	<p>Rate of transport in adults has increased since 2005 55% to 69% in 2008.</p> <p>ROSC has increased in adults from 17% in 2005 to 25% in 2008.</p> <p>Pediatric patients ROSC significantly less than adults 16% but cardiac arrest pediatric patients are transported 94-100% of time.</p>

EMS Event Reporting (Patient/Provider Safety & Provider Recognition) Program

2008

Reporting Party	Cases	Percent
Facility/ED	9	15 %
MD	14	23 %
Fire	3	5 %
Ambulance	17	29 %
Private Citizen	5	8 %
RN/MICN	4	7 %
Other EMS Provider	8	13 %
Total	60	100 %

Event Characteristics	Cases	Percent
Communication related	32	53 %
Affected patient care	42	70 %
Medication related	19	32 %
Destination related	24	40 %
Provider Safety Issue	8	13 %
Billing	2	3 %
Documentation-ePCR	11	18 %
Response Time	3	5 %
Patient Care-Procedure related	22	37 %
Patient Care-Assessment related	16	27 %
Patient Care-Medication related	19	32 %
Infectious Disease related	0	0 %
Equipment related	15	25 %
Professional Conduct	8	13 %
Base call involved	3	5 %

The Big Picture

- Contra Costa County EMS system provided over 75,000 responses for medical emergencies transporting over 58,200 patients in 2007.
- Safety events represent 0.1% of all patient contacts.
- EMS Event reporting is a non-punitive patient safety-reporting program that supports EMS provider agency accountability and positive corrective actions while providing clear mechanisms to report patient or provider safety events within the EMS system.
- This best practice safety-reporting program was implemented in January 2008 patient safety and provider recognition event reporting has increased 33% since 2007.
- Data characteristics are assigned to each EMS event for trending and analysis.
- Each EMS event may be assigned numerous characteristics depending on the nature of the event. These characteristics serve to provide additional information and insight as to the type and frequency of certain patient safety events.

Communication and Safety

- In 2007 60% of EMS events had communication as a key characteristic with 100% of these events affecting patient care. In 2008 57% of communication related events affected patient care.
- National statistics demonstrate communication as a key factor in 65% to 85% of sentinel events
- Communication related EMS events tend to occur during critical communication periods such as base calls and transfer of patient care to other providers.
- Standardized communication practices have been shown to substantially improve patient safety during handoff.

Nature of the Event	Cases	Percent
Exemplary Care Reports	4	7 %
Great Catch/Near Miss Reports	6	10 %
Interagency event	37	62 %
Scope related	1	2 %
Trauma call	10	17 %
Pediatric call	10	17 %
OB call	1	2 %
Cardiac call	15	25 %
Respiratory call	6	10 %
Behavioral call	7	12 %
Event Disposition		
Met Safety Code 1798.200 Criteria	0	0
State Referral Made	0	0
Event forwarded for Provider Agency Action by EMS	53	88 %
Cases closed by EMS	60	100 %
Cases reviewed & closed EMS but monitored for similar events	49	82 %
Unsubstantiated issue	3	5 %
Follow-Up Action		
No action necessary	4	7 %
Resulted in provider education	27	45 %
Resulted in review of policy or procedure	33	55 %
Resulted in provider counseling	10	17 %
Resulted in disciplinary action	1	2 %
Recurring issue identified	25	42 %
Time to Close Case		
Average Time for EMS to review and close case	12 days	
4 cases took between 35-65 days to close with the majority of cases taking 2.5 days close.		



AMERICAN MEDICAL RESPONSE

PREHOSPITAL PATIENT CARE RECORDS AT RECEIVING FACILITIES

Printing Report for June 1, 2008 through November 30, 2008

A. CURRENT PROCESSES

(No changes)

- Crew responsibilities
 - 1) Accurate and detailed completion of PCR.
 - 2) Printing the PCR and leaving it at the facility.
 - 3) If leaving the facility prior to completion of the report, the crew must print an Interim Report and leave it at the facility.
 - ◆ Must complete and fax/print PCR as soon as possible and leave it at the facility.
 - ◆ JMMC Concord and Walnut Creek Campuses have PCRs faxed to the business offices.
 - 4) Advising AMR Supervisor if unable to do any of the above.
- AMR Supervisor responsibilities
 - 1) Assure that crew completes and prints PCR.
 - ◆ Troubleshooting printer/router/laptop when needed.
 - ◆ Retrieving the PCR from the Viewer or directly from the MEDS server and provide to the receiving facility.
- AMR Administrative Supervisor
 - 1) Audit PCR printing compliance
 - ◆ Run Print Stamp reports for JMMC Concord and Walnut Creek Campuses*¹
 - ◆ Research areas of non-compliance then take necessary action:
 - Education of crews on the necessity of printing and help with troubleshooting of printing problems;
 - Use available options for ease of printing including the Fax Option which was implemented in January 2007;
 - Recognize and report to IT sudden changes in compliance such as failures of routers and printers.
 - ◆ Run Fax Option report for compliance and send any missing PCRs to hospitals.
- AMR MEDS Programmers
 - Ongoing improvement and additions to increase ease and compliance of delivery of PCRs;
 - Monitoring servers, PDF generators, replicating tools for MEDS and correcting any errors.

B. IMPROVEMENTS- IMPLEMENTED AND/OR PENDING (June 2008 – Current)

- Fax Option
 - 1) Automatically faxes transmitted PCR; recent facilities added:
 - ◆ San Ramon Regional Medical Center
 - ◆ Sutter Solano Medical Center
 - ◆ Sutter Delta Medical Center

- Increase audit process of print stamp reports (Current)
 - 1) We have had a decrease in percentages printing at hospitals. Therefore we have supervisors meeting with employees in an ongoing effort to give employee appraisals of how they are doing.
 - 2) We started the fax option at Sutter Delta and are working to get our other in-county hospitals to use this option.

PRINTING AT HOSPITALS

Facility	Total Calls	Printed Calls	% of Calls Printed 12/1/2007 – 5/31/2008	% of Calls Printed 6/1/2008 – 11/30/2008
CCRMC	3586	2697	80.62	76.51
DHSP	3839	2534	76.60	69.80
JMMC	3706	2720	76.87	74.74
KRCH	2110	1349	64.49	63.00
KWC	2677	2003	74.22	78.46
MDMC	4741	3382	81.87	77.49
SDMC	5165	3215	79.83	68.48

FAXING OPTION

Facility	Total Calls	Faxed Calls	% of Calls Faxed
Alta Bates	384	381	99.22
Alta Bates-Summit	116	112	96.55
CHO	135	135	100.00
JMMC	3493	3463	99.14
KOAK	68	68	100.00
KVAL	150	149	99.33
Marin General Hospital	12	12	100.00
Ralph K. Davies	No Transports	-	-
St Francis Burn	1	1	100.00
St Francis ED	2	2	100.00
MDMC	3714	3686	99.25
Sutter Delta Medical Center* ¹	378	374	98.94

*¹-Fax Option implemented 11/15/2008

C. RECOMMENDED SYSTEM IMPROVEMENTS

- Increase hospitals/ED use of Fax Option – We are working to increase this option to all hospitals as that is a proven feature and most reliable with the recent upgrades in Modesto.

Patient Satisfaction

AMR Contra Costa County					
Customer Satisfaction Survey Results					
Q1 to Q3 2008					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I had the trust and confidence in the paramedic ambulance crew's professional skills.	1212	457	41	20	24
The paramedic ambulance crew explained the care / treatment in a way you could understand.	1051	528	120	29	14
The paramedic ambulance crew took steps to ensure comfort and minimize pain.	1199	446	61	27	19
Overall, the service received from the paramedic ambulance company was excellent.	1264	395	54	25	23
Total Percentage	93%		4%	1%	1%

Based on 1325 individual responses representing a 4% survey return

Chest Pain Protocol Compliance

Chest Pain Composite Report 12/1/2008 To 12/31/2008

	Patient Count	12 Lead Performed	Aspirin Given	NTG Given	Total Poss. Points	Total Chest Pain Points	Total %
Chest Pain	182	166	140	149	546	455	83.33%
Sum:	182	166	140	149	546	455	83.33%

Chest Pain Incidents with a 12 Lead Performed 1/1/2008 To 12/31/2008

	12 Lead Performed
Cardiac - non-specific	393
Chest Pain - suspected cardiac origin	2,093
Sum:	2,486

Hospital Off-load Data

All Contra Costa Hospital Transports with Time At Hospital and Time Available Complete

Year	Total	% >30 m	% >40 m	% > 50 m	% >60 m
2007	30660	4269	1489	629	287
2008	19343	3529	1262	529	208
2007 Percent		13.9%	4.9%	2.1%	0.9%
2008 Percent		18.2%	6.5%	2.7%	1.1%
Absolute Change		4.3%	1.7%	0.7%	0.1%
Percentage Change		31.0%	34.3%	33.3%	14.9%

This data is preliminary and does not capture the transfer of patient care data point at this time.

Replication Study: Effectiveness of 2005 CPR Guidelines In Contra Costa

(LA County research abstract from American College of Emergency Physicians Research Forum)

	Total	Witnessed(%)	Primary VF (%)	Bystander CPR (%)	ROSC (%)	TOR (%)
LA 2000	1700	658 (39%)	250 (38%)	250 (38%)	111 (17%)	151 (9%)
LA 2007	1607	695 (43%)	216 (31%)	384 (41%)	203 (29%)	439 (27%)
Contra Costa AMR - 2005	431	120 (28%)	22 (18%)	59 (49%)	21 (18%)	199 (46%)
Contra Costa AMR - 2007-08	806	219 (27%)	45 (21%)	125 (57%)	72 (33%)	296 (37%)

Definitions:

Total – All non-traumatic cardiac arrest cases in which resuscitation attempted

Witnessed % - percent of total cases witnessed

Primary VF % - percent of witnessed cases with ventricular fibrillation

Bystander CPR % - percent of witnessed cases with bystander CPR

ROSC % – percent of witnessed cases with return of spontaneous circulation

TOR % – percent of total cases with termination of resuscitation (not transported)

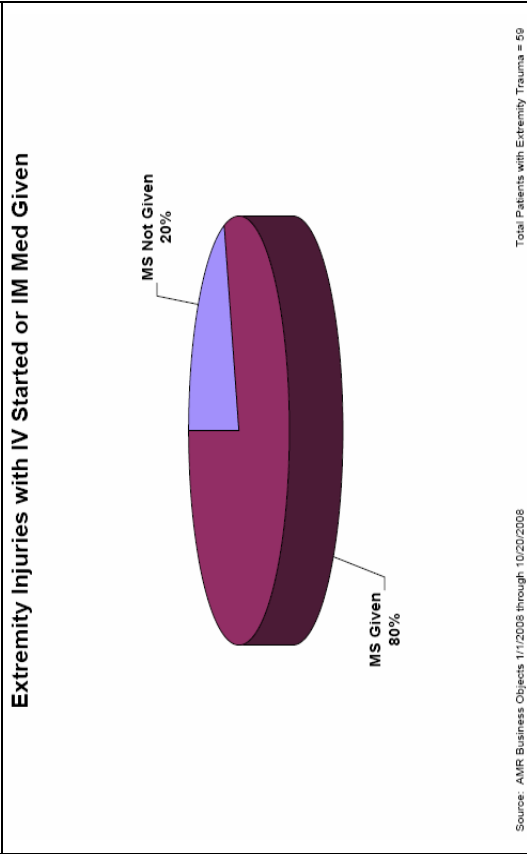
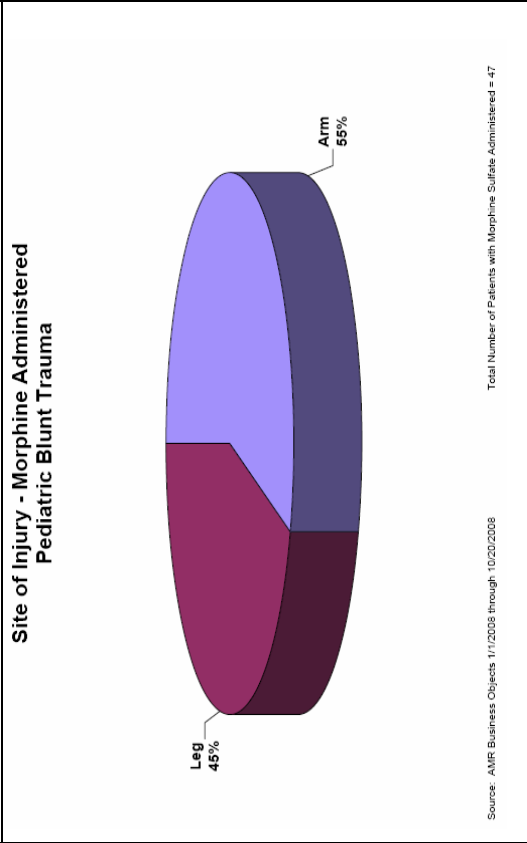
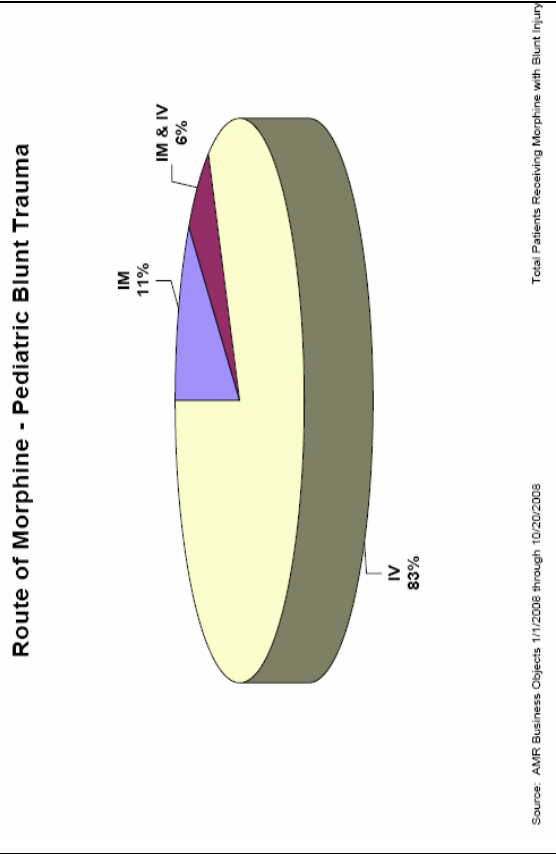
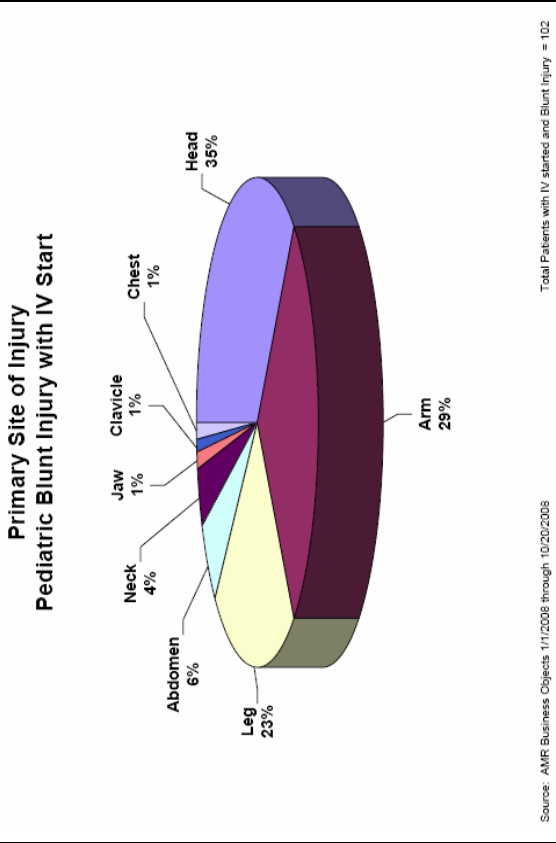
AMR 2007-2008 data includes cases to 10/7/2008 at noon.

Conclusions: Contra Costa is not an urban system, so it is natural that our proportion of witnessed arrests are lower (we're averaging 27-28% while LA had over 40%). Likewise, because Contra Costa has fewer witnessed arrests, our percentage of patients with primary VF as their initial rhythm is going to be lower. Data demonstrates a slightly higher rise in ROSC than LA (from 18% to 33% in witnessed arrests) but a lower percentage of patients with termination of resuscitation (46% to 37%). The ROSC numbers are remarkable in light of less witnessed arrests and less VF.

STEMI System Performance

Contra Costa STEMI Average Times	30 day	60 day	90 day	120 day
# of STEMI field alert pts to PCI since 9/8/08	11	17	22	27
Performance Benchmark (minutes)				
EMS* to Intervention (PCI) Time	78	81	83	83
National Benchmark < 90 minutes				
EMS* Scene Time	14.3	14.4	14.7	15
Local EMS Performance Goal < 15 minutes				
911 Call to Intervention (PCI) Time	85	91	92	93
National Benchmark < 120 minutes				
EMS* = First contact with EMS provider				

Pediatric Studies



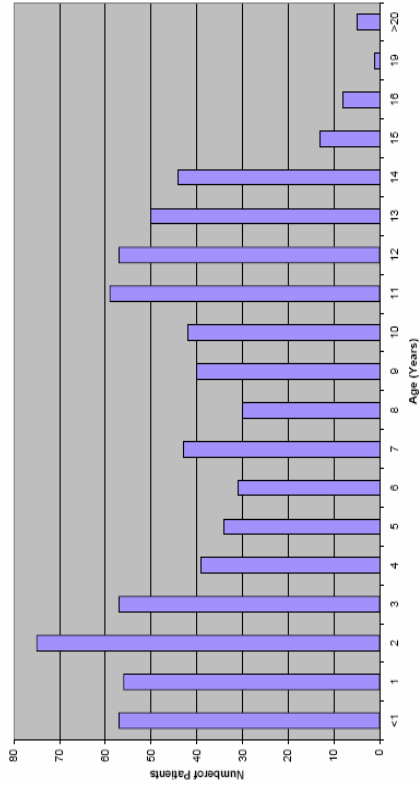
Infrequent Skills and ROSC

Contra Costa County ALS Skills Success From 1/1/2008 12:00:00 AM To 12/31/2008 12:00:00 AM

	Total	Total %	<3 CT	<3	3-14 CT	3-14	15-18 CT	15-18	19-24 CT	19-24	25-44 CT	25-44	45-64 CT	45-64	65> CT	65>
Vascular Access	20,910	79.01%	46	47.83%	280	86.07%	468	88.43%	972	87.14%	3,634	81.95%	5,634	75.02%	9,414	78.98%
External Jugular	86	69.77%					1	0.00%	1	100.00%	9	44.44%	37	86.49%	34	64.71%
IO	235	94.47%	7	100.00%	9	100.00%	3	66.67%	1	100.00%	23	95.65%	79	94.94%	107	96.26%
Oral Intubation	483	61.90%	3	66.67%	2	50.00%	2	100.00%	9	44.44%	45	60.00%	159	54.72%	261	66.67%
King Tube	144	100.00%			1	100.00%			3	100.00%	16	100.00%	66	100.00%	58	100.00%
CPAP	462	100.00%							4	100.00%	16	100.00%	128	100.00%	314	100.00%
Cardioversion	16	100.00%					1	100.00%			1	100.00%	3	100.00%	11	100.00%
Pacing	71	83.10%									3	100.00%	10	80.00%	58	82.76%
Full Arrests	794		4		5		3		8		59		307		401	
ROSC	234	29.47%	1		1		1		1		4		16		31	

Pediatric Trauma

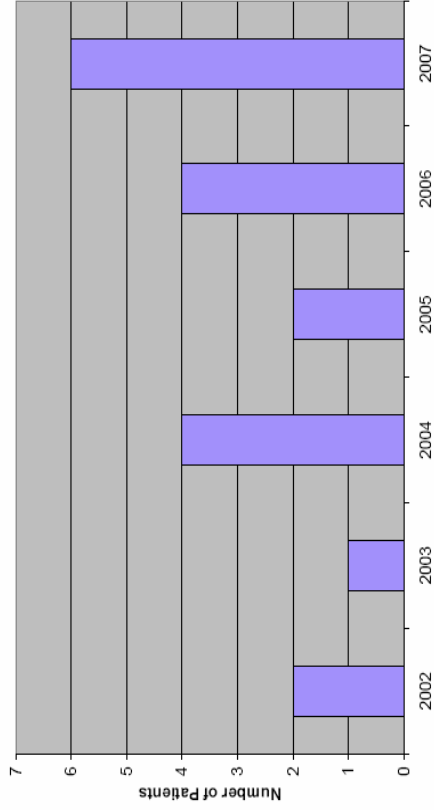
CHO Trauma by Age from Contra Costa



Source: Children's Hospital Trauma Registry 2002-2007

Includes patients transported by EMS and transferred from Contra Costa hospitals

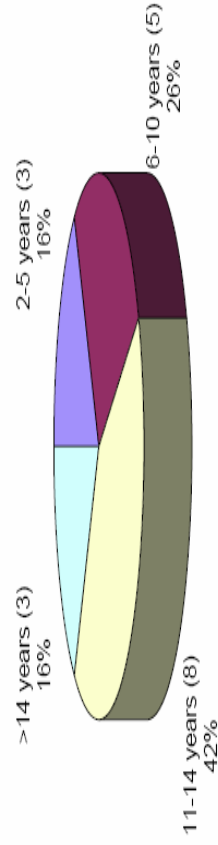
Firearm Injuries to CHO from Contra Costa



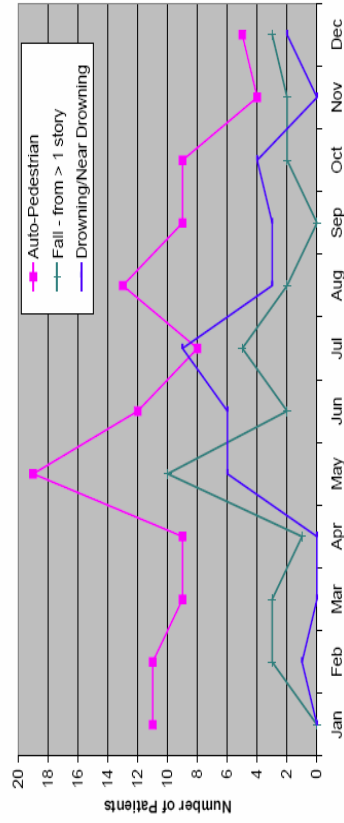
Source: Children's Hospital Trauma Registry 2002-2007

Includes patients transported by EMS and transferred from Contra Costa hospitals

Firearm Injuries by Age Group to CHO from Contra Costa



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



Source: Children's Hospital Trauma Registry 2002-2007

Includes patients transported by EMS and transferred from Contra Costa hospitals

Pain Assessment and Management Retrospective 2007 & 2008

PAIN ASSESSMENT AND TREATMENT BY IMPRESSION - ALL PATIENTS

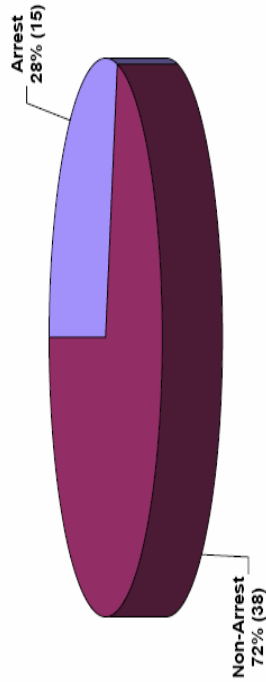
Pain Scale	Q1		Q2		Q3		Q4		% YTD
	Total	Pain Scale Number Percent	Total	Pain Scale Number Percent	Total	Pain Scale Number Percent	Total	Pain Scale Number Percent	
Paramedic Impression	907	106 12%	965	158 16%	959	161 17%	1015	235 23%	17%
Abdominal Pain	2225	209 9%	2,443	300 12%	2,553	361 14%	2,479	378 15%	13%
Blunt Injury	15	3 20%	20	6 30%	17	7 41%	19	5 26%	30%
Burn	414	80 19%	399	120 30%	384	116 30%	408	119 29%	27%
Chest Pain - non-specific	830	418 50%	729	398 55%	694	362 52%	634	368 58%	54%
Chest Pain - suspect cardiac	191	12 6%	184	15 8%	183	16 9%	187	27 14%	9%
Headache	773	66 9%	993	150 15%	878	120 14%	886	155 17%	14%
Non-traumatic body pain	158	7 4%	172	13 8%	193	22 11%	182	19 10%	9%
Penetrating Injury	5513	901 16%	5905	1160 20%	5861	1165 20%	5810	1306 22%	20%
TOTALS									

Pain Scale 2008 YTD Compliance	Total		Pain Scale	
	Number	Percent	Number	Percent
Paramedic Impression	3428	25%	864	25%
Abdominal pain	9666	19%	1866	19%
Blunt Injury	101	35%	35	35%
Burn	1610	20%	138	20%
Chest pain-non-specific	2577	59%	1518	59%
Chest Pain-suspect cardiac	751	17%	129	17%
Headache	3344	23%	785	23%
Non-Traumatic Body Pain	704	13%	90	13%
Penetrating Injury	22181	24%	5425	24%
Totals				

2008 Pediatric Pain Scale Compliance
 Patient count 885
 Pain Scale complete 164
 Compliance 18.5%

Advanced Airway Trauma

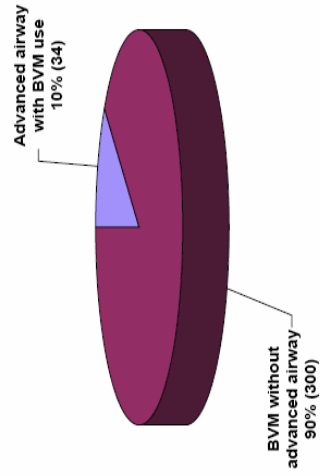
**Trauma Airway Management - 2008
BVM or Advanced Airway Used**



AMIR DATA

Date Range: 1/1/2008 to 12/31/2008
Number of patients = 63

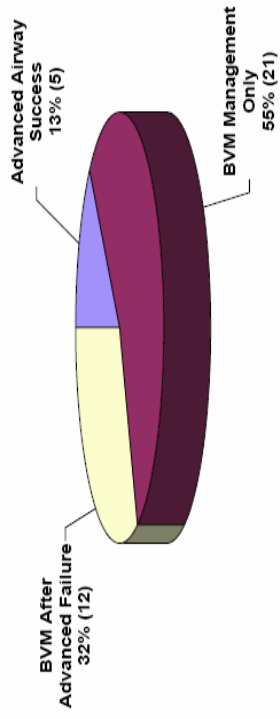
Non-Arrest, Non-Trauma Airway Management - 2008



AMIR Business Objects

Date Range: 1/1/2008 to 12/31/2008
N = 334

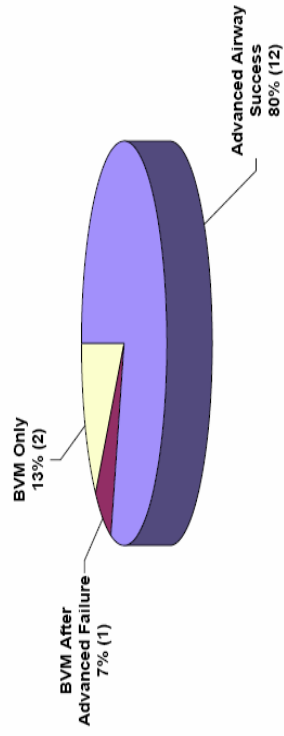
**Non-Arrest Trauma - 2008
Airway Management**



AMIR Business Objects

Date Range: 1/1/2008 to 12/31/2008
N = 38

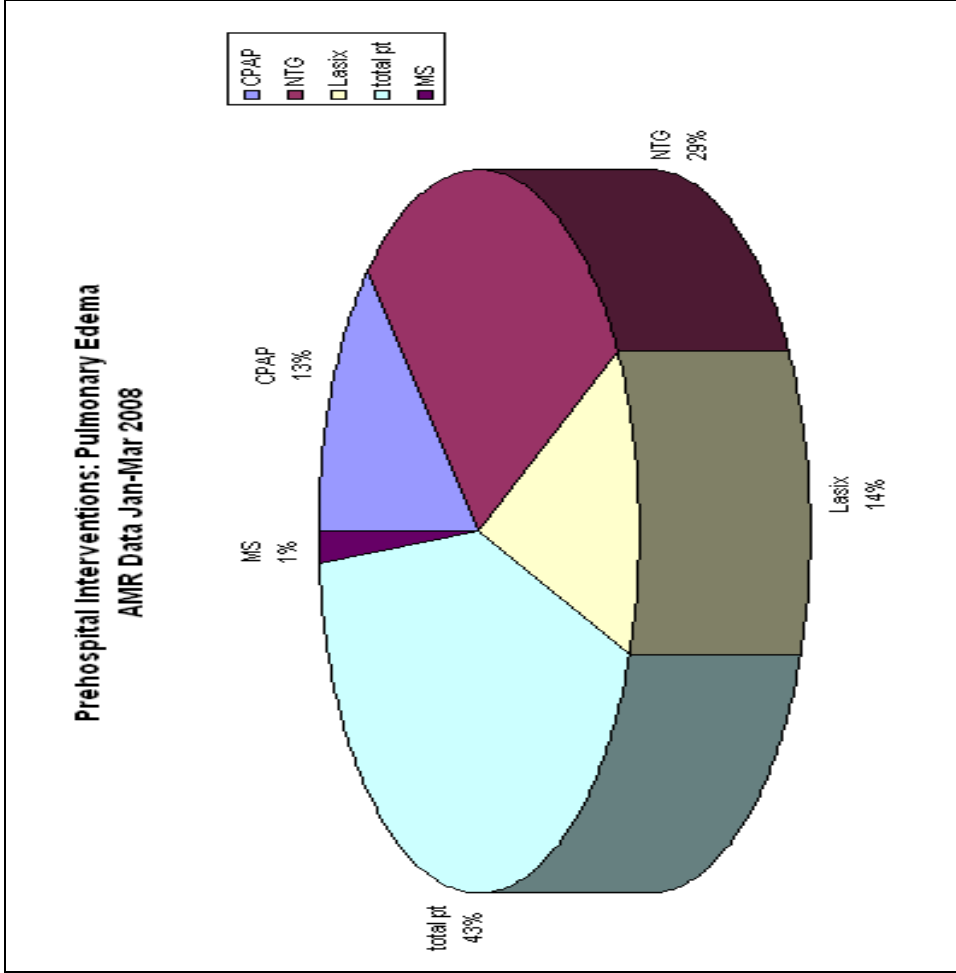
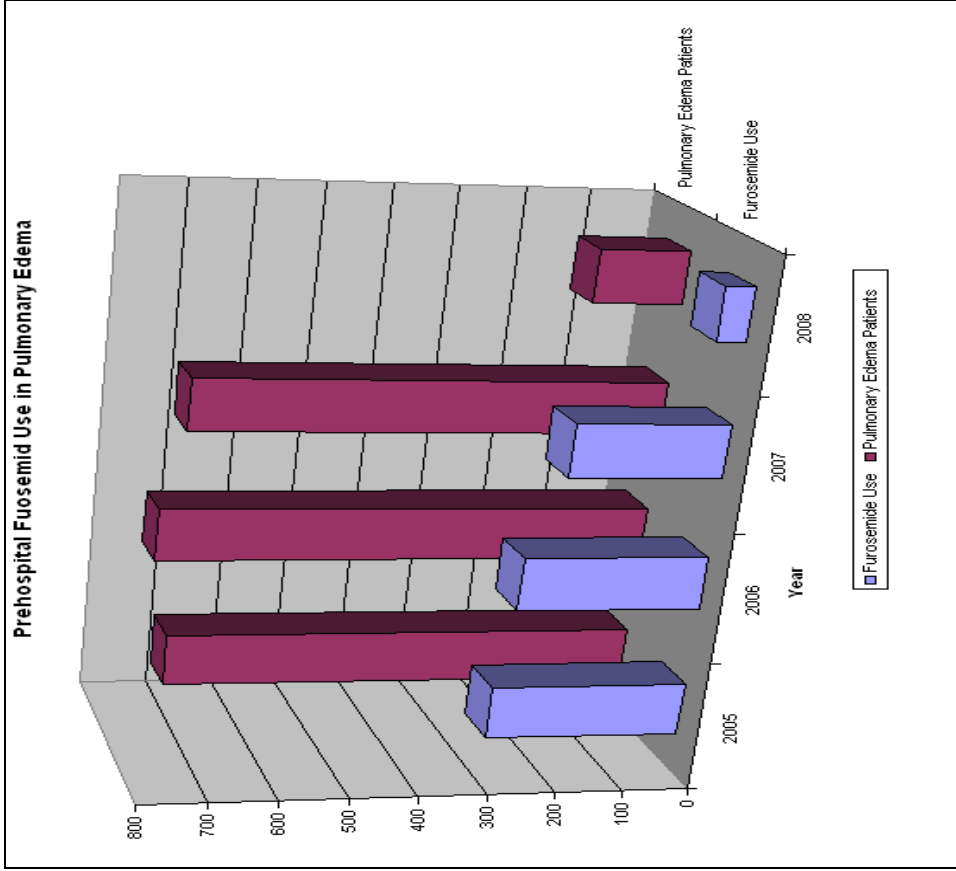
**Trauma Arrest - 2008
Airway Management Results**



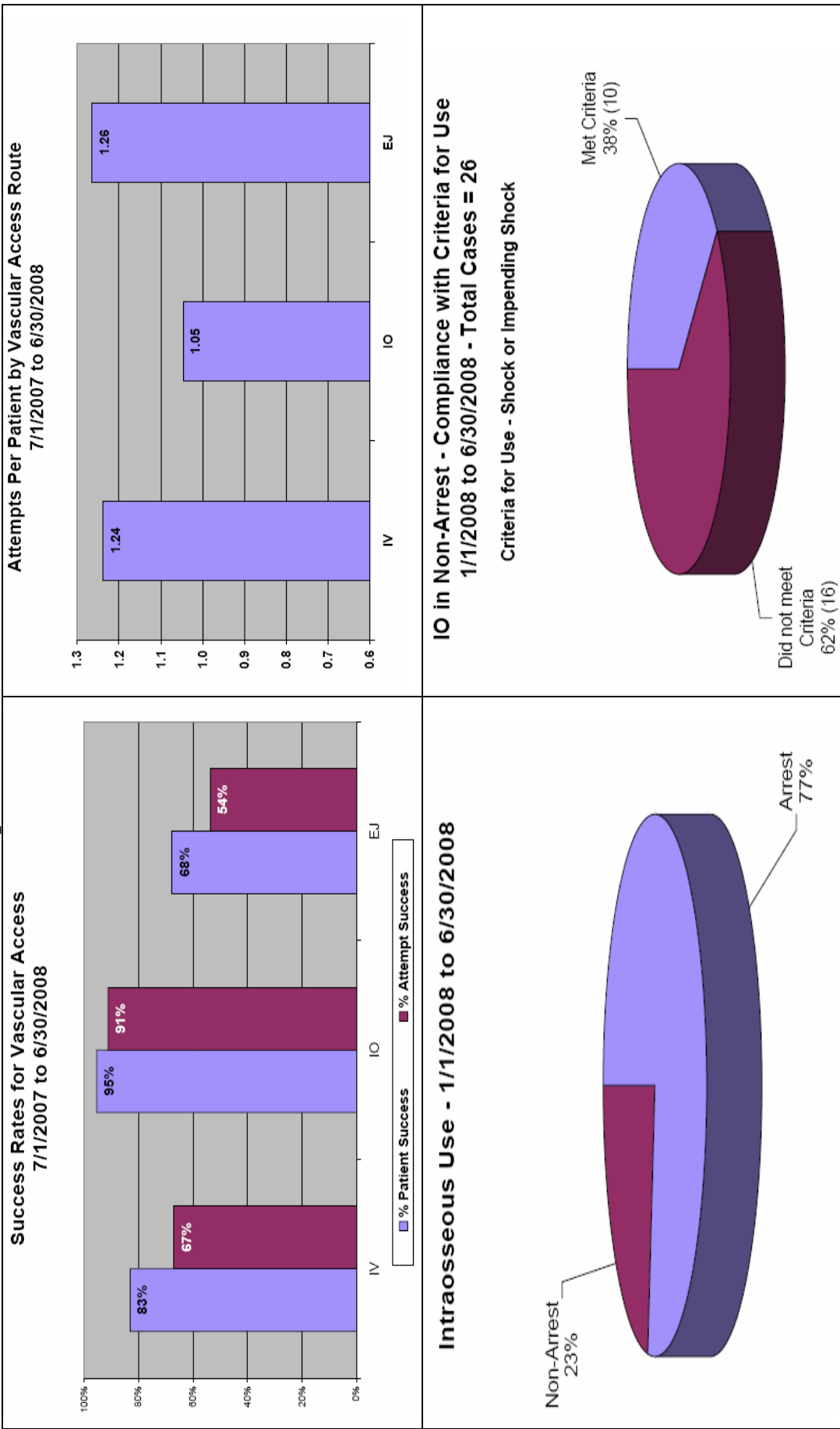
AMIR Business Objects

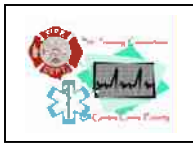
Date Range: 1/1/2008 to 12/31/2008
N = 15

Field Medication Utilization: Furosemide



Prehospital Vascular Access





Contra Costa County Fire EMS Training Consortium 2008 Annual Needs Assessment Results

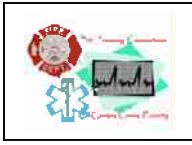
This anonymous survey was conducted from April 1, 2008-June 30, 2008. The survey was distributed during mandatory training to capture as many responses as possible. Results were compiled by Contra Costa EMS for the Fire EMS Training Consortium to address both agency level and countywide priorities for education and training. Results reflect responses collected from 7 Provider Agencies. Participating Agencies included: CCCFPD, ECCFPD, El Cerrito, SRVFPD, MOFPD, Pinole Fire and AMR. The survey is conducted annually.

Demographics	# Respondents	Countywide*	Percentage
EMT	94	600	15.6%
Paramedic	116	440	26.4%
Fire Service	182	665	27.4%
Private Ambulance	35	375	9.3%
Total responses	217	1040 EMS providers	20.8%
Last years statistics			
<ul style="list-style-type: none"> • 221 participants/1040 countywide (21%) • 154 EMT/600 countywide (27%) • 65 Medics/440 countywide (15%) 			

* Based on estimates of EMS providers currently active in Contra Costa County

Self-Assessment: How comfortable are you performing the following skills?

Skill	Expert	Competent	Need practice	Top Skills Needs Ranking
Intubation	17	94	14	
IV infant/pediatric/adult	16	58	27	9*
EZIO infant/pediatric/adult	5	59	24	10
12 lead EKG	9	27	32	7
Defibrillation	20	79	15	
External Cardiac Pacing	5	65	31	8
Cardioversion	9	64	22	
CPAP	8	63	46	4
IV medications	18	68	4	
ETDLA (King Tube)	6	62	36	5
Thoracotomy	4	47	53	3
Bag Valve Mask Ventilation (pedi/adult)	29	119	12	
CPR infant/pediatric/adult	23	122	19	
Pain Assessment pedi/adult	20	110	27	9*
Spinal Immobilization	35	112	10	
AED	19	113	15	
Pediatric Assessment	8	103	57	1
Trauma Assessment	20	112	33	6
Documentation using ePCR (Zoll or MEDS)	22	78	54	2

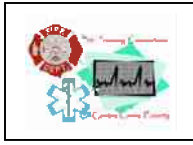


Contra Costa County Fire EMS Training Consortium 2008 Annual Needs Assessment Results

Rate (circle) your experience with Meti Man/Pedi Sim in 2007-8			
Rating	#	%	
poor	6	4.2%	
fair	48	34%	
good	63	45%	61.4%
excellent	23	16.4%	
Total	140		
Last years results for Meti Man Simulation Training <ul style="list-style-type: none"> ○ 36/48 (75%) good ○ 10/48 (21%) fair ○ 3/48 (6%) poor 			

If you had a fair to poor experience what would have made it better?

- 5/7 rated METI as poor when they commented they had no experience with the simulator
- Does not really benefit EMTs
- The whole thing seems like a waste of money in my opinion.
- Instructors that give scenario & let crew perform skills. Evaluate & teach after completion of skill
- MetiMan has not been reliable or realistic
- More time on MetiMan
- I think we just need to use real people as actors.
- The whole thing seems like a waste of money in my opinion.
- More use or no use
- More exposure to AMR's medics
- Better organization
- Would like to do more realistic scenarios (2)
- I was not able to attend due to worker's comp.
- No experience yet
- Not sure
- Poor performance
- More time with Meti



Contra Costa County Fire EMS Training Consortium 2008 Annual Needs Assessment Results

I would like to have more training/education in the following areas:

Topic	Responses	Top 10 Requests
Trauma, Adult	40	6
Burns Adult	72	2
OB/GYN Emergencies	49	4
Drug overdoses/poisonings/ingestions	38	8
Environmental Emergencies hyperthermia/hypothermia/toxic exposures	39	7
Advanced/difficult adult and pediatric airway	36	10
Pediatric IO and IV access	37	9
Child abuse	25	
Elder abuse	26	
Infectious Disease	29	
Patient Communication	19	
Customer Service	15	
Cardiac	46	5
Respiratory (Asthma,COPD)	37	9
Altered LOC	22	
Field Decontamination & pt Transport	17	
Pediatric Emergencies	71	1
Medical Legal	32	
Behavioral Emergencies	26	
Rhythm interpretation	53	3
Pharmacology/Drug Therapy	40	6
Seizures	22	
Stroke	22	
Syncope	15	
Special Needs Kids	13	
Triage	33	
5150	34	
Dealing with Death and Loss	28	
Verbal de-escalation	27	
Assessment of pre-arrest state	31	
Other: Stop the merit badges! Take it once and maintain on your own. Consortium to teach same subject matter without high \$\$\$ cards		

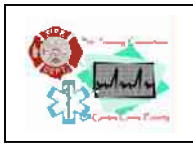
This Years Top Ten

Pediatric Emergencies
Burns Adult
Rhythm Interpretation
OB/GYN Emergencies
Cardiac
Trauma Adult and Drug therapy
Environmental Emergencies
Drug Overdose/Ingestions
Pedi IO/IV Access & Respiratory
Advanced/Difficult Airway

CCTC Annual Needs Assessment 2008 PF/EMS

Last Year's Top Ten

Respiratory
Adult Trauma
12 Lead
Rhythm Interpretation
Pharmacology
Advanced difficult airway
Pedi IO/IV
Triage
Cardiac
Pedi Emergencies



Contra Costa County Fire EMS Training Consortium 2008 Annual Needs Assessment Results

* (38%)

Rank the quality of the following 2007 Consortium trainings	Poor 1	Fair 2	Good 3	Excellent 4	% Good to Excellent	Total Responses
COPD	0	17	70	15	83%	102
MCI	4	22	86	18	80%	130
Pediatric Airway	1	19	71	12	64%	103
2007 Update	0	16	76	39	88%	131
Advances Airway Management	1	9	77	21	91%	108

Newsletter EMS Best Practices	Yes	%	No	%
I read EMS Best Practices	111/166	67%	55/166	33%
EMS Best Practices informs me about issues I need to do my job	104/117	88%	13/117	11%

What would make EMS Best Practices more useful to you?

- CE's available with them
- I have to read it to find out
- Short version
- More emails and great how it is

This report was prepared for the Fire EMS Training Consortium of Contra Costa County 7.24.08. Copies of this report are available from the EMS Agency. For more information on the Fire – EMS Training Consortium go to www.cccems.org and click on the webtab called Fire EMS Training Consortium. Questions on this report should be referred to Pat Frost EMS QI Coordinator at pfrost@hsd.cccounty.us.

Acknowledgements

This report reflects the dedication and extraordinary work of many who actively participate in Contra Costa County Emergency Medical Services Quality Improvement Program. The work, data and accomplishments summarized in this annual report are based on contributions from numerous individuals and are a product of the collective QI committee.

Joe Barger MD	Nancy Daniels RN, MOFPD
Bruce Kenagy EMS	Greg Sekera Pinole Fire
Pam Dodson RN, EMS	Michele Shehan, REACH
Judy Smith RN,EMS	Paul Naas, CALSTAR
Lori Altabet RN, JMMC-WC	Jeff Burris, ECC Fire
Andy Swartzell SRVFPD	Sam Bradley, ECC Fire
Chuck Coleman Rodeo-Hercules Fire	Keith Cormier CCFPD
Dave George CCFPD	Bruce Stricker AMR
Greg Kennedy RN CCCFPD	Steve Call SR VFPD
Jeanne Mills RN CCCFPD	Juliene Latteri EMS
Monica Teves AMR	Lauren Kovaleff EMS
Karen Hamilton RN AMR	Art Lathrop EMS
Linda Mulgrew AMR	Scott Wallace CALSTAR
Becky Hobson AMR	Randy Lyman REACH
Paul Harper AMR	Kacey Hansen JMMC-WC
Jason Sampson AMR	Paul Freitas MD JMMC-WC
Gene Hern MD AMR	Dave Gibson El Cerrito Fire
Chris Suter Fire-EMS Consultant	Erik Newman Richmond Fire
Steve Rodgers MOFPD	Ellen Leng MD JMMC-WC
Chris Eberle EMS Specialist SRVFPD	