

MEMORANDUM

To: Chief Lugo
From: Chief Treat *CT*
CC: Chief Smith *MS*
Date: 4/3/2024
Re: Ventilator Management Device Backup

Comments: Pre-hospital ventilation is a key component to survival for our critically ill or injured patients. What field providers do with these patients in the field has a huge impact on in-hospital mortality and their recovery. Modern ventilators eliminate the possibility of barotrauma (lung injury) and provide real-time feedback to paramedics during the patient contact, allowing them to tailor their care to the specific needs of each patient. Below are the 2 most important functions of pre-hospital ventilators that are needed for us to meet Best Practice and industry standards.

A/C (Assist Control) – A fixed tidal volume at set intervals of time, or when the patient initiates a breath.

SIMV (Synchronized Intermittent Mandatory Ventilation) – Delivers a set number of breaths while at the same time recognizing and allowing spontaneous breaths by the patient. This setting has the biggest impact on overall mortality and survival of ventilated patients.

Below is a list of the ventilators that we researched by speaking with EMS professionals we know and trust, online and in-person demos, and our medical supply vendor, BoundTree Medical. Pricing is per unit.

Zoll zVent (\$15k) – Has all the requisite capabilities needed for prehospital care and is the top candidate. The manufacturer offers 3 free in-person training sessions after purchase and provides free loaner vents if any are out for service or repair. This model is commonly used by EMS and Fire departments, as well as medical flight services, throughout the State. It is the recommended product by the professionals we know and trust because of the devices proven performance in the field. This unit is lightweight and rugged. *Has apnea-backup feature for when patients spontaneously cease breathing and an automatic mask leak-detection, does not have to be attached to oxygen source, 10-hour battery life, rated for infant through adult. Current sensors being utilized with our EKG monitors are compatible.

AutoVent3000 (\$4,650.00) – Basic ventilator, no A/C or SIMV capabilities. This is what is currently being utilized by LCFD, although several devices are no longer operable. The manufacturer went out of business and there are no similar products currently available approved for prehospital use.

e700/O_Two (\$9,700.00) – Has A/C and SIMV capabilities, although the screen and user interface is complicated to operate. The FDA has identified issues with this vent; control module leaks, or outright failure of the device are the most common. A new model is awaiting FDA approval, with no release date currently. Needs to be attached to oxygen source, rated infant to adult, 10h battery life, lightweight, will need to manually adjust/reset alarms, system does not adjust itself. Will need new cables as current ones will not be compatible.

Hamilton T1 (\$17k-\$21k) – Top of the line pre-hospital vent. Manufacturer can customize capabilities based on customer needs. There are long lag times with any service or repairs, sometimes up to 6 months depending on problem. They do not offer free in-person training after purchase, only online, nor offer loaner vents when units are sent out for service. Weight and storage of the ventilator would be an issue.

It is staff recommendation that the service moves to the Zoll zVent for best value and ease of use.