

Ventilator Surge Plan: Wisconsin

*North Regional Respiratory Care Conference
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Kalahari Hotel and Convention Center
Wisconsin Dells, Wisconsin*

Mission Statement

- “To identify issues regarding mechanical ventilation of patients in a large-scale incident”
- “To make recommendations regarding the resolution of these issues”

The Need

- *“Guidelines for Acquisition of Ventilators to Meet Demands for Pandemic Flu and Mass Casualty Incidents”*, American Association of Respiratory Care, May 2006:
- ...“Hospitals have virtually no reserve ventilators to respond to a disaster or a pandemic”

The Problem

- How many ventilators to acquire?
- There is no national guidance on the appropriate number per 100,000 population for
 - day-to-day needs
 - mass casualty needs

The Solution

- Solution needs to come from “boots-on-the-ground” type persons
- In this case, 18 Respiratory Therapists formed the State Expert Panel on Ventilator Capacity
- 1st meeting was July 12, 2006
- Recommendations published March 2007

The Outcome

- Hospitals* in Wisconsin can manage a surge of patients in need of ventilator support either...
- (those with vent services) through having additional ventilators or...
- (those without vent services) through having ventilators for the transport of patients to hospitals that can treat these patients

* 15 hospitals chose not to participate in this program

The “Numbers Game”

- The Panel made several mathematical models to project the number of vents needed
 - assume 50% daily usage plus surge capacity
 - assume 75% daily usage plus surge capacity
- Average Daily Usage (without Ventilator Rental Days) is 33%
- Surge Capacity projections are based on “Flu Surge”

Final Numbers

- Increased capacity depends upon the ability of the hospital to utilize these additional ventilators
 - on a day-to-day basis
 - and in a surge incident
- # of vents requested, based on the daily and surge ICU beds available and the surge staffing that can be achieved
 - an individual hospital decision

Recommended Ventilators

- Surge Ventilators need to be as close to full-featured ventilators as possible
- Surge Ventilators must meet the criteria of
 - Guidelines of AARC
 - Guidelines of recommendations of Lewis Rubinson MD

Ventilator Package

- The Panel decided on a “package” that would include necessary options and accessories
- “Package” for both recommended ventilators are very similar
- “Package” includes training for
 - Respiratory Therapists
 - Bio-Medical Technicians

Ownership

- Hospitals own the ventilators and agree to maintain the par level inventory of existing and “additional” ventilators for 5 years
- Hospital agree to share the ventilators with other hospitals in need

Dual-Use Philosophy

- Federal funds are to be used both for day-to-day use and for disaster use, to the extent possible
- The recommended ventilators can and should be used for day-to-day use

Phase I

- Every hospital with ≥ 60 ventilator days or more received one ventilator
- “ ≥ 60 ventilator days” indicates that the hospital has ability to manage ventilators 24/7, when ventilators are in use

Phase I Requirements

- \geq 60 ventilator days
- 24/7 respiratory therapy capability (when caring for ventilator patients)
- Preventive Maintenance Program
- 100% of Respiratory Therapy staff, who manage ventilators, are trained in use for both recommended ventilators

Phase I Requirements

- maintain inventory of at least 5 circuit set-ups per ventilator
- plan to manage ventilator patients in a catastrophic incident, i.e. loss of ICU, vents, etc.
- plan to manage patients in a surge incident, i.e. increase in the # of patients

Phase I Requirements

■ Room Requirements

- adequate space for all necessary equipment
- allow for easy movement of staff
- suction with suction regulator
- supplied oxygen is available
- emergency back-up power is available
- monitoring equipment is available

Phase I Requirements

- Agree to terms of MOU
 - ventilators are “additional” ventilators , not replacements
 - maintain these ventilators in inventory for 5 years
 - encouraged to put these ventilators into daily use
 - staff maintain proficiency in use of these ventilators

Phase II

- Hospitals could request additional ventilators based on
 - ability to provide this treatment
 - availability of ventilators at other hospitals in the region compared to population
- Panel approved requests, based on ensuring a “good” geographical distribution

Phase III

- Hospitals not eligible for Phase I or II, i.e. they have <60 Ventilator Days
- Eligible to receive a ventilator for transport purposes
- This necessitates that the receiving and transporting hospitals make triage decisions together

Pre-Positioning Versus Stockpiling

Pre-Positioning

- Enable hospitals to maintain competencies through use of these ventilators
- Ability of hospital to perform preventative maintenance
- Ventilators will be held in a temperature controlled environment
- It is not known how inactivity affects the ventilator

Strategic National Stockpile

- When the threshold of WHO Stage 3 and US Stage 2 are met
 - large clusters of human-to-human transmission
- Wisconsin hospitals will receive an additional 72 ventilators from the SNS
- The State Expert Panel will determine how these best can be used

State of Wisconsin (pre and post Panel)

- Region 1: Northwest Wisconsin
 - 67 to 104 ventilators (55%)
 - 12/100,000 to 19/100,000
- Region 2: North Central Wisconsin
 - 98 to 172 ventilators (76%)
 - 21/100,000 to 36/100,000
- Region 3: Northeast Wisconsin
 - 74 to 110 ventilators (49%)
 - 15/100,000 to 22/100,000

State of Wisconsin (pre and post Panel)

- Region 4: LaCrosse Area
 - 55 to 73 Ventilators (33%)
 - 21/100,000 to 29/100,000
- Region 5: Southwest Wisconsin
 - 161 to 214 Ventilators (33%)
 - 15 /100,000 to 20/100,000
- Region 6: Fox Valley Area
 - 78 to 106 ventilators (39%)
 - 14/100,000 to 19/100,000

State of Wisconsin (pre and post Panel)

- Region 7: Southeast Wisconsin
 - 417 to 537 ventilators (29%)
 - 20/100,000 to 26/100,000
- **State: 950 to 1,316 ventilators (39%)**
 - **17/100,000 to 24/100,000**

Caution

These per 100,000 numbers take into consideration only the population of the region, not the service area

Is There an Equal Distribution?

Assumption: Pandemic Influenza will affect all areas of the state

“North” versus the “South”

- Northern Half of the State
 - 386 vents
 - 25/100,000 population
- Southern Half of the state
 - 930 vents
 - 23/100,000 population

Large Metro versus Rural

- Large Metro Regions (Madison/ Milwaukee)
 - 58% of the state population
 - 751 vents
 - 24/100,000 population
- Rural Regions
 - 42% of the state population
 - 565 vents
 - 24/100,000 population

Oxygen Supply

- Each hospital is to:
 - have a plan for the re-supply of O₂
 - estimate how long current inventory of tank and bulk O₂ will last
 - plan for conservation of O₂
 - maintain a listing of O₂ consumption for hospital equipment, using O₂
 - plan for rationing of O₂
 - establish a Clinical Review Committee to make triage decisions

WITrac

- Wisconsin Tracking, Resources, Alerts and Communications
- An on-line application that allows hospitals to report
 - Respiratory Therapist availability
 - Number of ventilators available by brand name
 - Number of “quick connects” available by brand name
 - Other information as pertinent to the incident

Training

- All 7 Technical Colleges with Respiratory Therapy programs each received the two Panel recommended ventilators plus the Impact Eagle UniVent
- This will allow for
 - consistency in training
 - cross-training of Respiratory Therapists

Training

- All 7 Technical Colleges offer the same curriculum, maintained and up-dated through a centralized system
- On-Line Training and certification available for all RTs employed by a Wisconsin hospital
- Supervisor then completes a “Competency Checklist”

Inter-State Issues

- We need to discuss these issues jointly.
(some examples of issues)
 - How do we alert one another that we are in need of ventilators?
 - How do we train on one another's ventilators?
 - How do we share ventilators across the border?
 - How can we share RTs across the border?

Contact Information

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