



# CENTRAL IOWA EMS DIRECTORS Synergy

Summer 2009

BRIDGING THE  
GAP BETWEEN  
HOSPITALS  
AND EMS

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## MERCY MEDICAL CENTER • DES MOINES

by **Dan Keough**, Director – Emergency Transport, Mercy Medical Center

Welcome to Mercy Medical Center-Des Moines. One of our strengths is that we continue to make small improvements over time. We continue to work on a process until we achieve as close to perfection as we can. This is true in the many ways that we interact with the EMS community and the overall community at large. There have been several unique enhancements we've made in order to better serve you and the community.

In the cardiac world, we have recently introduced "cool it"—an activation process that starts with EMS, in which a post-CPR patient with a pulse returned is cooled and that transfer of care is continued within our facility. Within in the last 45 days we have had four patients "wake up" after being cooled. This will also enhance our already progressing Level I cardiac activation that is continuing to thrive and show better pre-hospital EKG to cath lab balloon times than any previous year.

We are continuing to refine our communication process with you and your inbound ambulance reports. With the opening of Mercy Medical Center-West Lakes, we have mirrored and enhanced our communication abilities to better serve you. Our enhanced "E911 software" will truly allow the charge nurses and physicians to see your reports in "real time."

We invite you to stay in the Cath Lab and watch any procedure being done on the patients you bring to us. It's always interesting to see the "after the fact," and the typical procedure is only about 15 minutes.

Another amenity we will be offering to EMS services in the future is steam cleaning. We are in the process of putting a steam cleaner in each of our ambulance garages. This will allow us and you to better clean and disinfect the equipment used in patient care, but also be able to clean your cots and ambulance interior more thoroughly. You will notice some construction going on in the garage as we finish our cleaning room. This room will house the steam cleaner and all cleaning supplies for EMS. We hope you will find this an enhancement and give the entire area a more professional look and feel.

We have two great specialty care medical staff announcements to share. First, we had two neurosurgeons come on board in July, and a third one joined in August. The neurosurgeons are part of the newly established Mercy Brain & Spine Center. To have three on-staff neurosurgeons of this expertise has never been seen before in the Des Moines area. These doctors specialize in all age groups and one specializes in pediatric care.

The second announcement is the addition of orthopaedic traumatologists. What an addition this will become. Mercy is pleased to announce that we will have two fellowship trained specialists on staff as of September. Specializing in trauma care, these doctors will only enhance our ability to care for your patients. Mercy is the only central Iowa hospital to provide this unique specialty for patients needing this level of trauma care.

Speaking of trauma, we hope you have noticed a much more attentive and controlled hand-off during the trauma exchange. We have received feedback that the follow-ups being provided are what you are looking for. Please let us



know if this changes.

Lastly, the waiting game is finally over. Our new aircraft—the Bell 429—will be delivered for use by mid-November at the latest. Let me tell you, this aircraft definitely delivers what it states on paper. I mean this aircraft puts its money where its mouth is. We had the aircraft flying well above it posted speeds of 150 knots (180 mph) during its visit in early August. This will allow us to reach destinations so much more quickly. Since we are already the only IFR program in the state, we will move right into our night vision goggles when the aircraft is delivered. The ride a long program comes back in Jan. 2010 and the space that we will have to take care of people has been enhanced...a lot!

We appreciate you, and our relationship together. If there is anything that we can be doing better, different, or if there is something that we are just missing out on, please contact me by any means attached. On behalf of Mercy Medical Center, we thank you for choosing Mercy.

*This edition is sponsored by:*  
**Mercy Medical Center,  
Des Moines**



## Etomidate (eh-TOM-ih-dayt) Amidate

Suppose you are transporting a 73 yr old male with septic shock. His hypoxia is worsening and you deduce that he needs an emergent endotracheal intubation. Suppose he is hypotensive and tachycardic and you are out in the middle of rural Iowa, heading for Des Moines with a 30 minute ETA. You are also the most experienced paramedic on the crew.

We know that the perfect drug to facilitate intubation will vary depending upon the person performing the procedure and the clinical setting in which it is performed. This article will discuss the drug Etomidate, which is routinely used in many “Rapid Sequence Induction” protocols across the country.

Etomidate was first developed in the 1960s and brought into use in the clinical environment in the following decade. Initially there was a great deal of concern about the drug because of its effects on the adrenal gland function (described below). But over the past forty years, our understanding of the pharmacokinetic and pharmacodynamic properties of this agent have brought it into favor in the emergency medicine community where many people consider it the drug of choice for facilitated intubation. It is also commonly used in situations requiring emergent and temporary conscious sedation.

### Why have EMS Medical Directors chosen Etomidate for use in situations like the patient scenario listed above?

Etomidate has several properties, which make it, at least in theory, a good first-line anesthetic induction agent. The dose required to achieve unconsciousness is relatively predictable. This hypnotic effect is much more predictable than that with benzodiazepines. The onset of action is fast, essentially in one arm to brain circulation. And, finally, Etomidate has a short duration of action.

### So let’s look at our patient

Etomidate is the logical choice for all the right reasons. Its rapid onset of action and a low cardiovascular risk profile means it is less likely to cause a significant drop in blood pressure than other induction agents. If you need to assist patient ventilations with a BVM, due to unsuccessful intubation, the clinical effects of the drug last only minutes, and with appropriate dosing, respiratory depression is usually not an issue.

### Side Effects

The most common are transient venous pain at the injection site and nausea/vomiting. It is clear that slow IV administration decreases the pain during administration and ensuring that suction is available and working is key to preparation for RSI. Another notable side effect of Etomidate is an adverse adrenal system response. Induction doses of Etomidate have been associated with the reduction of plasma cortisol and aldosterone concentrations that may last for 6 to 8 hours. The take home lesson here is that Etomidate is not intended for repeated dosing or prolonged administration. There has never been any evidence in the literature that the short-term effects have any impact on patient outcome, and they are therefore considered clinically insignificant by most.

### Dosing

Must be individualized according to protocol, however the general range for RSI is 0.3-0.5mg/kg IV depending on patient variability. Smaller incremental dosing has been used effectively for patients that are resisting rescue efforts or if muscle relaxation could facilitate the process. 0.05 mg/kg immediately prior to moving patient. (Half life of Etomidate is 6 minutes)

## Changes to Iowa Code regarding emergency vehicle driving

By Ryan Young

Captain – Altoona Fire Department

In January of this year, changes were made to Iowa Code that affected all EMS services in the state of Iowa. These changes deal with your policy and training on emergency vehicle driving and driver training. The changes are as follows:

### Training in emergency driving techniques shall include:

1. Review of Iowa laws regarding emergency vehicle operations
2. A review of the service program’s driving policy for first response vehicles, ambulances, rescue vehicles or personal vehicles of an emergency medical care provider responding as a member of the service. The policy shall include as a minimum;
  - a. Frequency and content of driver’s training requirements
  - b. Criteria for lights and/or siren response
  - c. Speed limits when responding with lights and/or sirens
  - d. Procedure of approaching intersections with lights and/or sirens
  - e. Notification process in the event of a motor vehicle collision involving a first response vehicle, ambulance, rescue vehicle or personal vehicle of an emergency medical provider responding as a member of the service
3. Behind the wheel driving of the service’s first response vehicles, ambulances and rescue vehicles.

Driving is our most basic function as an emergency service. Unfortunately, all too often we are unable to fulfill our duties because we are not practicing safe driving techniques. All services should review their policies and real world practices to ensure we arrive to our destination safely to assist those in need.

If your service is in need of assistance in creating a policy, there is a sample emergency driving policy available at [www.ciemsd.org](http://www.ciemsd.org). You can also contact the operations committee members at [operations@ciemsd.org](mailto:operations@ciemsd.org) or you can contact me at [ryoung@altoona-iowa.com](mailto:ryoung@altoona-iowa.com).

*This is the standard protocol developed by the CIEMSD Medical Directors Committee to be used as a reference in protocol development.*

## Protocol Spotlight

### Medication Assisted Airway (RSI)

#### Basic Treatment Guidelines:

Follow initial protocols for all patients.

#### Indications:

1. Emergency need to oxygenate the patient
2. Emergency need to ventilate the patient
3. Medical condition exists requiring airway control

#### Overall Contraindications:

1. Inability to manage the airway with the use of a BVM device
2. Anticipated difficult intubation or severe maxillo-facial trauma

#### Contraindications Relative to Succinylcholine

3. Patients with tissue destructive conditions: crushing injuries > 72 hrs old.
4. Patients with muscle wasting conditions: e.g. Parkinson’s, Muscular Dystrophy, pre-existing spinal cord injury resulting in paralysis. With these patients, medicated airway management can be used, only with Etomidate.

#### Preparation:

1. Pre-oxygenate with 100% O<sub>2</sub> for 4 - 5 minutes or 4 large tidal volumes
2. Assist with ventilations as needed prior to medications
3. Monitor patient with pulse oximetry.
4. Monitor patient with capnography

#### Procedure:

1. For adult patients, administer ATROPINE 0.5 mg. IV if heart rate is less than 60 beats a minute.
2. For all pediatric patients, administer ATROPINE 0.2 mg/kg prior to attempted intubation.
3. Administer ETOMIDATE 0.5 mg./kg. IV with a maximum of 40 mg total.
4. Apply cricoid pressure or consider bi-manual technique.

#### If paralysis is needed:

1. Apply cricoid pressure.
2. Administer SUCCINYLCHOLINE 1.5 mg./kg. IV for initial dose. May follow up in 5 minutes with SUCCINYLCHOLINE 1.0 mg./kg. IV to perform intubation.
3. Evaluate for loss of corneal reflex/flaccidity.

#### Intubation Attempts

The use of a bougie device is required following a failed first attempt, regardless of who made the initial attempt. A total of two (2) attempts at intubation are allowed on each patient.

Attempts at intubation must be no longer than twenty seconds.

Intubation attempts on pediatric patients shall be limited to one attempt.

#### If intubation is successful:

Sedate with MIDAZOLAM 2-5 mg. IV increments until desired effect or to a maximum of 10 mg. in 30 minute time period from initial dose.

#### After intubation monitor the patient with ETCO<sub>2</sub> to ensure proper ventilation and endotracheal tube placement.

#### Special considerations:

Consider other options such as BVM, Cricothyrotomy, KING LT-D or Combitube.

In cases of suspected airway obstruction, consider using the endotracheal tube to push the obstruction down the patients right mainstem bronchus.



A patient care report is the first step in a patient’s Emergency Room encounter. The better your report, the better the receiving facility can prepare for the patient. It’s important EMS providers provide clear and concise reports to the receiving facility.

Every type of patient requires a different type of report. Despite these variances, these things MUST be included in every patient report:

- Department or unit number
- Description of scene or incident
- Patient age, gender and chief complaint

- Physical findings
- Associated signs and symptoms
- Recent vitals, including oxygen saturations for respiratory patients
- Blood sugar level on a diabetic or possible stroke patient
- GCS
- Treatment given and response to the treatments
- ETA (estimated time of arrival)

If you believe your patient is a Level 1 Cardiac Alert and meets the criteria, please state this at the beginning of your report so you can be connected with a physician. Your report will then be given to the physician and he/she will make the determination on the alert request.

If you believe your patient meets Stroke Alert criteria, please indicate this at the beginning of your report, but be sure to include a glucometer reading in your report.

Keep in mind the person on the other end of the phone or radio is taking notes. Speak slowly and clearly. Provide a concise report of the important information about your patient.

**Malinda Hilzer**

*Communications Manager - Mercy Medical Center*



## Meetings/Events

**CIEMSD  
Regular Meeting**  
Monday,  
September 28th, 2009  
Location:  
Mercy Medical Center  
1111 6th Ave,  
Des Moines  
Dinner: 1800  
Meeting Time: 1830-2030

**IEMSA Conference**  
November 12th-14th  
Polk County Convention Complex

**CIEMSD Regular Meeting**  
Monday, November 23rd, 2009  
Location: Urbandale Fire Department  
3927 121st Street  
Dinner: 1800  
Meeting Time: 1830-2030

**CIEMSDA**  
Central Iowa EMS Directors Association

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## STATE OF THE ART EMS



# KING LTS-D

**By Rob Chiappano**

Deputy Chief – Ankeny Fire Department

**T**he KING LTS-D has quickly become the advanced airway of choice for many services in Central Iowa. The KING LTS-D has replaced the Combitube, which has been used as a first line airway for First Responders and EMT-Basics for many years. The KING LTS-D also serves as a backup airway for difficult intubations by advanced providers.

The KING LTS-D is a sterile, single use device intended for airway management. It consists of a curved double-lumen tube with separate pathways for ventilation and access to the stomach. The ventilation lumen ends between the two inflatable cuffs with a variety of openings intended to align with the laryngeal inlet.

Attached to the proximal end of the ventilation lumen is a 15 mm connector for attachment to a standard breathing circuit or resuscitation bag. The gastric access lumen is a separate conduit that allows passage of up to an 18 Fr standard gastric tube from its external proximal opening to the distal tip of the KING LTS-D, which is intended to be positioned in the upper esophagus. This allows the gastric tube to be easily inserted into the stomach for removal of fluids. In the absence of a gastric tube, the gastric access lumen allows channeling of gases and fluids from the esophagus and stomach to a point outside the patient's mouth.

The KING LTS-D has two cuffs that are inflated with a single valve/pilot balloon. The distal cuff is designed to seal the esophagus, while the proximal cuff is intended to seal the oropharynx.

The KING LTS-D is intended for airway management in patients over 4 ft in height (122 cm) for controlled or spontaneous ventilation. It is also indicated for difficult and emergent airway cases and is well suited for ambulatory and office-based anesthesia. Contraindications are similar to the Combitube and include: Responsive patient with an intact gag reflex, patients with known esophageal disease, and patients who have ingested caustic substances. Maintain appropriate depth of anesthesia. In general, the depth of anesthesia needed is a little more than that required for insertion of a Guedel-type airway. It is recommended that the less experienced user choose a slightly deeper level of anesthesia.

Once it is in the correct position, the KING LTS-D is well tolerated until the return of protective reflexes. KING LTS-D removal should always be carried out in an area where suction equipment and the ability for rapid intubations are present. For KING LTS-D removal, it is important that both cuffs are completely deflated. Removal of the KING LTS-D is well tolerated until the return of protective reflexes. For later removal, it may be helpful to remove some air from the cuffs to reduce the stimulus during wake-up.