

**Missouri State-wide Ventilator Cache Program  
Criteria for Allocation of Mechanical Ventilators  
Missouri Department of Health and Senior Services**

**Background:**

In 2006, the Pandemic Influenza Health Care Systems Readiness Subcommittee was established and given the task of providing a health care planning guidance involving a pandemic influenza event for hospitals and other health care facilities. Subsequently, during the 2009 H1N1 pandemic, and subsequently during the novel coronavirus, COVID-19, outbreak of 2020, the need for and continuity of this plan and state-owned ventilator cache was emphatically underscored. The goal of this plan was to prepare health care systems to provide medical care in the event of pandemic influenza, as well as other large-scale disasters while maintaining other essential medical services in the community during and after the event.

During the planning, it was noted that certain critical medical surge disasters or incidents, either regional or state-wide, may generate large numbers of patients requiring mechanical ventilation. It was recognized that Missouri did not have the reserve ventilators that may be needed and the medical community would soon expend any local or regional ventilator caches. Thus, DHSS established a ventilator planning group including external partners and DHSS staff to develop a Missouri State-wide Ventilator Cache Program.

The Missouri State-wide Ventilator Cache Program is a repository of mechanical ventilators purchased by the Missouri Department of Health and Senior Services to be used to augment the state's local public health and healthcare systems in the event of a natural or man-made public health emergency including pandemic influenza. The funds for the Missouri State-wide Ventilator Cache Program were available to DHSS through the U.S. Department of Health and Human Services/Assistant Secretary for Preparedness and Response (DHHS/ASPR) Pandemic Influenza Healthcare Preparedness Improvements for States.

The goals of the Missouri State-wide Ventilator Cache Program are to:

- Increase the number of mechanical ventilators available for a respiratory surge event;
- Establish an allocation process and management plan for stockpiling and deploying available ventilators state-wide in a transparent process developed during a time of non-emergency;
- Establish a training plan to ensure that respiratory patients receive safe and effective care from qualified professionals upon deployment of mechanical ventilators from the Missouri State-wide Ventilator Cache Program.

In 2010, 247 mechanical ventilators (with pediatric capabilities) were purchased by DHSS and a contract was established with Missouri Disaster Response System (MoDRS), not MO DMAT-1, to store the ventilators and to develop a Management, Training and Deployment Plan for the Missouri State-wide Ventilator Cache Program.

In 2020, these mechanical ventilators were recognized near end-of-life, but determined to be available and appropriate for patient care having received preventative maintenance with battery replacement in 2019 and 2020. Of these, 217 Newport/Medtronic HT 50 pediatric/adult ventilators ( $\geq 10$  kg) and 24 Eagle Impact II-731 Series pediatric/adult ventilators ( $\geq 5$  kg) are available for use.

The state has since purchased an additional 500 adult/pediatric ventilators, 150 of which have neonatal capabilities. These new ventilators are currently being received, programmed and inventoried. They are expected to all be in service by December 31, 2020.

### **Criteria for the Allocation of Mechanical Ventilators from State-Owned Cache**

**The following criteria must be met for mechanical ventilators to be allocated:**

#### **Criteria 1: The priority use for mechanical ventilators distributed from the state-owned cache will be life-saving.**

Priority for the use of the mechanical ventilators should be given to patients for whom ventilator use would most likely be lifesaving and whose functional outcomes would most likely improve with treatment. The use of mechanical ventilators from the state-owned cache are not intended to support patient care following an elective surgery or planned procedure, but rather to provide patient care from injury or illness which occurs or is exacerbated as a direct result of a disaster or any subsequent cascading events from that disaster.

#### **Criteria 2: Mechanical ventilators from the Missouri State-wide Ventilator Cache Program may only be distributed to hospital(s) operating in the state of Missouri (inclusive of Veterans' Administration hospitals) and engaged in, at minimum, Tier 2 of a community healthcare coalition or to the MO-1 Disaster Medical Assistance Team (MO DMAT-1).**

In May 2009, the U.S. Department of Health and Human Services published the handbook entitled "[\*Medical Surge Capacity and Capability: The Healthcare Coalition in Emergency Response and Recovery\*](#)" as a companion document to the handbook entitled "[\*Medical Surge Capacity and Capability: A Management System for Integrating Medical and Health Resources During Large-Scale Emergencies\*](#)" originally published in 2004 and revised in 2007, and commonly referred to as the MSCC handbook.

The MSCC handbook provides guidance to healthcare planners regarding how to develop, implement, and maintain cost-effective and response-oriented healthcare coalitions. It provides a progressive tiered framework which assists healthcare organizations in geographic locations to organize themselves for mutual support in the areas of information processing and communication systems, facilitates the sharing of resources between healthcare organizations, promotes coordinated response strategies, and supportive effective interface between healthcare organizations and the relevant jurisdictional agency(ies). Tier 2 of the MSCC healthcare coalition framework encompasses all individual healthcare organizations in a geographic area that deliver ‘point of service’ medical care during emergencies or disasters coming together to form a healthcare coalition inclusive of healthcare and non-healthcare providers.

**Criteria 3: The requesting hospital must fully participate in routine and special bed availability polling. If conducted at the time of the disaster, the requesting hospital must fully participate in routine and specialty polling about the availability of ventilators in the hospital, and other specialty queries such as availability of negative pressure isolation capacity, availability of personal protective equipment and availability of specialty staff to properly operate the ventilators. This participation will, at minimum, commence at the time of the ventilator request and continue throughout the deployment of mechanical ventilators from the state-owned cache in their facility.**

It is DHSS’ expectation and goal that all hospitals in the state are consistently using EMResource for routine reporting and communication. However, at the time of a disaster and subsequent deployment of mechanical ventilators, EMResource will be a primary situational awareness tool for DHSS and thus a requirement to access mechanical ventilators from the state-owned cache.

**Criteria 4: The requesting hospital or MO DMAT-1 must verify that all other mechanical ventilator resources have been exhausted, or will be exhausted within 2 days, including local and regional caches, and mechanical ventilator resupply capabilities (e.g., contract or rental agreements).**

It is important that the state-owned cache of mechanical ventilators be viewed as an option of last resort. Thus, any requesting hospital will be asked to verify that efforts to access mechanical ventilators from all other possible sources has been exhausted. These efforts might include: accessing mechanical ventilators from healthcare partners or vendors, and accessing mechanical ventilators from local or regional caches available for respiratory surge events. DHSS may consider extenuating circumstances of a given situation and modify or waive the criteria of full exhaustion of all local and regional caches prior to deployment of ventilators from the state-owned cache.

**Criteria 5: The requesting hospital or MO DMAT-1 must verify that has instituted mechanical ventilation conservation efforts and the facility will continue to operate in a conservation mode.**

It is important that the state-owned cache be viewed as an option of last resort. Thus, a requesting hospital will be asked to verify that they have instituted and will continue in a conservation mode. Minnesota's Healthcare System Preparedness Program/Office of Emergency Preparedness in their 2007 publication entitled "[\*Pandemic Recommended Actions for Healthcare Facilities by Event Stage\*](#)" provide examples of adaptation and conservation efforts which might be appropriate for implementation prior to a request from the Missouri State-wide Ventilator Cache Program:

Adapt:

- Use anesthesia machines for mechanical ventilation as appropriate
- Use bi-level equipment to provide mechanical ventilation

Conserve:

- Increase threshold for intubation/ventilation
- Decrease elective procedures that require post-operative intubation
- Decrease elective procedures that utilize anesthesia machines
- Use non-invasive ventilator support when possible

**Criteria 6: The requesting hospital or MO DMAT-1 will verify that healthcare professionals responsible for the operation of the mechanical ventilators from the Missouri State-wide Ventilator Cache Program have demonstrated competency in the use of these mechanical ventilators.**

Training materials are available on the Missouri State Emergency Management Agency (SEMA) web page: <https://sema.dps.mo.gov/operations/modmat-momort.htm>. MO DMAT-1 Just-in-time training is available at the time of delivery of the ventilator(s). Just-in-time training will be given by the MO DMAT-1 to at least one receiving hospital's or the MO DMAT-1's health care personnel and may include a power point presentation, demonstration video, hands-on demonstration and completion of checklist. All healthcare personnel operating the mechanical ventilators from the state-owned cache must do so within the scope of their professional licensure, demonstrate competency and complete a competency checklist prior to operating the mechanical ventilators.