



System Medical Advisory October 29, 2015

Oxygen Flow Rates using CPAP

The EMS Performance Improvement group identified a case in which CPAP applied to a patient appeared less effective when connected to the larger K tank (ambulance main tank) as compared to when connected to the smaller D tank. This led to further testing of both oxygen tanks (D and K) which indicated inaccurate flow from some of the tested tanks. The inaccuracies in flow appear to be less prevalent when using a rotameter device (flow meter with a floating ball).

As you know, the current CPAP devices in our System adjust airway pressure based on changes to the oxygen flow rate. This makes the actual flow rate of oxygen delivered to the mask significant with respect to CPAP function and its effect on the patient. At this time, we do not have a method for ensuring the accuracy of the indicated flow rate or measuring the pressure within the mask.

The System Equipment and Medication Committee (SEMC) has evaluated potential solutions to address this issue. Until these solutions are implemented, we ask all providers to:

1. Continue using the CPAP procedure defined in COG CP-18.
2. Ensure the device is flowing oxygen prior to placing on the patient.
3. Monitor the patient continuously with attention to the effect on the patient.
4. If the patient's condition is not improving, adjust the oxygen flow without exceeding the flow or pressure limits defined in CP-18.
5. If the patient decompensates, discontinue CPAP and treat the patient using the most appropriate protocol.

Based upon SEMC discussions of potential solutions, the following steps are planned in the future to directly address this issue:

1. Immediately purchase and distribute enough single patient use manometers to stock each transport unit so that an accurate pressure reading can be obtained regardless of regulator type used to supply the CPAP device.
2. Over the next 6 - 12 months (sooner if possible) phase in new CPAP purchases to include the optional manometer. These should be packaged and attached to each CPAP device.
3. By December 2016, all CPAP devices used on System patients will have manometers attached.

Please contact the Office of the Medical Director for any questions or concerns.

Thank you for all you do.

A handwritten signature in black ink, appearing to read "Jose G. Cabanas", written over a horizontal line.

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CPAP

Continuous Positive Airway Pressure Ventilation

Clinical Indications:

- Congestive Heart Failure/Pulmonary Edema
- Submersion / Drowning
- Chronic Obstructive Pulmonary Disease
- Acute Respiratory Distress

B	EMT - B	B
I	EMT- I	I
P	EMT- P	P

Contraindications:

- Respiratory arrest
- Agonal respirations
- Unconsciousness
- Shock associated with cardiac insufficiency
- Pneumothorax
- Facial trauma, burns

Notes/Precautions:

Possible complications include

- Gastric distention
- Reduced cardiac output
- Hypoventilation
- Pulmonary barotrauma
- Excessive secretions

Procedure:

1. Ensure all necessary equipment is available and assembled.
2. Connect CPAP to O₂ source and select liter flow setting to generate appropriate PEEP for patient condition per protocol. 8L = 5PEEP, 10L = 8PEEP, 12L = 10PEEP
3. Oxygen must be flowing prior to placing device on patient's face.
4. Fully explain procedure to patient.
5. Have patient hold mask to face and instruct him/her to breathe slowly and deeply.
6. Once patient is comfortable with mask, securely attach headpiece and tighten to fit.
7. Continuously monitor patient's respiratory status and SAO₂.
8. The adjunctive delivery of an albuterol Neb with the CPAP device is an approved procedure and treatment modality. Patient presentation and distress level should dictate the timing or use of this procedure. The addition of albuterol in this fashion should not create delays in the use of CPAP and, only providers who are trained and appropriately equipped should use this.
9. If the patient decompensates as indicated by:
 - Decreased LOC
 - Decreased SAO₂ (from initial reading with CPAP application)
 - Bradycardia with Hypotension
 - Agonal Respirations
 - Respiratory Arrest
 - Pneumothorax

Discontinue CPAP and manage the patient per the appropriate Protocol.