



June 30, 2009

## MEMORANDUM #2009-7

FROM: SVMCA – Office of the Medical Director

SUBJECT: Glucagon & Fentanyl Usage

OFFICE OF THE MEDICAL DIRECTOR  
NOEL WAGNER, MD  
1000 Houghton Ave  
Saginaw, MI 48602  
(989) 583-7940  
Fax (989) 583-7941  
[www.SaginawValleyEMS.org](http://www.SaginawValleyEMS.org)

On June 26<sup>th</sup>, participating hospital pharmacies began adding glucagon and fentanyl to the SVMCA drug boxes. There seems to be some confusion on the indications and usages of these two medications in the field.

Glucagon usage is addressed in the *Pediatric Acute Altered Mental Status* protocol. ALS providers may administer 1 mg of glucagon IM in pediatric patients who are altered and have a blood glucose < 80 mg/dl when vascular access cannot be obtained. Although the *Adult Acute Altered Mental Status* protocol does not include glucagon; in the interim it may be used under the same circumstances as the pediatric patients until a permanent protocol can be written and approved.

Here are some facts about glucagon for everyone to remember:

- Glucagon converts glycogen in the liver into glucose thus raising the blood glucose levels. Once a patient is conscious, administration of oral carbohydrates is needed to replace glycogen stores in the liver.
- Peak plasma concentrations occur usually  $\approx$  13 minutes after intramuscular administration and mean glucose levels have been found to be 136 mg/dl.
- Glucagon temporarily suspends smooth muscle movement in the stomach and intestines. Patients may experience some nausea and vomiting after administration. Be prepared to protect the airway.

Fentanyl is a synthetic  $\mu$ -opioid agonist that is used as an alternative to morphine for pain. At this time, there is no protocol for its use in the field and thus may only be used *POST RADIO CONTACT* after order from on-line medical control. All ALS providers should be aware that dosing for fentanyl is different from morphine. Fentanyl is approximately 100 times more potent than morphine and therefore 100 micrograms will equal  $\approx$  10 milligrams of morphine. Additionally, fentanyl has been associated with acute respiratory depression and providers should be diligent in tending to their patient's respiratory status. Severe respiratory reactions can be counteracted through the use of naloxone.

Questions may be directed to our office at any time.