Contra Costa Health Services
Emergency Medical Services

Executive Report

EMS Quality Improvement Program (EQIP)
Annual Report
January – December
2009
Advisory Body
Contra Costa County Quality Improvement (QI) Committee

Mission
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 the Emergency Medical Services (EMS) Medical Director, EMS QI Coordinator, EMS Staff assigned to clinical programs, representatives of BLS provider and first responder programs, Fire Districts with Advanced Life Support (ALS) and Basic Life Support (BLS) programs, Medical Dispatch centers, Private ALS providers, Base Hospital, Trauma Center, Receiving Hospitals, Air Ambulance Providers. Hospital, Private ALS and Dispatch QI participation may be facilitated by an EMS Staff liaison.

Medical Director Oversight: Joe Barger, MD, EMS Medical Director

Chair: Patricia Frost RN, MS, PNP, Assistant EMS Director

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, EMS for Children Coordinator & STEMI Program Manager.
Accomplishments

- As of December 2009, successful completion of three-year plan to establish a comprehensive EMS Quality Improvement Program.
- Substantially met 2009 QI Program goals.
- Established biannual reporting on EMS system performance by stakeholder groups.
- Established quarterly reporting process for provider QI activities.
- Developed strong stakeholder QI meeting and activity participation.
- Conducted >100 EMS quality improvement prehospital clinical studies.
- Implemented quarterly reporting process for Emergency Department patient drop times.
- Participated in CDC/NIH Cardiac Arrest Registry to Enhance Survival (CARES).
- Developed Fire EMS Training Consortium curriculum based on field needs assessment.
- Produced four “best practices” curriculums incorporating field simulation training resources through collaboration with Fire EMS Training Consortium quality partnership.
- Developed and revised prehospital protocol and treatment guideline through routine evaluation of EPCR data and evidence-based clinical studies.
- Produced Prehospital Field Manual
  - Streamlined protocols with enhanced guidelines for pediatrics, behavioral emergencies, cardiac arrest, STEMI and advanced airway.
- Participated in statewide quality indicator development for EMS for Children (EMSC) and California EMS Information Systems (CEMSIS) Trauma indicator programs.
- Rigorous quality improvement oversight of ST-Elevation Myocardial Infarction (STEMI) System implemented.
  - Biannual STEMI oversight meetings with quarterly data reporting in place.
  - 100% participation of all STEMI Centers in oversight activities.
  - Successful integration of Sutter Delta into Contra Costa STEMI System.
  - Implementation of quality efforts to reduce false positives system-wide.
  - Enhancement of STEMI prehospital protocols developed; e.g., right-sided MI.
  - Retrained all providers in enhanced 12-lead ECG to reduce false positives.
- Implementation of “best practices” Patient/Provider Safety Reporting program (EMS Event Reporting)
  - Capturing patient and provider safety and exemplary care data.
  - Generating safety clusters reports and safety alerts to provider agencies.
  - Support for root cause analysis of safety related events.
  - Expanded to include “exemplary care” reporting.
- Implemented evidenced-based handoff and radio communication standard SBAR, (Situation, Background, Assessment, Recap/Rx) to reduce communication-related safety events
- Development and facilitation of monthly data advisory subcommittee meetings to support EPCR (electronic patient care record) performance including:
  - End-user utilization.
  - Compliance with documentation standards and expectations.
  - Data workflow and management supporting QI oversight.
  - Quarterly reporting for pediatric and adult pain, skills and ePCR compliance.
- Implementation of Zoll upgrade in 7 of 8 participating fire agencies.
- Enhanced EMS website supporting performance improvement.
  - Enhanced transparency of prehospital performance, through website posting of prehospital performance reports and newsletters.
  - Published five issues of electronic newsletter “EMS Best Practices.”
  - Published four issues electronic newsletter “STEMI News.”
<table>
<thead>
<tr>
<th>Prehospital EMS Provider Agency</th>
<th>EMS Services</th>
<th>QI Plan</th>
<th>CQI Rep</th>
<th>Attended CQI Meetings</th>
<th>Quarterly Activity Reports Submitted</th>
<th>Data Advisory Group (DAG) Rep</th>
<th>Attended DAG Meetings</th>
<th>STEMI System Oversight Rep</th>
<th>Attended STEMI Oversight Meetings</th>
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<td>AMR (Ambulance)</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td>Y</td>
<td>3/4</td>
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<td>Y¹</td>
<td>Y¹</td>
<td></td>
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<td>NA</td>
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<td>REACH</td>
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<td>Y</td>
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<td>Air Transport</td>
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<td>NA²</td>
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<td>Y</td>
<td>Y</td>
<td></td>
<td>NA²</td>
<td>NA²</td>
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<td>Y</td>
</tr>
<tr>
<td>Kaiser Walnut Creek</td>
<td>Hospital Representative</td>
<td>NA²</td>
<td>Y</td>
<td>Y</td>
<td>NA²</td>
<td>NA²</td>
<td>NA²</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

1 EMS staff assigned to facilitate CQI participation  
2 No requirement at this time
• This is the 2009 year-end report of the Contra Costa EMS QI Program Partnership
• The purpose of this presentation is to communicate EMS QI Program performance to date
Initial Three Year Plan: EMS QI System Development

- Goal Met!
- Comprehensive county-wide QI program focused on best practices and improved outcomes established
- Stakeholders engaged

• In 2009 we completed our EMS system QI program development plan
• It is important to acknowledge the accomplishments of our hardworking EMS stakeholders who have supported these activities
•Our 2009 accomplishments are many and here are some of the highlights
  •H1N1 Prehospital Provider safety, patient care and exposure guidance
  •STEMI System Oversight and Metrics
  •Reliable Quarterly QI Data Reporting
    •A number of standardized EMS System Patient Indicator Reports have been developed and are reviewed quarterly
    •These include Pediatric and Adult Pain, Prehospital Skills, ePCR, STEMI, CARES, EMS Event reporting, Customer Satisfaction and Trauma
  •Development of New Pediatric Preparedness and Training Resources
  •The Fire EMS Consortium Partnership has been a tremendous partner in developing standardized curriculum
  •Prehospital Protocol Overhaul resulting in a provider-focused pocket-sized Field Manual
  •Facilities and Critical Care Committee metrics for offload times to feedback progress on handoff efficiencies and support ED through-put issues
  •Safety-driven changes to policies and protocols resulting in clearer expectations and messages to our providers and EMS system partners
• The following are some of the areas we have been evaluating at as we look at our EMS system performance
Even with limited resources we are exploring the four corners of our EMS system with data.

This increased accessibility to data has the ability to facilitate decision making.

When there is a system or patient care decision, we have the ability to rely more and more on identifying and validating the issues with data, aka “evidence”.

The data utilization helps us understand workflow, process and opportunities to improve.

The challenges ahead are associated with appropriate analysis and prioritizing what is important to look at.

We will need to be disciplined in our approach so that we can effectively manage the information the data can bring us.
• Customer Satisfaction is one of the EMS System indicators being used to monitor our performance
• This data comes from AMR and has consistently remained high at 93%
• Survey return rate reflects approximately 0.9% of all patient transports (about 26,000 between Jan-June 2009)
• Moving forward we are encouraging our other provider agencies to incorporate customer satisfaction as a part of provider performance
EMS Event Reporting- YTD 2009

- 59 events out of >70,000 transports
  - 0.1% of all prehospital contacts
  - 10 Exemplary Care
  - 49 Patient/Provider safety reports

- Ave: 11 days to close case

- Key Interventions
  - 78% The "honest mistake" amenable to training
  - 51% Policy review needed

- Indicators of gaps in processes that failed the patient

• EMS Event Reporting (patient/provider safety and provider excellence reporting) results continue to show a consistent rate of 0.1% report of all prehospital contacts
• Vast majority of events reflect decision making issues between providers based on ineffective communication and/or training issues
• EMS events are the system’s red flags. For every event there are many more that go unreported
• Need to continue to support culture of non-punitive positive corrections
Event characteristics are descriptive data points

- Each event is evaluated, characterized and scored during fact finding and review.
- Event characteristics are descriptive data points that when pulled retrospectively can give us some insight into areas that may need improvement.
- One EMS event can have numerous event characteristics.
- Reportable events continue to have communication-related characteristics.
- Communication events typically affect patient care and involve other parties and reflect misunderstandings of policies, procedures, expectations and roles in the system.
- Because these are small numbers interpretation of percentages and trends is limited, however in 2009 we continue to have problems with pediatrics primarily associated with medication and cardiac arrest events.
- Pediatrics is a high-risk, low-frequency population that presents special challenges to our prehospital providers.
- During 2008 and 2009 EMS has been working to improve and refine our policies, procedures and protocols in pediatrics and has partnered with the Fire EMS Training Consortium to systematically improve pediatric training.
- EMS has supported purchase of an infant and pediatric simulator and Dr. Barger recently approved PALS as an alternative to PEPP for meeting pediatric paramedic training requirements, however there is much that has to be done to continue to improve in this area.
EMS Event Reporting
A Power Tool for EMS Improvement

Process Design Flaws
- Unnecessary steps, wasteful measures and/or data
- Unnecessary complexity
- Practices that fail to recognize need for preventive measures
- Ineffective Training
- Ineffective Communication
- Failures in Standardization

“Reported Event = System Improvement Opportunity”

• The biggest advantage that the EMS event reporting program provides is its ability to identify process design flaws
• It helps the system focus on gaps and failures of our process, policy, procedure that has not only failed the medic but also failed the patient
**CEMSIS Pediatric Indicators**

(CEMSIS: California EMS Information System)

<table>
<thead>
<tr>
<th>EMSC Prehospital Indicator</th>
<th>Contra Costa</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation of Weight</td>
<td>94%</td>
<td>85%</td>
</tr>
<tr>
<td>Glucose tested in ALOC</td>
<td>85.5%</td>
<td>75%</td>
</tr>
<tr>
<td>Glucose administered hypoglycemia with ALOC</td>
<td>100%</td>
<td>56%</td>
</tr>
<tr>
<td>First Epinephrine Dose correct</td>
<td>56%</td>
<td>81%</td>
</tr>
<tr>
<td>Pain Scale Documented</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td>Valium/Versed Dose Correct by wt</td>
<td>87%</td>
<td>88%</td>
</tr>
<tr>
<td>Pulse Oximetry Documented</td>
<td>88%</td>
<td>73%</td>
</tr>
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</table>

Source: AMR data

- CEMSIS stands for the California EMS Information System
- Contra Costa has participated in the EMS for Children (EMSC) pediatric indicator development which was recently trialed
- The chart above shows how our county compared to the other Local EMS Agencies (LEMSA) participating in the EMSC indicator trial
- State Pediatric CEMSIS Indicators….3 LEMSAs participated: Contra Costa, San Diego and Santa Clara
- These indicators continue to be refined based on feedback from the EMS Agencies participating in the state trial of these metrics
- Pediatrics is considered a high-risk low-frequency population and percentages reflect very small numbers which would limit the interpretation of these findings, however this is an example of the types of metrics that will be available
- For example, the lower results for the indicator: “first epinephrine dose correct” may be the result of documentation errors and not actual medication errors due to problems with electronic patient care record data entry
- Please note that every LEMSA has different policies and procedures that while similar could affect these results. Also note that the percentages reflect very small numbers e.g. 5-10 patients making percentages a less reliable way of looking at information
Cardiac Arrest Registry to Enhance Survival (CARES)

<table>
<thead>
<tr>
<th>Cardiac Survival Measure</th>
<th>Contra Costa Jan-Dec 2009</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Cardiac Arrest Survival</td>
<td>8.6%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Bystander Witnessed Arrest Survival</td>
<td>12.7%</td>
<td>10.1%</td>
</tr>
<tr>
<td>VF/VT Survival (Utstein)</td>
<td>32.9%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Unwitnessed Arrest Survival</td>
<td>3.3%</td>
<td>3.5%</td>
</tr>
<tr>
<td>VF/VT with Bystander CPR/AED</td>
<td>31.5%</td>
<td>21.4%</td>
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</tbody>
</table>

CDC-NIH National Cardiac Arrest Registry

• Cardiac Arrest Survival is one of the most well established and important measures of EMS System Performance and is considered the gold standard of the health of an EMS System

• In January 2009 Contra Costa EMS joined the CDC/NIH internet-based registry giving us a powerhouse tool to accurately look at survival from cardiac arrest over the continuum of care

• The goals of CARES are to help local EMS agencies identify who is affected, when and where cardiac arrest events occur and how changes can be made to improve survival

• Opportunity for improvement in survival – Increase Bystander CPR and use of AED in our community

• Our new Heart Safe Community Program led by Prehospital Care Coordinator Pam Dodson and Medical Director Joe Barger helps focus efforts to improve these areas

• National goals have been set to improve Utstein survival (the type of cardiac arrest with the most chance of good outcome) to 50%….To achieve this result in 2009 Contra Costa would have needed 14 more patients who met that survival criteria
Documentation Completion Rate

- QI Expectation: 2 and 24 hours
- Time (in hours) to completion rates (Zoll):

<table>
<thead>
<tr>
<th>2009</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall ePCR completion rate</td>
<td>66-93 %</td>
</tr>
<tr>
<td>Overall Time to completion</td>
<td>4.2-7.8 hrs</td>
</tr>
</tbody>
</table>

- ePCR (MEDS) delivery to ED
  - 63-69% print stamp 98-100% with fax
- Opportunity:
  - Reduce Redundancy
  - One Patient One Record

- Implementing a successful electronic prehospital medical record is very challenging
- EMS Policy Expectations:
  - Transport: Preliminary draft or completed paper or ePCR on arrival to ED which includes First Responder activities
  - First Responders: ePCR complete within 24 hours
- What we have learned over the last year is that compliance with documentation completion and printing is an issue that requires active management and feedback
- We also know that the documentation compliance for the system is not where it needs to be
- This provides an opportunity for us to improve our processes and training in the quality and compliance with documentation
- Draft paper Patient Care Record (PCR) is still the primary mechanism used by Fire agencies to pass the record of first responder interventions to the transport provider who then takes the patient to the ED
- Fire provider agency Zoll ePCR implementation is making significant progress but still has a long way to go
- Major challenge is documentation accuracy…next large quality effort to move forward
- With the upcoming upgrades in both MEDS and Zoll there is an opportunity for us to improve documentation quality by effectively communicating documentation expectations
Field Competency: Skills
Zoll/MEDs data Jan-Dec 2009

<table>
<thead>
<tr>
<th>Skill</th>
<th>Number attempts</th>
<th>Success per Attempt (%)</th>
<th>Historical 2003-2007</th>
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<tbody>
<tr>
<td>IV</td>
<td>24,278</td>
<td>79%</td>
<td>82%</td>
</tr>
<tr>
<td>Intubation</td>
<td>688</td>
<td>68%</td>
<td>70-83%</td>
</tr>
<tr>
<td>IO</td>
<td>518</td>
<td>95%</td>
<td>80-100%</td>
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<tr>
<td>King-MEDs</td>
<td>270</td>
<td>94%</td>
<td>80-83%</td>
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</table>

Does procedural success rate = competency?

• In looking at our skills competency data over the last 2-3 years we can see this indicator gives limited information about prehospital skills competency

• Procedural success rate is a simple and common way for EMS Systems to look at competency

• Our current reports to capture this data still need work. The data is not perfect but gives us an idea of what is happening

• When measuring skills success in this way we have observed that training alone does not significantly impact procedural success, however this metric does capture improvement when new devices or technology is successfully introduced e.g. King Tube, EZIO

• Procedural success depends on numerous factors including many that are out of control of the EMS provider, e.g. environmental conditions, difficult patient anatomy etc.

• Competency-based simulation and manikin training helps but not the same as “the real thing”.

• Advanced airway success is just one place this indicator does not tell the whole story as the following slides will show
In the case of prehospital advanced airway skills, success is dependent on a number of factors:

- **Experience** (psychomotor skills, knowledge) + **Environment** (scene safety, lighting) + **Patient Selection** (patient condition, airway characteristics) = **Rate of Success**

- There will always be a subset of patients that, even under the best conditions, we will not be successful with due to patient and scene factors outside of our control.
• Patients who have perfusing pulses are likely to have intact airway reflexes; e.g., gag reflex making advanced airway success difficult
• These are patients who may need rapid sequence intubation (RSI) requiring the use of paralytics and sedation, which is out of paramedic scope of practice
• Air Transport Nurse and Paramedics do use RSI, however waiting for helicopter support solely to assist with advanced airway is not in the best interest of the patient and is contrary to EMS policy
• In these cases BLS airway and rapid transport should be considered
• In cardiac arrest patients who have no pulse or gag, advanced airway success is typically higher for both King tube and Endotracheal tube

• What this data does not reflect is that 2 years ago a major shift in EMS policy limited the number of attempts for ETT as the primary airway to one attempt and then to go to the King airway

• This change in EMS advanced airway policy reduced excessive advanced airway attempts preventing prolonged periods where no ventilation was occurring

• Interruptions in bag valve mask ventilation produce hypoxemia and hypercarbia in the patient decreasing chances for survival

• Early alternative airway management using King Tube or going to King Tube as the primary airway is now the practice which may be reflected in our improved cardiac arrest survival rates
• In contrast, the patient population that is not served by advanced airway in the trauma patient who still have pulses and airway reflexes.
• These patients typically require rapid sequence intubation (RSI) and do not tolerate King tube well.
• This data is being used to further refine our advanced airway protocols and training for prehospital providers.
As we study advanced airway decision making in the field over and over again, we find that patient selection matters.

Sometimes the very best airway for the patient is not an advanced airway device at all but BLS.

This slide summarizes our experience with advanced airway.

It also gives us the ability to ask “Have we really optimized our providers skills in BLS Airway Management when there is a core set of patient who benefit from it?”
High Frequency High Risk Elderly (>65) Head Trauma

- The culprit...FALLS!
- 4,200-4,600 EMS calls per year
- Leading cause of accidental death in Contra Costa
- 11% of all trauma center patients yet 34% of trauma center deaths
- Question: Is it possible to improve outcomes by triaging these patients differently?
- Opportunity: Study in progress

• Falls in the elderly is an excellent example of how Contra Costa is looking at patient care in partnership with treating facilities
• What we do know is that falls in the elderly make up a substantial portion of our EMS response in Contra Costa County and are a source of significant mortality and morbidity
• 50% of elders who fall and are transported to the trauma center as a result of their fall, do not return to their previous level of independence
• Contra Costa EMS is a partner with the Contra Costa County Fall Prevention program
• In March of 2010, John Muir Trauma Center and EMS initiated a study to look at opportunities to improve our trauma triage for this population
• We are looking forward to the data generated from this study and what we can learn to further enhance our trauma triage protocols
• This is another example of the growing trend of prehospital and receiving center partnerships to improve patient care
As part of our EMS system indicators we also look at our base contact data. Every base contact is considered a high-risk communication and relies on effective communication among the MICN, the paramedic, and the physician involved in the call.

If base communication goes sideways, the consequence can affect patient care because essential information was misheard or left out.

Understanding our EMS system workflow trends over time can help us ask questions we would ordinarily not ask if we did not have this information.

What we do know is that high risk communication is a skill that can be learned and evaluated for effectiveness.

Our base call review gives us the ability to give feedback to parties when communication is ineffective.

In 2008 Contra Costa EMS adopted a new communication standard called SBAR (Situation Background, Assessment and Rx/Recap).

SBAR is an evidence-based communication tool that prioritizes information needed for decision-making.

When used properly SBAR helps to assure vital information is never left out during high-risk communications such as patient handoff or base contact.

Contra Costa EMS is continuing to work on the implementation of this communication standard system-wide.
Our Patients in Pain

Painful conditions and EMS pain assessment

<table>
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<th>Primary Impression</th>
<th>Pain Scale</th>
<th>Total</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Chest Pain &amp; NS-Chest Pain</td>
<td>2283</td>
<td>4311</td>
<td>53%</td>
</tr>
<tr>
<td>Burn</td>
<td>14</td>
<td>80</td>
<td>20%</td>
</tr>
<tr>
<td>Abdominal Pain</td>
<td>1046</td>
<td>3868</td>
<td>27%</td>
</tr>
<tr>
<td>Non-traumatic Pain</td>
<td>857</td>
<td>3710</td>
<td>23%</td>
</tr>
<tr>
<td>Blunt Injury</td>
<td>2272</td>
<td>11098</td>
<td>20%</td>
</tr>
<tr>
<td>Penetrating Injury</td>
<td>108</td>
<td>780</td>
<td>13%</td>
</tr>
<tr>
<td>Headache</td>
<td>174</td>
<td>814</td>
<td>21%</td>
</tr>
<tr>
<td>Totals</td>
<td>6754</td>
<td>24661</td>
<td>28%</td>
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</table>

MEDs Jan-Jun 2009

• In Quarter 1 of 2009, the need for improved pain assessment was identified.
• A survey was conducted and an educational program was developed by the Fire EMS Training Consortium has been recently distributed as a self-study module.
• Our survey found that poor performance in this area was a reflection of numerous factors including documentation failure, provider biases, and lack of training.
• Not all EMS providers had been educated to the Contra Costa EMS expectations for pain assessment and how to properly document pain assessment in the electronic PCR.
• Pain is “the 5th vital sign” essential to a patient’s outcome, satisfaction and quality care.
• Our current EMS system pain indicator measures the top 10 primary impressions for pain and whether a pain scale was documented as part of patient care.
• EMS data further demonstrates that when pain is appropriately assessed and documented it is more likely to be treated.
• Over time we will see how this performance measure improves, but it will not improve unless we make it a priority.
• EMS providers need to prioritize all pain assessment and management the same way we do in the assessment and management of chest pain.
EMS Patient Off-Load Times  
National EMS System Goal < 20 minutes

Metric: Number of > 45 minute offload times  
Improvement even in the face of H1N1

- EMS patient off-load times are another of our EMS system indicators
- Why measure? Numerous reasons including patient safety, 911 system impacts, EMTALA and paramedic scope conflicts
- In comparing data from 2008 overall delays > 45 minutes have been reduced
- These indicators also look at EMS volume and compare them to the volume of long delays
- This data reveals that increased EMS volumes are not always associated with off-load delays and may associated with high-volumes of walk in patients which may occur at the same time
- We also notice that high-volume hospitals have more delays more frequently
- ED patient through-put is a complicated issue with significant quality focuses within each facility and requires hospital leadership to resolve
- The EMS system controls few of the factors that contribute to off-load delays making improvements in this area a collaborative effort requiring hospital executive leadership and support
- Contra Costa is a “no ED diversion” county and has been since 2006
Our High Performance STEMI System

<table>
<thead>
<tr>
<th>National Benchmark</th>
<th></th>
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<tbody>
<tr>
<td>EMS to Intervention &lt; 90 minutes</td>
<td></td>
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<table>
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<tr>
<th>Local Performance YTD 2009</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS to Intervention</td>
<td>78 minutes</td>
</tr>
<tr>
<td>EMS Scene Time</td>
<td>14 minutes</td>
</tr>
<tr>
<td>911 to Intervention</td>
<td>87 minutes</td>
</tr>
</tbody>
</table>

• Contra Costa has a “true” STEMI System recognized by the Society of Chest Pain Accreditation Director during JMMC Concord and Walnut Creek accreditation site visit in 2009

• Congratulations to JMMC Concord and Walnut Creek Campuses on their Society of Chest Pain Center Accreditation in 2009

• Contra Costa EMS has worked with Doctors San Pablo and Kaiser Walnut Creek who have applied for state CDPH trial study looking at standards for STEMI Centers without cardiovascular surgery

• Sutter Delta joined our system on August 17th 0800 adding a strategic location for our East County community

• The EMS and AMR Medical Directors are submitting for publication two articles looking at the first year of our STEMI system and the incidence of “normal” ECGs in patients with chest pain.

• We have had inquiries from local, state and out-of-state systems developing their STEMI agencies looking at Contra Costa as a model

• Best of all we have a strong transparent patient focused CQI process

• Congratulations to all our STEMI system partners
Having accomplished our 3-year plan, it is now time to establish a new 5-year plan.

- A patient-focused, evidenced-based EMS system
- We will be continuing to focus efforts in 5 key areas which include patient safety, data integration, CEMSIS participation, patient care enhancement and workforce training.
Fundamental to our CQI program is EMS Event reporting which started in June 2007.

We need a continued strong focus on patient safety and we need to be fearless in our ability to look at each event as an opportunity to improve the system.

This relies on our continued ability to support EMS event reporting processes and data review.

As we have gained experience with this tool, we have identified the need to expand skills in data analysis and data management.

EMS Event Reporting is also meant to capture excellence in our system, and efforts are needed to build pathways to consistently recognize the individuals involved in these exceptional events.
• Data management and integration continues to be one of our most challenging areas of work
• EMS leadership is on board with the concept of data hub or warehouse (long term)
• New technology is emerging to improve the efficient use of data which will need to be evaluated
• Performance measures for EMS Systems are evolving and their development is challenging and often needs refinement
• Upgrades of the Zoll/MEDS electronic patient care record systems are in progress.
• These upgrades provide us the opportunity to update our local Contra Costa data dictionary bringing it in line with State (CEMSIS) and National (NEMSIS) standards
• The NIH/CDC Registry CARES (Cardiac Arrest Registry for Enhanced Survival) has been one of the most important data platforms to our EMS system
• During 2010 EMS will be working with our hospitals to get them oriented to the web-based patient outcome reporting feature of this registry
• Along the way we need to constantly evaluate what we do and why, to reduce ambiguity and duplication in our documentation systems and support a seamless electronic patient record that could eventually be linked to the patient’s hospital record
One of the things that has come out of this ePCR implementation process is that it has created a system with many layers and redundancy.

So in 2010, we will be closely looking at our patient record processes and asking ourselves the following:

- How can this serve the patient better?
- Where can we reduce redundancy and duplication?
- How could we make patient care documentation easier and more reliable?
Related to the focus of effective data management is the opportunity to fully participate in the development of meaningful indicators.

That is why Contra Costa is at the table and fully positioned to participate and provide leadership in this area.

In 2010 Contra Costa is one of the several EMS Agencies who are trialing the new CEMSIS Trauma, EMSC and medical indicators.

Eventually CEMSIS will provide a platform to compare and benchmark our EMS system to others throughout California.

However, as an EMS Agency, we need to support building data management and risk management skills among stakeholders so they can fully participate.
Contra Costa has had a track record of excellence and innovation in patient prehospital care and we intend to continue to perform at a high level.

Patient care improvement requires a strong commitment from EMS leadership and stakeholders to support competency and accountability.

Listed are a number of areas currently being worked on to enhance patient care.

There will be continued opportunities for collaboration between prehospital and emergency departments moving forward on programs to enhance patient care such as STEMI and stroke.
Education and Training

- **Performance Criteria:**
  - Providers actively engaged in learning

- **Current Initiatives**
  - Pediatric Competency
  - Pain Assessment
  - Reduce False STEMI Activations
  - Patient Documentation

- **Fire-EMS Training Consortium Partnership**

- **Opportunities:**
  - Outstanding Field Decision-Making and Patient Advocacy

• Education and training are essential to an effective QI program and the Fire EMS Consortium has been a leader in this area.

• In this time of constrained resources increasingly more effective and efficient ways to support high level of competency within our EMS workforce need to be utilized.

• These may include social media, computer assisted instruction, gaming, and simulation training.

• Time, money, personnel resources, and motivation are barriers that need strong partnerships to overcome.

• One solution is to expand use of web and self-paced learning.

• Creating a culture of professional EMS development….will take time.
Contra Costa EMS System QI Program….Lessons Learned!

- Performance variations point to ineffective processes
- We need to ask “why” more often

Most of all…. It needs to about the patient!

- What are our 2009 Lessons Learned?
- There are some clear knowns and these include:
  - Performance area variations are symptoms of flawed processes….these can be corrected but we must “look in the mirror first”
  - Goal needs is to decrease the variability in performance while maintaining performance at a high level
- This can be achieved by working collaboratively to provide:
  - Clear messages throughout the EMS system
  - Ongoing needs-based and evidenced-based curriculums
  - Opportunities to routinely engage the workforce to find real solutions that work for patients
  - Increased resources in data management and analysis
  - Effective collaboration to target performance improvement
Moving Forward…. What We Need to Know!

Good decision making relies on understanding what makes a difference!

• What we need to know
  • Change must offer improved processes
  • Barriers exist but can be overcome
  • Data is needed to maneuver the hiccups
  • Simplified processes improve success
  • Respectful problem-solving is key
  • EMS evidenced-based care is here to stay
  • Technology adds complexity
  • Stress/fatigue affects capacity to improve
  • Economics will impact the system

• Over the last 3 years Contra Costa EMS Stakeholders have accomplished some amazing outcomes

• We will need to constantly re-prioritize our goals and objectives and be prepared to make slower progress on some fronts

• However, over time we will be able to continue to make progress fully building out our system performance measures, helping us to understand what “makes the difference”
A New Era in EMS
“The Continuum of Patient Care From Field to Discharge”

• Asking Ourselves the Hard Questions
  • What matters most to our patients?
  • Where does EMS make the biggest difference?

• Our EMS system is evolving and breaking new ground!
• To move to the next level, we need the field to become actively engaged to find the answers
  • Where does technology serve the patient best?
  • Are we positioning our workforce to succeed?
  • What is getting in the way of patient care?
  • Where can we reduce cost while maintaining a high level of care?
• In Summary

• Contra Costa EMS System Partners have effectively built a system of EMS CQI infrastructure to support an accountable program of quality prehospital care

• We have demonstrated excellence and have been recognized by national experts in STEMI, CARES, AHA, Society of Chest Pain, Quality, Risk Management

• We have set standards and created great programs that have set an example for other EMS systems in California and across the country

• We need to recognize and celebrate these accomplishments and the teamwork that has been required to get there

• There is much work still to be done and the work requires expanded skills in data management

• Our goal is to build an EMS System QI Program of real excellence that is patient-focused and evidenced-based
Thank you
Questions? Please contact
Pat Frost, Assistant EMS Director
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• This presentation was respectfully prepared and submitted by Pat Frost RN, MS, PNP, Assistant EMS Director
• Questions about this presentation should be sent to Pat Frost at pfrost@hsd.cccounty.us
Acknowledgements

This report reflects the extraordinary dedication and commitment of numerous individuals, within the Contra Costa EMS System, who actively participate in Contra Costa County Emergency Medical Services Quality Improvement Program. The work, data, and accomplishments, summarized in this biannual report, are the result of Contra Costa County’s strong EMS Quality Improvement Partnership.

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Steve Rodgers, MOFPD    Paul Cutino, East Bay Regional Parks Fire
Cathy Seithel, Kaiser Walnut Creek    Chris Eberle, SRVFPD

And many more….

This report respectfully submitted by: Pat Frost, RN, MS, PNP
Assistant EMS Director

For more information on Contra Costa County’s EMS Quality Improvement Program visit www.cccems.org

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