

# AEROMED OUTREACH

AUGUST 2018

## GROUND & AIR MEDICAL QUALITY IN TRANSPORT

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### UPCOMING OUTREACH ACTIVITIES

- **Stop The Bleed Class offered at TGH August-October. Contact Jennifer Mefford at [jmefford@tgh.org](mailto:jmefford@tgh.org) for additional information**

In the air medical field, it is imperative we set standards to not only meet industry standards, but exceed them. But how do you track and accomplish this? Who sets those standards and holds programs accountable? In the last year, Aeromed has adopted standards set by GAM-UT- The Ground Air Medical Quality in Transport collaborative. This database provides a free resource for transport programs to track their programs quality metrics, report them and compare them to other programs throughout the nation. These strict quality metrics that allow for the collection and analyzation of important, reliable and relevant data related to patient transports. The metrics change as the governing body sees fit within the transport environment to promote excellence in the care of patients.

Aeromed tracks the metrics as they relate to successful intubation, hypoxia during transport, reliable pain scores, blood glucose levels on any patient with a GCS <15, ventilator use with any advanced airway, appropriate treatment, and management of the following: Abdominal Aortic Aneurysms, non-traumatic intracranial hemorrhage, and hemorrhagic shock. Lastly, we ensure

a consistent patient handoff process is completed and documented utilizing an abbreviated run report.

For the first quarter reported, overall mechanical ventilator use on any advanced airway by Aeromed was 95.7%. Overall use of waveform capnography was 98.3%, with 100% of all tracheal tubes placed with proper tube placement verification documented and illustrated. First attempt tracheal intubation for adults was 81.1% with 100% successful intubation on the second attempt. RSI protocol adherence was 97.4%, management of hemorrhagic shock at 100%, management of hemorrhagic stroke at 99.1% and management of aortic dissection at 98%. Lastly, obtaining blood glucose for any patient with a GCS <15 was 93%. All these metrics exceeded the national reported averages from programs around the country. This is something Aeromed is extremely proud of!

Aeromed did identify areas for improvement. The QA chair and co-chair, with the assistance of the chief flight nurses and the medical director, developed process improvement

plans that have allowed us to reach >95% compliance on nearly ALL GAMUT metrics. Documentation of reliable pain scores was 83.4% within Aeromed for the first reported quarter, while the national reported average was 90.9%. After education was developed and given to crew members, our percentage increased to 96%.

Tracking and analyzing the metrics allows Aeromed to provide the best possible care for our patients and always putting patients first in all we do. This process also shows where we stand among transport programs throughout the nation, to encourage constant growth and improvement. Approximately 330 programs in the United States report to GAMUT and Aeromed is extremely excited to be benchmarked above average in nearly all reported metrics.

*Alisha M. Burnett, BSN RN CFRN CCRN EMT-P, Flight Nurse*

### References:

[www.gamutqi.org](http://www.gamutqi.org)

*Aeromed GAMUT 2017 Q4 Summary Report*

## PHYSICIAN'S ARTICLE

You arrive at the scene and are told the victim was an unrestrained driver going roughly 60mph, hit a tree, and was ejected from the car. In addition, they found what looks to be dime size bags of cocaine in his car. The patient has obvious injuries to his torso and upper extremities. He is extremely combative. His initial vital signs were HR 120, BP 85/49, RR 36, and pulse ox of 93%. You recognize that he needs to be transferred to a trauma center. However in his present condition, he is unsafe to transfer, and is a risk to himself and to the flight crew. Time is of the essence and you have to decide if you want to intubate or sedate the patient. We will go through the indications and the pros and cons of intubating, in addition to the various sedatives for this patient.

Should this patient be intubated? Though intubation would allow the patient to be safely transported, there are many risks with intubation. One of the key issues is that this patient is hypotensive. Hypotension has been shown to be one of the main risk factors for peri-intubation cardiac arrest. So, if at all possible, avoid intubating a hypotensive patient unless there is no other option. If intubation is necessary, be prepared to fluid resuscitate and have pressors available.

So now you have decided

to try and chemically sedate the patient. Which sedative should you use?

One of the main categories of sedative medications is benzodiazepine. Midazolam is one of the main benzodiazepines used for sedation. This drug can be administered via intranasal (IN), intramuscular (IM) and intravenously (IV). This means that if an agitated patient does not have IV access, they can still receive this medication. The medication has a rapid onset and can last for 1-2 hours. Benzodiazepines have been found to be particularly effective in patients who have cocaine or amphetamine toxicity. The main side effects of this medication are hypotension and respiratory depression. In regards to this patient, this might not be the best sedative to give him, as he is already hypotensive.

Antipsychotics such as haloperidol are another category of sedative medications. Haloperidol is generally given in conjunction with benzodiazepines. It can be given IV and IM. Haloperidol alone does not cause hypotension or respiratory depression. It is known to cause extrapyramidal side effects, akathisia, and can prolong QTc. As this medication is more effective when given in combination with benzodiazepines, it should be

avoided in hypotensive patients.

Ketamine is another medication that can be used for sedation. It can be given IV and IM. It can be used for both sedation and analgesia. Along with sedation, it has been shown to increase blood pressure and does not cause respiratory depression. This makes it the ideal sedative for a hypovolemic/hypotensive patient. One of the main side effects of ketamine is emergence reaction (nightmares and hallucinations). If the patient develops an emergence reaction, they can be given benzodiazepines, which should resolve the delirium. Early studies on Ketamine have shown that it will increase ICP in patients with already elevated ICP, however new papers have questioned if this truly occurs. Until more data is available, Ketamine should be avoided in patients with head trauma or concern for elevated ICP.

This patient is an agitated patient who needs to be sedated prior to transferring to a trauma center. The case is complicated because the patient is hypotensive, in respiratory distress and likely has cocaine ingestion. I would initially try to sedate the patient with ketamine IM as it can improve his blood pressure with no

obvious signs of head trauma. I would be cautious in administering any medication that can cause hypotension such as benzodiazepine or an opioid, until the patient has adequate IV or IO access.

Alicia Nassar, MD PGY-2

#### References:

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Isenberg DL and Jacobs D. Prehospital Agitation and Sedation Trial (PhAST): A Randomized Control Trial of Intramuscular Haloperidol versus Intramuscular Midazolam for Sedation of the Agitated or Violent Patient in the Prehospital Environment. Prehosp Disaster Med. 2015 Oct;30(5):491-5

Schepke KA et al. Prehospital use of i.m. ketamine for sedation of violent and agitated patients. West J Emerg Med. 2014 Nov.15(7):736-41