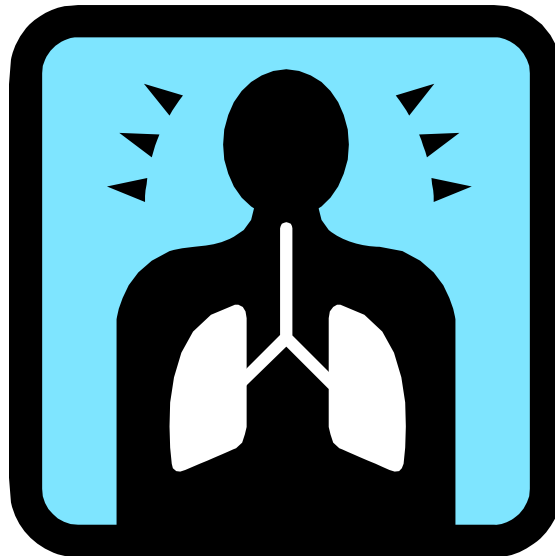


SAN JOAQUIN COUNTY EMERGENCY MEDICAL SERVICES

Continuous Positive Airway Pressure Survey Summary of Findings



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Local EMS Agency Continuous Positive Airway Pressure Survey Summary of Findings

Survey Objective:

To take a systematic approach to determine the current state of practice in California for the use of Continuous Positive Airway Pressure (CPAP) in the pre-hospital setting and to determine if a standardized approach to prehospital management utilizing CPAP exists.

Procedures:


Utilizing the survey software provided by SurveyMonkey® (www.surveymonkey.com) a seven question web-based survey was developed. An invitation including an electronic link to the survey was sent out to all California EMS Administrators via email including a request that the survey link be sent to the appropriate personnel within their agency.

Responses:

The survey was sent out on Monday, February 4, 2008 and closed on Friday February 8, 2008. A total of 22 responses were received representing 21 local EMS Agencies (Response rate = 67%).

Findings:

Question #1:

1. Please enter your LEMSA name here.		Response Count
		22
<i>answered question</i>		22
<i>skipped question</i>		0

Responses were received from the following local EMS Agencies:

Central California, Coastal Valley, Contra Costa, El Dorado, ICEMA, Los Angeles, Merced, Monterey, MVEMS, North Coast, Orange County, San Benito, San Diego, San Francisco, San Joaquin, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano and Ventura County.

Question # 2

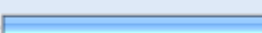
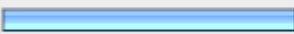

2. Is CPAP being utilized in your system?		Response Percent	Response Count
Yes		45.5%	10
Planning to implement in next 12 months		50.0%	11
No		4.5%	1
<i>answered question</i>			22
<i>skipped question</i>			0

Table 1. Summary of local EMS Agency (LEMSA) approval status for the use of prehospital continuous positive airway pressure (CPAP)

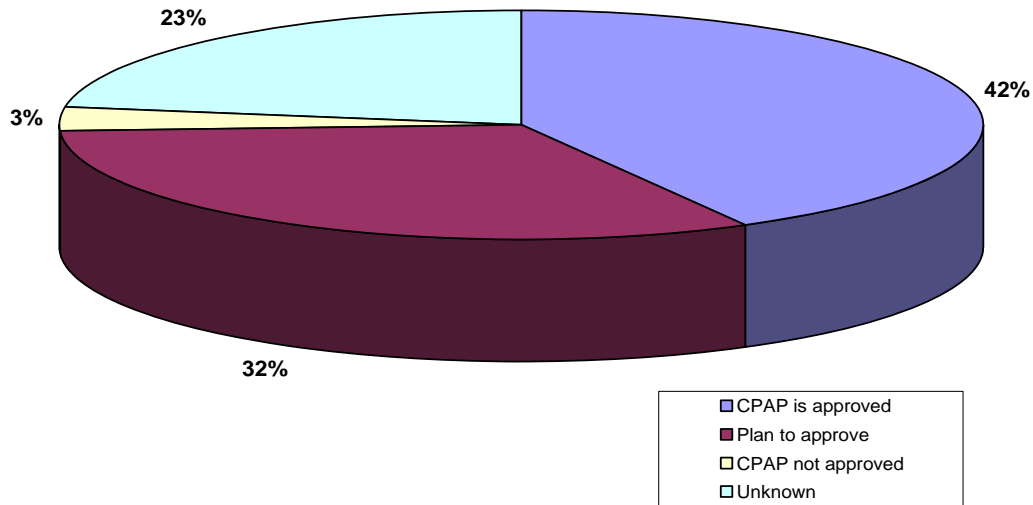
Current LEMSA CPAP Status February 2008	Alameda County	Central California	Coastal Valley	Contra Costa County	El Dorado County	Imperia I County	Inland Counties	Kern County	Los Angeles	Marin County	Merced County	Monterey County	MVEMS	North Coast	Nor Cal	Orange County
CPAP approved	X		X	X	X		X			X						X
Plan to approve									X		X	X	X			
Not approved		X														
Unknown						X		X						X	X	
Current LEMSA CPAP Status February 2008	Riverside County	Sacramento County	San Benito County	San Diego	San Francisco	San Joaquin County	San Luis Obispo	San Mateo County	Santa Barbara County	Santa Clara County	Santa Cruz County	Sierra Sac	Solano County	Tuolumne County	Ventura County	
CPAP approved		X			X				X	X				X	X	
Plan to approve			X	X		X		X			X		X			
Not approved																
Unknown	X						X					X				

Note: When available, information was obtained from LEMSA web sites to complete this table.

Table # 2 LEMSA Response Totals – CPAP Approval

CPAP is currently approved	13
Plans are in place to approve CPAP in the next 12 month	10
CPAP is not approved	1
Unknown (no response, information not available on the web site)	7

Chart 1. LEMSA CPAP Approval



Question #3:

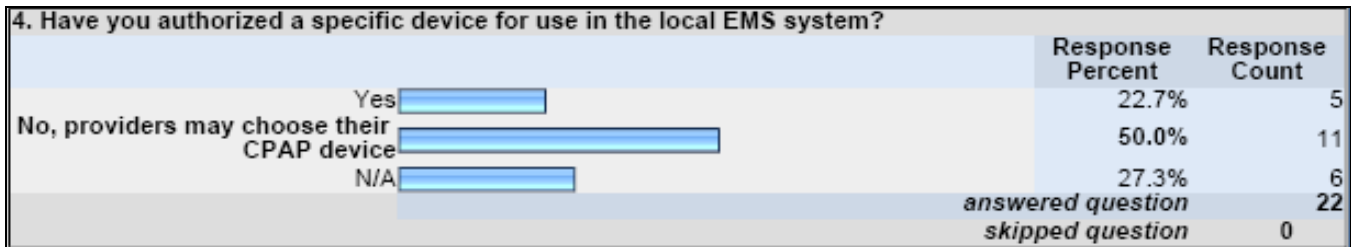
3. Which of the following do currently (or plan to) authorize the use of CPAP for field treatment:		
	Response Percent	Response Count
CHF	81.8%	18
COPD, Asthma	50.0%	11
Any SOB, excluding trauma	22.7%	5
Any SOB	9.1%	2
N/A	4.5%	1
Other (please specify)	40.9%	9
<i>answered question</i>		22

Among those LEMSAs that currently (or plan to) authorize CPAP use in the prehospital setting there is limited standardization in treatment indications. Pulmonary edema is the only treatment indication with group consensus. Based upon entered comments there appears to be a trend towards the use of CPAP for all severe respiratory distress patients, excluding trauma (pneumothorax).

Table # 3 LEMSA Response Totals – Treatment Indications

CHF/Pulmonary Edema	23
Severe Respiratory Distress. Failure	6
Submersion/Near Drowning	7
COPD/Asthma	14
Pneumonia	1
Any SOB, excluding trauma	8

Question #4:



All of the five LEMSAs that responded yes indicated that they specifically authorize the Boussignac product.

Question #5:

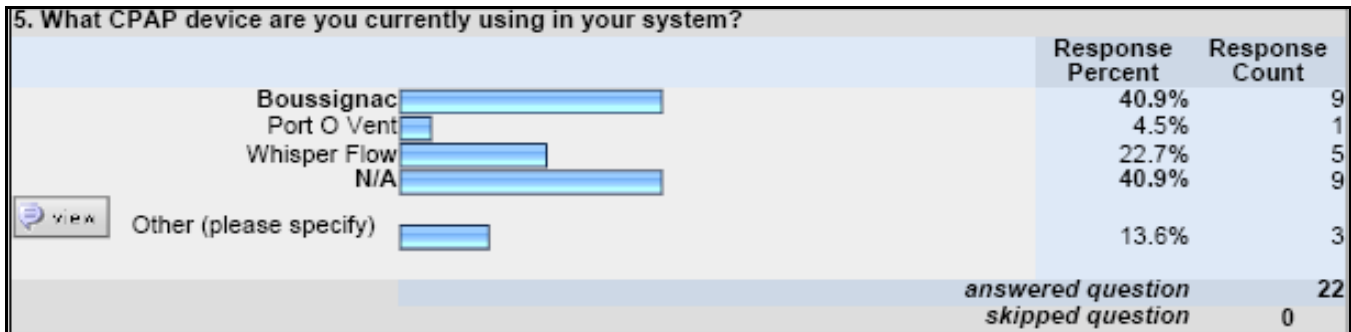


Table # 4 LEMSA Response Totals – CPAP Device

Boussignac	10
Port O Vent	2
Whisper Flow	5

Other comments:

- Most likely Port O Vent (included above)
- Not Sure
- We will be using the Boussignac (Included above)

Question #6:

6. Based upon your EMS system experience, how would you rate the the following devices?									
	Poor	Fair	Good	Very Good	Excellent	N/A	Rating Average	Response Count	
Bouissignac	0.0% (0)	0.0% (0)	0.0% (0)	8.3% (1)	8.3% (1)	83.3% (10)	4.50	12	
Port O Vent	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	90.9% (10)	5.00	11	
Whisper Flow	0.0% (0)	0.0% (0)	0.0% (0)	8.3% (1)	16.7% (2)	75.0% (9)	4.67	12	
Other Device	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	100.0% (10)	0.00	10	
Comments								view	7
								<i>answered question</i>	14
								<i>skipped question</i>	8

Table # 5 LEMSA Response Totals – CPAP Rating

CPAP Device	Excellent	Very Good
Bouissignac	1	1
Port O Vent	1	
Whisper Flow	2	1

Other comments:

- Bouissignac is only approved with a special regulatory [sic] to meet our protocol
- We have only begun using the device on January 23rd.
- Providers state Whisper Flow cannot handle in-line nebulized meds. Otherwise good product.
- We just started the program as of January 22. No info as yet.
- We don't have any data on which to base observation. CPAP is optional in our system, but will be compulsory on August 1, 2008.
- Our providers use both Bouissignac and Whisper Flow and have had no complaints.
- Have not evaluated to date.

Question #7:

7. Do you recommend a specific device?		
	Response Percent	Response Count
Yes	40.0%	8
No	60.0%	12
If yes, which device and why?		view
		11
		<i>answered question</i>
		20

Of the eight LEMSAs that indicated that they recommend a specific device, 2 recommended the Whisper Flow and 6 recommended the Bouissignac.

Specific Comments:

- Whisper Flow – works with lower flow rates
- Boussignac 1. effective 2. low cost 3. does not tie up EMS unit 4. well tolerated 5. disposable, downside is O₂ consumption
- We did a trial study with two devices. The medics preferred the Whisper Flow product due to ease of use.
- Boussignac preferred by providers due to ease of transferring patient care to other providers, disposable
- It was very close among the top 3 (Boussignac, Port-O-Vent and Whisper Flow) which we felt had very similar clinical profiles but ultimately chose Boussignac for field-friendly ease-of-use ease of training & cost. We will be studying it's use for the next 12-24 months.
- We have not yet implemented this device BUT the first responders participated in choosing the Boussignac.

Summary:

The overwhelming majority of Local EMS Agencies in California are either currently authorizing the use of CPAP in the prehospital setting or they plan to do so in the next 12 months. Of the 21 LEMSAs that responded to the web-based survey only one indicated that they did not have plans to implement CPAP in the EMS system within the next 12 months.

Treatment indicators vary across EMS systems with a common indicator being the treatment of pulmonary edema/congestive heart failure. Several LEMSAs specified that other treatment indicators including chronic obstructive pulmonary disease, asthma, submersion/near drowning, and severe respiratory distress/failure were either authorized or would be approved in the near future. Based upon a review of available LEMSA continuous positive airway pressure policies the following common exclusion criteria categories were noted: suspected or known pneumothorax, pediatric patients, head trauma or facial anomalies, hypotension, significant ALOC, failing or absent respirations, vomiting, and inability to maintain airway patency.

Acknowledgement:

San Joaquin County EMS Agency would like to offer our sincere gratitude to the Local EMS Agency personnel who participated in this survey.

Questions regarding the Local EMS Agency Continuous Positive Airway Pressure Survey should be addressed to Anna Valdez, RN, PhD(c), CEN at avaldez@sjgov.org.