Contra Costa Emergency Medical Services

CONTRA COSTA HEALTH SERVICES

EMS Best Practices

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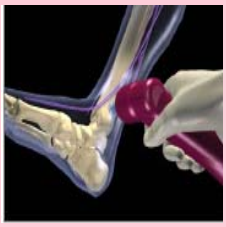
Issue 2
Corrected

Intraosseous Decision Making

Joe Barger MD, EMS Medical Director



With implementation of adult intraosseous via the EZ-IO needle, we have improved our ability to provide intravenous medications to seriously ill patients. However, the indications for use need to be kept in mind. **Adult and pediatric IO is indicated in patients with cardiac arrest or impending arrest; unstable dysrhythmias or shock or evolving shock.** In general, conscious patients should **not** be receiving IO unless shock is rapidly evolving. We have already noted IO use in two trauma cases where an IV could not be started and patients were hemodynamically stable.

When an IO is inserted, it must be flushed initially. IO infusion is painful! We have had several situations where the infusion via IO was painful enough to arouse patients who were clearly assessed as being "unresponsive." **For this reason using lidocaine as part of the first IO flush is acceptable and recommended in non-arrest situations.** Lidocaine 20 mg IV (repeat once if needed) should be given early. The pediatric dose is 0.5 mg/kg once.

Every time you consider placing an IO, you need to ask yourself what you will be using the line for. An IO is not appropriate in cases in which an IM alternative treatment is available (e.g., naloxone, midazolam, glucagon), and it is not appropriate to use for vascular access "just in case." It is also important to maintain focus on the most critical interventions in arrest and near-arrest settings. *Defibrillation and CPR are the primary early focuses in cardiac arrest, and IV or IO access is secondary.* In near-arrest settings, airway intervention is frequently the key to prevention of arrest.

And, while everyone would agree that vascular access is a basic tenet of trauma care, the "prophylactic" use of IO in that setting is not appropriate. If the patient is not showing evidence of shock via vital signs, skin signs, or level of consciousness or does not have obvious uncontrolled hemorrhaging, an IO is most likely not needed. If shock presents in a delayed fashion, an IO may then be indicated.

Best Practice is understanding we can do better with pain assessment

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. ★

All patients with pain should have their pain assessed and treated. ★

Documentation of pain assessment and treatment is needed to "take credit" for pain management. ★

Paramedic EMS Patient Safety Survey

EMS provider reporting practices strongly influence the ability of local EMS systems to improve patient safety. The Contra Costa County EMS system serves over 1 million people and in 2006 responded to 72,849 calls and transported over 54,000 patients. Recently the EMS Agency surveyed paramedic safety practices. 119 surveys were returned for a 27% return rate. Here are few highlights:

- 40.7% of respondents had < 6 years field experience and 59.3% had > 6 years field experience.
- Safeguards using standardized drug charts for patients, length-based tapes and cross checking medications were perceived to improve patient safety 88-94% of the time. However they were not used consistently 14.5% of the time.
- Medics reported that the layout of drugs and equipment raised EMS provider safety concerns with 13% of medics reporting difficulties with the weight of the equipment.
- 3.4% of paramedics had reported a patient safety event in the last 3 years while 30% responded that they did not report a known patient safety event. Comments suggested that if the event did not cause harm to the patient it was not likely to be reported.
- 11.5% of medics reported they had handed off a medication to another medic to administer without cross checking. Many of our medications are single-use pre-loads which decrease the risk of medication errors in the field, but these results suggest significant opportunities to improve medication handoff.
- 29% of medics reported that an anonymous patient safety reporting system would make it more likely that they would report a safety event. Anonymous reporting systems are known to be effective as mechanisms to improve patient safety reporting in EMS systems.

What does this tell us? Barriers to reporting patient safety events exist and need to be considered as we implement our new EMS Event Reporting Program. ***Events that fail to be reported are missed opportunities to make prehospital care safer for the patient and the provider.*** If you have questions about EMS event reporting contact your agency EMS educator.

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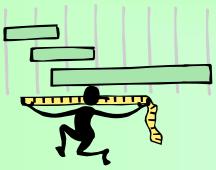

2007 EMS Quality Report: What our statistics show

Pat Frost RN, MS, PNP, EMS QI Coordinator

Our ability to understand how we are doing as an EMS system depends on data. That is why the ePCR is so important. For example, knowing our skills success in the field is very important and helps us understand which skills EMS providers perform most and which skills they do not. This information has training, policy and treatment protocol implications. Currently we capture about 90% of our 911 pre-hospital data and with Zoll we are adding first responder data that would not be included **unless** the patient was transported. **Although this data is not perfect it does give us clear trends.** So what does our current data show? You might just be surprised. As you review some the statistics below, from our Quality Improvement Program, understand that knowing this information gives us a tremendous edge by evaluating what is important and putting our efforts in the areas that really count. We need to remain focused on what is best for the patient. We need to make sure that every EMS provider in the field has the opportunity and resources to deliver best practice pre-hospital care.

Vascular Access 	Peripheral IV is the most frequently performed skill >28,000 attempts with an 82% success rate (all age groups). Next is external jugular with 111 attempts (66% success rate) and IO (pre-EZIO) had 24 attempts (100% success). We expect IO numbers to increase substantially with EZIO implementation county-wide and will be looking at how external jugular use is impacted over the next year.
Patient Satisfaction	92% positive responses (4685 responses with a 4.5% return rate)
ePCR Delivery & Completion	Completion rates are 36-86% with Zoll and 99.7% with MEDS. Zoll was just implemented in Contra Costa County in 2007 while MEDS has been used for over 10 years.
Intubation 	Intubation is our second most frequently performed skill, with 371 attempts and a 65% annual success rate (over all age groups). If you were to consider we have about 441 medics in the county this would average out to be 0.84 attempts/medic/year. We understand that this is not perfect data. But it does help us understand how rare some experiences are in the field and that has **huge** training implications for our system. **So our 2008 first quarter training is focused on best practice intubation!**
Cricothyrotomy	None done in the last 3-4 years. This skill was so rarely used it was removed from county protocols. Training can now be directed to more important skills like advanced airway.
EMS Event (Patient Safety) Reporting	40 events reported. Communication a factor in 60% of patient safety events. . **This is why improving communication is the most important QI goal we have for our EMS system!**
Pediatrics 	Our top 3 primary pediatric impressions over the last two and a half years have been **1. Blunt Injury, 2. Behavioral Disturbance,** and **3. Seizure.** These 3 conditions are responsible for 55% of our pediatric calls. System-wide we average about 57 pediatric patients a month (age <14 yrs). Patient weight is documented with length-based tape 89% of the time while pain is assessed only 5% of the time. Vascular access success is 75% and intubation success from Dec 2005-Dec 2007 is only 22% (48 attempts). Patients who ended up needing intubation rarely survived. EMS research evidence shows pediatric intubation has limited efficacy when done infrequently. Manikin practice is not always a replacement for field experience so we are strongly considering moving to BLS airway only in our pediatric patients.
Patient Handoff	In 2006 we had over 102,000 patient care handoffs. **This is almost a 20% increase from 2005.** A patient care handoff is when you hand over the care of that patient to another EMS provider or the ED. To assure continuity of care patient handoff report needs to be clear, concise and accurate. 50% of our patient safety events occur during handoff. As a high-risk, high-frequency issue for our EMS system and we need best practice communication during patient care handoff.

County EMS for Children Plan to be updated in 2008: If you have recommendations for improving EMS care for children in our county contact Pat Frost EMSC Coordinator at pfrost@hsd.cccounty.us

Calling for more EMS Best Practice Virtual Advisors

Give us your take on EMS issues that you run into in the ***real world!*** Become an EMS virtual advisor. Email Pat Frost QI Coordinator at pfrost@hsd.cccounty.us. We have about 17 signed up already and want a group of about 50!

Virtual advisors participate in anonymous surveys and electronic focus groups from the comfort of their PC. EMTs and medics of all skill levels welcome. Time commitment is one survey a month on a topic that EMS is working on!

Zoll Implementation Making Progress!

Chris Suter, our EMS Fire Consultant for Zoll, and others reported significant progress in resolving some of the problems we have been facing. Fax server issues, training, dispatch data linkage and ED delivery issues are being addressed. Steve Call from SRVFPD reports that they are coming on line, and Steve Rodgers from MOFPD has been effectively sharing their "lessons learned" helping other agencies bring up their systems. We still have a way to go, but those in the know report that we are finally making real progress.

Please contact us with your comments or concerns. Visit our website @ www.cccems.org