Contra Costa EMS Agency

Continuous Quality Improvement

Core EMS System Measures
Annual EMCC Report

2016
System Utilization
2016

Data Source: First Watch
Contra Costa County
911 Ambulance Response and Transport
CQI Annual Report 2016

N= 99,769 Responses
N= 76,650 Transports

Number of Volume
Contra Costa County 911 Ambulance
% Transport per Response by Month
CQI Annual 2016

N = 96,769 Responses
N = 76,650 Transports
Mean % Transport per Response = 79%
EMS Hospital Ambulance Diversion
Cumulative Hours by Year
2012 - 2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Cumulative Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>621</td>
</tr>
<tr>
<td>2013</td>
<td>584</td>
</tr>
<tr>
<td>2014</td>
<td>586</td>
</tr>
<tr>
<td>2015</td>
<td>925</td>
</tr>
<tr>
<td>2016</td>
<td>637</td>
</tr>
</tbody>
</table>
Hospital Ambulance Diversions % by Type 2016

N = 637
Base Hospital

Average Daily Medical Control/Advisory Calls Received
By Year 2011-16

N=5058 total 2016
% Base Hospital Medical Control/Advisory Calls Received by Type

N=5058 calls

- Trauma: 57%
- Medical: 23%
- Other: 20%
CQI Report
Annual 2016
Systems of Care
Cardiac Arrest

Data Source: CARES 2016.
% Bystander CPR by Year
5 year Comparison

N=668
(Inclusion Criteria: all out of hospital cardiac arrest where resuscitation was attempted by 911 responder) All Cardiac Arrests for 2016)
Cardiac Arrest Survival
Utstein Survival by Year

5 Year Comparison
2012-2016

N=7270 (2016 Total Utstein Cases)

<table>
<thead>
<tr>
<th>Year</th>
<th>Series1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>32%</td>
</tr>
<tr>
<td>2013</td>
<td>26%</td>
</tr>
<tr>
<td>2014</td>
<td>30%</td>
</tr>
<tr>
<td>2015</td>
<td>28%</td>
</tr>
<tr>
<td>2016</td>
<td>32%</td>
</tr>
</tbody>
</table>
CQI Report
Annual 2016
STEMI System
## EMS Patient Care Performance

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin Administration</td>
<td>90%</td>
<td>90%</td>
<td>94%</td>
<td>88%</td>
</tr>
<tr>
<td>12-Lead Acquired on STEMI Patients</td>
<td>98%</td>
<td>99%</td>
<td>99%</td>
<td>98%</td>
</tr>
<tr>
<td>Patient Identified as STEMI and Transported to SRC</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>Average Scene Time in Minutes</td>
<td>11</td>
<td>13</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>
### Average/Median DIDO to Intervention by Referral Center

Source: SRC  
Goal: DIDO2I < 120 minutes

N=72

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Average</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital A</td>
<td>98</td>
<td>87</td>
</tr>
<tr>
<td>Hospital B</td>
<td>110</td>
<td>94</td>
</tr>
<tr>
<td>Hospital C</td>
<td>120</td>
<td>105</td>
</tr>
</tbody>
</table>
Average/Median FMC to Intervention by STEMI Receiving Center

Source: SRC
Goal: FMC to Intervention < 90 minutes
n=95

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Average</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>76</td>
<td>75</td>
</tr>
<tr>
<td>B</td>
<td>85</td>
<td>85</td>
</tr>
<tr>
<td>C</td>
<td>108</td>
<td>109</td>
</tr>
<tr>
<td>D</td>
<td>87</td>
<td>91</td>
</tr>
<tr>
<td>E</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>F</td>
<td>103</td>
<td>106</td>
</tr>
<tr>
<td>G</td>
<td>84</td>
<td>81</td>
</tr>
</tbody>
</table>

Legend:
- **Average**
- **Median**
CQI Report
Annual 2016

Systems of Care
Stroke System
Stroke System 2016

Average Door to Drug Time by Year for all Hospitals

Source: PSC

<table>
<thead>
<tr>
<th>Year</th>
<th>Minutes</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>61</td>
<td>121</td>
</tr>
<tr>
<td>2014</td>
<td>55</td>
<td>134</td>
</tr>
<tr>
<td>2015</td>
<td>54</td>
<td>158</td>
</tr>
<tr>
<td>2016</td>
<td>44</td>
<td>162</td>
</tr>
</tbody>
</table>
Trauma System
Annual 2016
2016
Total Trauma Patients by Type of Injury
N=1841

Blunt
N= 1629
85%

Penetrating
N= 212
12%
Median Prehospital On Scene Time Interval
Blunt vs. Penetrating Trauma By Year
2013-2016
N=1841
EMS Events
2016
EMS Events
Reports Received by Month
2016
N=616
EMS Events Reported by General Category 2016

N=616

45% Policy 4010 Violations
55% Other Events
END REPORT
Annual 2016
2016
Quality Improvement Initiatives
Quality Improvement Initiatives

Patient Off-Load Time Reduction

In 2014, an initiative to monitor and reduce the handoff times between ambulances and hospital emergency departments was implemented by the CCC EMS with the support of the CQI team. Current measures reflect that during high-volume periods, patients arriving at emergency departments by ambulance are often waiting longer than 30 minutes for offloading. Measures and other pertinent information continued to be reviewed by internal staff and the QLC. Reports were updated monthly and hospital leadership continued to be informed.

In 2016, outcomes showed some slight decreases in off-load times, however, goals for reduction continue to be a challenge for some hospitals. Most recently, a statewide initiative has been implemented in collaboration with hospital leadership to evaluate and act to improve the hospital off-load times statewide. This initiative will continue to be monitored and acted on for further improvement in the 2017 improvement cycle.
Quality Improvement Initiatives

High Performance Cardiac Arrest Resuscitation Team

In 2014-15, indicators to measure quality of CPR for compression ratios, depth and pauses for shock were developed and implemented. In 2016, our CARES showed a 4% increase in the annual save rate performance.

In 2016-17, staff participated in targeted training programs in both Seattle and Monterey to learn the latest science and best practices to improve and enhance CCC EMS Cardiac Arrest System of Care. A newly organized Cardiac Arrest Performance Improvement Team has since been activated with the objectives of continuing to sustain our gains and to further enhance and improve outcomes.