

SAN JOAQUIN COUNTY EMERGENCY MEDICAL SERVICES

Continuous Quality Improvement Report EMS System Advanced Airway



Prepared by
Anna Valdez, RN, PhD(c), CEN
EMS Quality Improvement/Trauma Coordinator

February 7, 2008

Approved by the San Joaquin County CQI Council on February 13, 2008

San Joaquin County Emergency Medical Services Agency EMS System Continuous Quality Improvement Report

Performance Improvement Activity: Develop and monitor performance indicators for prehospital advanced airway management.

Reporting Period (month, quarter, year): Calendar Year 2007

1. Opportunity/Issue/Problem (PLAN)

- Opportunity: Evaluate and improve advanced airway success rates in the prehospital setting.
- Problem: Overall advanced airway success rates in San Joaquin County are unknown. Focused PCR audits indicate that there is an opportunity for improvement in advanced airway skill performance.
- Goal: Obtain baseline data.

2. Solution Implemented (DO)

- Utilize standardized airway audit form and patient care records to conduct a 100% retrospective review of all advanced airway attempts that occur in the prehospital setting.

3. Data Elements Collected for Evaluation

- Demographic data
- Treatment indicator(s)
- Vital signs prior to attempt
- GCS prior to attempt
- Provider level (per attempt)
- Total number of attempts
- Use of rescue device (i.e. Combitube)

4. Definitions

Attempt: Insertion of the laryngoscope into the mouth with the intent to intubate, insertion of tube into nares, insertion of rescue airway device into mouth, or insertion of rescue airway device through the neck.

Successful Attempt: Tube is placed and secured into the trachea and is verified utilizing an approved secondary confirmation method.

5. Results and Data Analysis (STUDY)

Analysis of data for reporting period includes the following results:

- ✓ Between April and December 2007 there were a total of 463 patients that required advanced airway management during the reporting period.
- **A total of 408/463 patients ultimately had an advanced airway successfully placed resulting in an overall success rate of 88%.**
 - ✓ Adult OTI attempt success rate: N=437 (80% success rate)
 - 349/437 patients who had OTI attempted ended up with an ET tube being successfully placed within two attempts.
 - ✓ Adult Combitube attempt after OTI failure or non attempt: N=42 (88% success rate)

CY 2007 EMS System Advanced Airway Report

- 37/42 patients who had a Combitube attempted ended up with confirmed placement in the prehospital setting.
- ✓ Adult NTI attempt: N=26 (46% success rate)
 - 12/26 patients who had NTI attempted were successfully intubated using the Nasotracheal route.
- ✓ Pediatric OTI attempt: N=11(45% success rate)
- Demographic Data:
 - ✓ The majority of patients had a primary clinical impression of cardiopulmonary arrest with a minority of these patients being in traumatic arrest.
 - ✓ Approximately 5 % of the patients did not meet the treatment indicator criteria for advanced airway management as established in EMS Policy No. 5702, ALS Advanced Airway Management.

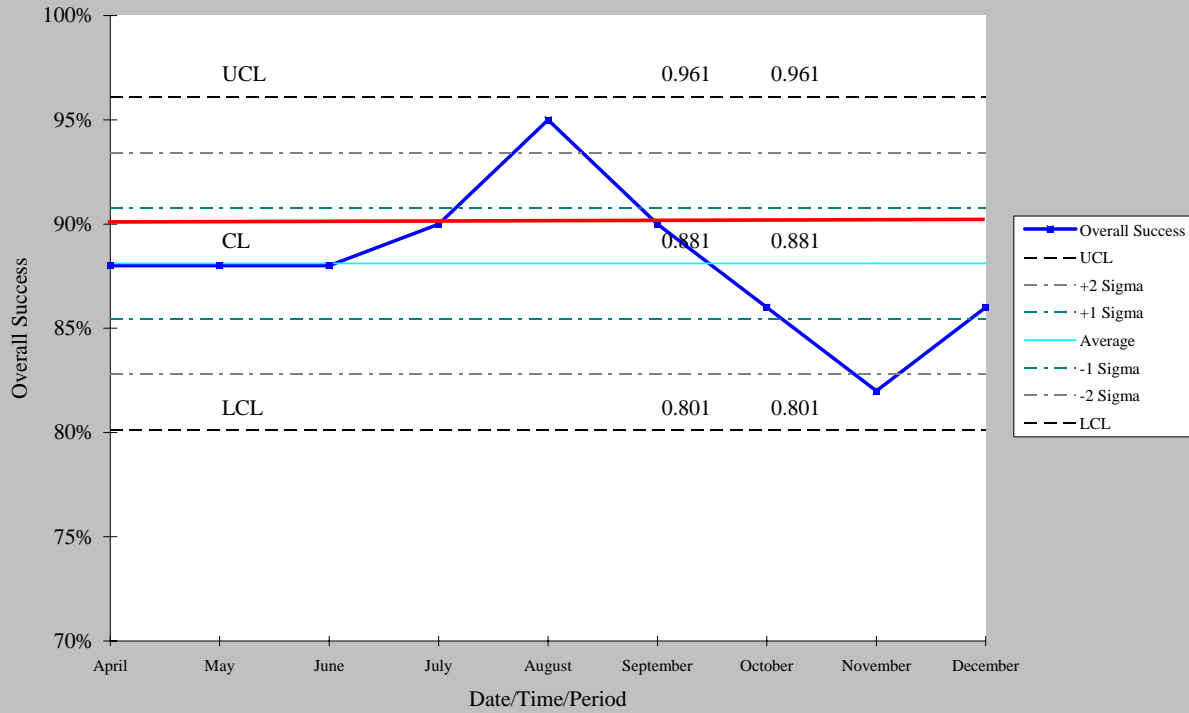
6. Conclusions and Recommendations (ACT)

- Overall advanced airway management has improved this year from an initial total success rate of less than 80%; however, significant opportunities for improvement remain.
- First time ETI success rates are very low ranging from 50 to 70% (variable depending on provider organization).
- Very few providers documented the use of an ETTI to facilitate intubation.
- Consistent with research data, NTI and pediatric success rates are very poor.
- **Recommendations:**
 1. Continue to monitor 100% of advanced airway attempts to monitor system performance data and identify opportunities for improvement through education and remediation.
 2. Continue to provide case by case remediation as needed. Require providers to trend airway success rates by individual paramedic and provide direct remediation as appropriate.
 3. Provide education regarding preparation for intubation. Data indicates that paramedics rush for the tube without adequately preparing for intubation.
 4. Require the use of ETTI, after first OTI attempt.
 5. Require base hospital contact prior to NTI attempt and authorize the use of Continuous Positive Airway Pressure (CPAP) in patients with severe respiratory distress and respiratory failure.
 6. Reinforce the San Joaquin County EMS Agency Policy for advanced airway management in pediatric patients.
 7. Recognize exemplary decision making and treatment.

2007 Airway Data

	April	May	June	July	August	September	October	November	December
Total Success	88%	88%	88%	90%	95%	90%	86%	82%	86%
ETT Only	60%	76%	79%	85%	86%	90%	78%	80%	82%
Rescue Device	86%	100%	100%	100%	100%	100%	100%	50%	60%
NTI Success	NA	0%	NA	0%	100%	0%	20%	50%	67%
Peds ETT	100%	100%	0%	0%	0%	67%	0%	50%	0%

Overall Airway Success Chart



ETT Attempts Only Chart

