



ALOC and Indications for Narcan Joe Barger EMS Medical Director

Naloxone (Narcan) has been a "staple" of EMS life for decades. It remains a highly effective medication for reversal of respiratory depression or apnea due to opioid medications. A recent review of our EMS cases brought attention to the fact that this medication is given too frequently in patients with ALOC.



Case #1: Patient A.A. was noted to have altered mental status when he presented to a detox center. He had a history of Oxycontin abuse. On evaluation the patient was noted to be lethargic and not cooperative. His blood pressure (B/P) was 120/60, pulse 80 and respiratory rate 12 and unlabored. Pulse oximetry was not obtained. After naloxone was administered, the patient became combative and required restraint.



Case #2: Patient B.B.'s family called 911 because of altered mental status for 30 minutes. The patient had a history of chronic back pain and taking Norco. B/P was 108/70; HR 80; RR 14; Pulse oximetry 99%. The patient responded to naloxone, became fully oriented although still "a little bit groggy." The patient refused transportation to the hospital by ambulance, but was taken in by a family member after lengthy discussion with the responding EMS personnel. He was admitted to the ICU for sepsis and discharged after 6 days.

Did either of these patients require naloxone? We think not. Contra Costa EMS treatment protocols, state that naloxone **should** be given to patients with altered level of consciousness **when patients have "respiratory compromise."** Our data shows that practice in the field has extended to many patients who have no respiratory compromise but who do have decreased level of consciousness. In a recent review of ePCR data less than 20% of patients given Naloxone have needed BVM ventilation, and most have respiratory rates of 10 or greater.

Is reversal of opiate induced mental status change necessary in the absence of respiratory compromise? In most cases the answer is no, if a patient is maintaining a reasonable respiratory rate, depth of respiration and oxygenation. Naloxone can be kept on standby and administered IV or IM. If there is compromise of the airway, hypoxia, apnea or respiratory rate less than 10, naloxone is indicated.

Some patients with higher respiratory rates could also have poor respiratory effort, hypoxia, and hypercarbia, so respiratory rate alone doesn't always tell the story. Use of pulse oximetry and non-invasive end-tidal CO2 monitoring (not currently in our system but being considered) could help with these decision-points.

Remember that naloxone's most common side effect in patients with chronic opiate use is that it elicits withdrawal symptoms. **Inducing withdrawal and violent behavior can put patients and EMS providers at risk.** Significant agitation, including violent behavior occurs in about 15% of these patients. Seizures pulmonary edema, or respiratory distress occurs in another 1-2%. These rarer symptoms are mediated by a significant peak in the patient's epinephrine levels once withdrawal occurs. Patients with history of cardiovascular disease have a greater chance of adverse effects. Another take-home point is that some patients are more susceptible for ALOC from narcotics when there is a more serious medical underlying illness. At the hospital, diagnostic studies will help clarify cause for the patients' altered mental status.

Naloxone is short acting and thankfully, AMA after naloxone use is exceedingly rare. In the coming year we will continue to review use of naloxone in greater detail. I want to emphasize that respiratory compromise is the reason for naloxone use, not simply ALOC. We will continue to refine our future treatment guidelines to make this even clearer.

**Best Practice is Pain Assessment**  
Only 20% of pain assessment is documented!  
We can do better!

The **faces scale** has been shown to be the **most** accurate tool for assessing pain in both children >3 years and adults of all ages.



Patients of all ages should be assessed for pain with initial vital signs!



If it was **not documented**, pain assessment was not done.

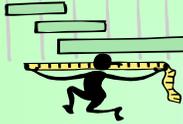


**Contra Costa First Responders Participating in LUCAS Project**

The LUCAS mechanical chest compression device is used on patients in cardiac arrest. It provides continuous, uninterrupted, fast and hard compressions which can be difficult to maintain during transport.

Several first responder fire agencies in Contra Costa County will participate in the LUCAS Clinical Registry in 2009 for a 6 month period to test the efficacy of the device in the field. ED staffs may see it used when patients in cardiac arrest arrive!

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# 2008 EMS Quality Report: What our statistics show

Pat Frost RN, MS, PNP, EMS QI Coordinator

The ability to become a “high performance” EMS system depends on data. Data provides vital feedback to our EMS stakeholders and providers. **It allows us to identify opportunities for improvement and recognize excellence in the system.** It helps us evaluate the effectiveness and appropriateness of our prehospital protocols and will increasingly be required by the California State EMS Authority to demonstrate that our EMS system is focused on quality prehospital patient care and patient safety.

In 2007 Contra Costa EMS was able to analyze 90% of our pre-hospital transport data but did not include our Fire Agency’s important contributions to the EMS system. Late in 2008 we began to access performance data from the Fire Agency first responder and transport prehospital electronic medical records. **For the first time we now have the ability to look at the system as a whole!**

**We still are in the early stages of evaluating this data but the information reflects a more “comprehensive” look at our EMS system performance.** In 2008 we incorporated this “big picture” data it into newsletters, trainings and EMS updates. As you review some the statistics from our Quality Improvement Program, understand that this information has provided our EMS system with a tremendous edge. This information will continue to become a powerful tool in evaluating what is important and putting our efforts in the areas that really count. Our emphasis on patient safety and evidenced based prehospital practice has changed the way we do business in EMS. With this knowledge our ability to provide the highest quality EMS care for the 1.2 million Contra Costa County residents we serve will be greatly enhanced.

<b>Vascular Access</b>	Peripheral IV is the most frequently performed skill in our system with over 20,000 attempts with and a <b>79%</b> success rate (all age groups). Next is external jugular with 86 attempts ( <b>64%</b> success rate) and IO (EZIO) with 235 attempts ( <b>94.5%</b> success). EZIO implementation has been a huge success county-wide. In 2009 we will be refining our vascular access protocols to assure the appropriate vascular access is used in every patient every time.
<b>Patient Satisfaction</b>	In 2008, <b>93%</b> positive responses (1,325 responses with a <b>4%</b> survey return rate)
<b>ROSC</b>	Return of Spontaneous Circulation in arrest was <b>16%</b> in pediatrics and <b>25%</b> in adults with early CPR and defibrillation the most important factors in ROSC. Only <b>20%</b> of pediatric arrests are witnessed in contrast to <b>30%</b> in adults.
<b>ePCR Delivery and Completion</b>	Agencies using Zoll electronic patient care (ePCR) records are finally online after several false starts. Zoll completion reports are being generated weekly and compliance with Zoll is already improving. Zoll user’s <b>average</b> compliance rate in November 2008 was <b>65.8%</b> . MEDS user’s ePCR completion rate is <b>99.7%</b> . Zoll was implemented in Contra Costa County in 2007 while MEDS has been used for over 11 years. <b>100%</b> compliance is our objective.
<b>Advanced airway: Intubation and King Tube</b>	Our advanced airway protocols changed in 2008 substantially with the adoption of King Tube and the emphasis on BLS airway. <b>BLS airway continues to have the strongest research based efficacy of improved outcomes in trauma and pediatric patients.</b> CPAP has also impacted the need for advanced airway to the patients benefit. Total advanced airway success averages <b>82%</b> , with an intubation success rate of <b>70-72%</b> , and a King Tube success rate of <b>92-100%</b> . Success rates are strongly influenced by patient selection with non-arrest patient advanced airway rates having lower success rates than arrest patients. In 2009 our advanced airway protocols will be further refined.
<b>EMS Event (Patient Safety) Reporting</b>	In 2008 the EMS system provided care to over 58,000 patients. During that period 60 events were reported representing <b>0.1%</b> of all patient contacts. Patient safety reporting has improved <b>33%</b> since the 2007 implementation of our new safety reporting program. Communication continues to be the key factor in patient safety events. In 2007 <b>60%</b> of events were communication related and in 2008 <b>53%</b> were communication related. <b>In 2009 clear, concise, effective communication continues to be the most important QI goal we have for our EMS system!</b>
<b>Pediatrics</b>	In 2008 Contra Costa EMS System <b>100%</b> of stakeholders participated in the evaluation and update of our EMS for Children Plan. This results in enhanced prehospital pediatric guidelines and resources, updated equipment lists and identification of opportunities for improving pediatric emergency care. Key findings showed that inpatient pediatric bed capacity in our county has been significantly reduced to only <b>44</b> beds while all stakeholders have either met or exceeded state and national guideline requirements. Pediatric disaster and surge preparedness was identified as a important area to focus on moving forward.
<b>Patient Handoff</b>	In 2007 we had over 116,000 patient care handoffs; a <b>12.4%</b> increase since 2006. In 2008, <b>57%</b> of patient safety events occurred during handoff. As a high-risk, high-frequency issue for our EMS system the evidenced based handoff standard called SBAR (Situation, Background, Assessment, RX/Recap) went into effect 2009.

## County EMS for Children Plan Update Complete!

The 2000 Contra Costa EMS for Children Plan was updated in 2008 with the full participation of all our EMS stakeholders! **Awesome Outcomes!**

Check out our EMS for Children Program Evaluation and Update Report on our website under the EMS for Children !



## February is “American Heart Month”

Sudden cardiac arrest (SCA) is the nation’s leading cause of death. Every two minutes someone in the United States dies of SCA. Join us this month to build community awareness!

**Visit [www.cccems.org](http://www.cccems.org) for more information!**

**Please contact us with your comments or concerns. Visit our website @ [www.cccems.org](http://www.cccems.org)**