



System Medical Advisory April 01, 2015

i-gel Airway Devices

Since implementation of the i-gel supraglottic airway, the Office of the Medical Director (OMD) has received several concerns regarding the inability to consistently measure end-tidal CO₂ after an i-gel was placed during ongoing resuscitation efforts for a cardiac arrest patient. Information received from both first responders and EMS providers gave us considerable insight into this issue. The most important information we gained was that in all but one of the reported cases System providers were able to effectively ventilate the patient. This was valuable information because it indicated patients were being treated effectively even though end-tidal CO₂ information was not consistently available. The remainder of the information gathered from our System providers was carefully reviewed to identify improvements to our current equipment, procedures, training, and protocols. This Medical Advisory describes the OMD's expected performance improvements for our System's use of the i-gel airway in cardiac arrest patients. It also describes and clarifies troubleshooting steps when there is difficulty ventilating the cardiac arrest patient. The information, concepts and procedures described in this document will be incorporated into future System education and training. In the interim, we felt it was important to get this information to you as quickly as possible. As always, please send any questions to the OMD.

Key Principles (with regard to use of the i-gel in cardiac arrest patients)

- 1. High quality chest compressions and defibrillation (when indicated) followed by effective ventilation are the most important interventions when treating the cardiac arrest victim.**
- 2. Effective ventilations can quickly be verified by observing for chest rise and fall and/or audible lung sounds during ventilation regardless of whether an i-gel is in place.**
- 3. When the i-gel has been placed, effective ventilations during CPR are verified by adequate chest rise and fall and/or audible lung sounds during ventilation.**
- 4. Because the i-gel is an uncuffed airway device, end-tidal CO₂ measurement during cardiac arrest is less valuable in defining the correct placement of the i-gel.**
- 5. End-tidal CO₂ measurement including the capnogram (waveform) is a tool to assist providers in obtaining potentially useful information in some patients but does not and should not alter resuscitation interventions.**

Actions to Address the Concerns

1. Sizing of the i-gel is CRITICAL. Use the size indicated by your estimate of the patient's weight. Verify you selected the correct size for the patient at hand.

	Weight	Size
i-gel O ₂ Resus Pack Yellow	30-60 kg (66-132 lbs)	size 3.0
i-gel O ₂ Resus Pack Green	50-90 kg (110-198 lbs)	size 4.0
i-gel O ₂ Resus Pack Orange	90+ kg (198 lbs and up)	size 5.0

2. Follow the COG procedure for selecting, preparing and inserting the i-gel. If in doubt/borderline, select the next size up, if possible.
3. To serve as a ready reminder and to avoid the need for weight conversion, write the specific weight range in pounds on each corresponding i-gel package stocked in your kit/unit. Use the chart above for the COG noted weight ranges corresponding to each size i-gel.
4. Thoroughly review the COG's "i-gel O₂ Airway (BIAD)" Clinical Procedure, CP-40, paying special attention to the i-gel recommended insertion technique.
5. Once the i-gel is placed, hold the i-gel with one hand to minimize movement causing a loss of the seal.
6. Verify correct placement of the i-gel by observing chest rise and fall and/or listening to lung sounds. In the absence of any difficulty squeezing the bag, the presence of either indicates the i-gel is placed correctly at that point in time.
7. Squeeze the SMART BAG® with a steady motion over about 2 seconds without causing the SMART BAG® to respond with increased resistance.
8. Use tape first to secure the i-gel in place as shown in the photo below. Then, apply the strap included in the i-gel kit. Both should be used to minimize the risk of losing the i-gel seal.



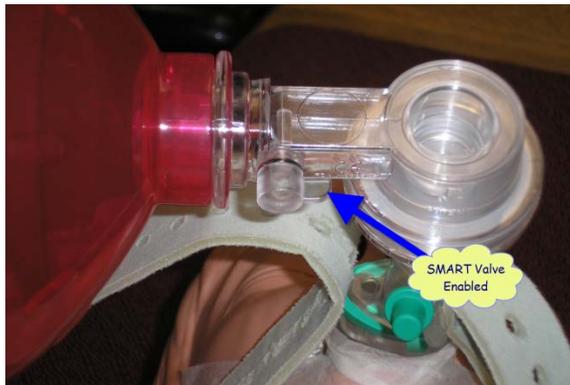
9. Continue holding the taped and secured i-gel in place at all times **EXCEPT** when a defibrillation shock is delivered to the patient.



10. When a defibrillation shock is delivered to the patient, hold the SMART BAG® to prevent force applied to the i-gel causing movement and/or loss of the i-gel seal.
11. Frequently repeat verification of the i-gel placement and seal by looking for chest rise and fall and/or listening to lung sounds.
12. Follow these troubleshooting steps if you are having **difficulty effectively ventilating** the cardiac arrest patient:
- All System Providers:** Attempt to reposition the i-gel without removing it. If this fails proceed to next step within the scope of your System credential.
 - All System Providers:** Remove the i-gel and ventilate with a bag and mask.
 - ALS Providers only:** Remove the i-gel and attempt to place a second i-gel using the next larger size available. If this fails, proceed to next step.
 - ALS Providers only:** Remove the i-gel and use bag and mask ventilation. If unable to effectively ventilate, proceed to next step.
 - ALS Providers only:** Attempt orotracheal intubation if unable to effectively ventilate using bag and mask ventilation. If unable to effectively ventilate using any method, proceed to next step.
 - ALS Providers only:** Attempt surgical airway if unable to effectively ventilate through any other method.
13. Follow all other Pit Crew steps and sequences including when to place the i-gel as outlined in the COG's Clinical Procedure, CP-19.
14. Continue to report all clinical concerns or equipment failures that occur while caring for a patient to the OMD using the Equipment Failure Report Form located on the OMD website at: <http://atcomd.org/index.php/forms>

Lessons Learned & Pitfalls to Avoid

1. In reviewing the first nine reported i-gel and end-tidal CO₂ concerns, at least four of the cases involved the use of an i-gel that was either too small or too large for the estimated weight. Selection of the correct size is the most important first step when using the i-gel. Avoid selecting a size 4 as a standard. Instead, estimate the patient's weight and select the correct size.
2. Remove the i-gel only if you are unable to effectively ventilate the patient using the inserted i-gel (meaning there is no chest rise and fall and no audible lung sounds). Do not remove the i-gel if ventilations are effective regardless of whether end-tidal CO₂ is measured by the X-series monitor.
3. Avoid excessive movement of the i-gel during the ventilation cycle to insure the seal is maintained. Providers may have a tendency to inadvertently perform vertical movement of the bag when ventilating which may affect the seal.
4. Leave the SMART BAG®'s "SMART Valve" in the enabled position. The valve should only be over-ridden as indicated in your SMART BAG® training (e.g. when the patient is breathing spontaneously).



5. Squeeze the SMART BAG® with a steady motion over about 2 seconds without causing the SMART BAG® to respond with increased resistance. The bag is designed to give resistance when it is rapidly or forcefully squeezed. Forceful ventilation creates a sudden high pressure which may cause a loss of the i-gel seal.
6. End-tidal CO₂ is critically important to verify placement of cuffed tubes (e.g. orotracheal or nasotracheal intubation) particularly when incorrect placement may block attempts to ventilate. It is less critical when using the i-gel and reliable end-tidal CO₂ measurement may not occur using the i-gel.
7. Intermittent loss of end-tidal CO₂ measurement while using the i-gel likely occurs due to loss of the i-gel's passive seal. A number of factors may cause this loss of seal including using a size that is too small or too large; not advancing the i-gel to reach definitive resistance indicating a seal is made; movement of the i-gel following placement; or, other factors some of which may be beyond the provider's control.

8. Do not change the order of the devices attached to the i-gel. This causes them to not function as designed. Attach the devices as follows:

i-gel ⇒ ITD/Res-Q-Pod ⇒ End-tidal CO₂ ⇒ SMART BAG®



9. The troubleshooting steps are not intended for use due to the inability to measure end-tidal CO₂. Instead, the troubleshooting steps are used when effective ventilations cannot be provided to the patient.

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

Thank you for all you do.

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