

APPENDIX B

Ventilator Associated Pneumonia Infection Rate (VAP)

Case Definition^{1,2,3}:

Ventilator-associated pneumonia (VAP) is defined as a pneumonia occurring in patients requiring, intermittently or continuously, mechanical ventilation through a tracheostomy or endotracheal tube for more than 48 hours.

Diagnostic criteria for VAP are as follows:

- New, worsening or persistent infiltrate consolidation or cavitation on CXR compatible with pneumonia and **1 of**:
 - a. WBC \geq 12,000 or $<$ 4,000
 - b. Temperature greater than 38 degrees Celsius or less than 36 degrees Celsius with no other recognized cause
- **And** both of the following:
 - a. New onset of purulent sputum, or change in character of sputum, or increase in respiratory secretions or increase in suctioning requirements
 - b. Worsening gas exchange (e.g., increasing oxygen requirements, worsening PaO₂/FiO₂ ratio, increasing in minute ventilation)
- **And**

The patient is being treated with antibiotics for VAP

Method of calculation¹:

Number of ICU patients with VAP per 1,000 ventilator days.

Numerator: total number of new VAP cases after 48 hours of mechanical ventilation in the ICU

Denominator: total number of ventilator days for ICU patients 18 years and older

$$\text{VAP infection rate} = \frac{\text{total number of VAP cases after 48 hours of mechanically ventilation}}{\text{total number of ventilator days for ICU patients 18 years and years}} \times 1,000$$

Rationale³:

Ventilator-associated pneumonia (VAP) is a serious lung infection that can occur in patients who need to be on a ventilator (breathing machine). In the US, about 15 percent (1 or 2 out of 10) of patients on ventilators develop VAP. About half of these patients die from it.

Data capture:

Critical Care Information System (CCIS).

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Reporting:

Timeframe: Initial April 30 2009 (Period 1) reporting should include cumulative data for the three month period Jan 01 to Mar 31 2009. Subsequent reporting will be **quarterly** following the time table below.

Administrative periods for aggregating data are defined as:

<u>Period</u>	<u>Period end date</u>	<u>CCIS Submission to MOH</u>	<u>Public reporting date</u>
1	31-Mar-09	15-Apr-09	30-Apr-09
2	30-Jun-09	15-Jul-09	30-Jul-09
3	30-Sep-09	15-Oct-09	30-Oct-09
4	31-Dec-09	15-Jan-10	29-Jan-10

Public Reporting:

At the end of each Period and as indicated above hospitals will report the previous three month's data on their website **by hospital site** including;

(i) the number of VAP cases that is zero (0) or totalling five (5) or more associated with that hospital site, or if this is less than 5 cases (i.e. 1 to 4 cases), then hospitals may post text reading "< 5 cases", and

(ii) the VAP rate as calculated above.

CCIS Reporting:

All critical care units who are currently reporting into the CCIS will report all cases of VAP according to the *Data Collection Policy Guide (v2.0) for Critical Care Unit Patients & CCRT* posted on the CCIS Document Library.

Information on cases and rates will be available in an on-line report that will include all new cases of VAP in the unit, VAP cases that were recorded on Day 1 or 2 post-admission (cases attributable to outside the unit), and the incidence rate (see above definition). This on-line report may be used to generate the information required for posting data on the hospital website. In order to comply with the above definition, ages 18 and older must be selected as a filter. In addition, only the rate and the cases diagnosed after Day 1 and 2 in the unit are required for public reporting on your website.

To note are the following sections in the Guide:

- Where to capture ventilator information and VAP
- Information on data entry policies (i.e. 24 hour reporting requirements)
- If the patient was on any type of ventilation during any part of the 24-hour calendar day time period, the type of ventilation which required the highest level of care will be the one reported.

Diagnostic checklists for VAP are also located on the document library. **Please note physician sign-off is required for final diagnosis of VAP and before data entry.**

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Reporting eligibility:

All hospitals reporting to the Critical Care Information System (CCIS).

References:

1. John Muscedere MDa, Peter Dodek MD, MHScb, Sean Keenan MD, MScb, Rob Fowler MDCM, MSc, Deborah Cook MD, MScd, Daren Heyland MD, MSc, for the VAP Guidelines Committee and the Canadian Critical Care Trials Group *Journal of Critical Care* (2008) 23, 138-147
2. Horan TC, Gaynes RP. Surveillance of nosocomial infections. In: *Hospital Epidemiology and Infection Control*, 3rd ed., Mayhall CG, editor. Philadelphia: Lippincott Williams & Wilkins, 2004:1659-1702.
<http://www.cdc.gov/ncidod/dhqp/pdf/nnis/NosInfDefinitions.pdf>
3. Centers for Disease Control and Prevention. "Guidelines for preventing health-care-associated pneumonia, 2003: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC)." 2004.
www.cdc.gov/ncidod/hip/pneumonia/default.htm (14 Jan. 2005).