VENTILATOR ASSOCIATED PNEUMONIA (VAP) SOP	
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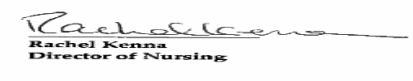
Authorised By *Name: Rachel Kenna* *Title: Director of Nursing*	*Signature:* *Date: February 2018* 
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1.0 Introduction

This document outlines the procedures that should be carried out by all medical and nursing staff in preventing the development Ventilator Associated Pneumonia (VAP). VAP remains an important cause of morbidity and mortality in the critically ill and post-operative patients who are receiving invasive mechanical ventilation. It is the most common nosocomial infection that is detected in intensive care units (Richards *et al* 2000). Patients who acquire VAP are twice as likely to die compared to those without VAP (Safdar *et al* 2005, Muscedere *et al* 2008). It is therefore desirable to prevent the occurrence of VAP as this will lead to improved patient outcomes and will improve healthcare efficiency SARI 2011).

2.0 Definition of Guidelines

The term **'Standard Operating Procedure'** is a way of carrying out a particular course of action and includes operations, investigations, pharmaceutical treatment, examinations and any other treatment carried out.

3.0 Applicable to

This SOP is applicable to all nursing and medical staff who have direct contact with patients who require invasive ventilation in the Paediatric Intensive Care Unit

4.0 Objectives of Standard Operating Procedure

The aim of this SOP is to provide guidance for staff in the management of VAP prevention in the critically ill infant or child.

5.0 Definition / Terms

Ventilator Associated Pneumonia (VAP) is a known health-care associated infection (HCAI). It is a pneumonia which occurs in a patient after 48 hours or more after intubation with an endotracheal tube or tracheostomy tube that was not present before (Westrope and Robinson 2013).

6.0 Procedures

Prevention of VAP should be a priority for all members of staff caring for those who are invasively ventilated.

General preventative measures include:
Hand hygiene and infection prevention and control practices are fundamental to the prevention of any HCAI (SARI Guidelines 2011). Hand hygiene should be performed both pre and post contact with any patient, before clean/aseptic procedure, after body fluid exposure risk, and after touching patient surroundings (the WHO 5 moments for hand hygiene HSE 2015) All staff should adhere to hand hygiene guidelines as documented in the current OLCHC guidelines. The use of personal protective equipment such as aprons, gloves, and face-mask should be utilised where required.

Reducing the duration of ventilation and assessing daily the ability to wean from the ventilator is crucial in the PICU as this will dramatically reduce the likelihood of a patient from acquiring a VAP. It is vital that sedation is weaned appropriately. Heavy sedation will contribute to a decreased respiratory drive and preclude ventilator weaning (Westrope and Robinson 2013).

VAP care Bundles are to be complied with each shift. A VAP bundle consists of the following steps:

- Appropriate hand hygiene prior to any contact with the patient and equipment as per hospital guidelines.
- Daily assessment of readiness for extubation / weaning of ventilation.
- Daily sedation wean if appropriate.
- Oral hygiene shall be carried out as per PICU guidelines. Mouth to be cleaned with a soft bristled toothbrush or gauze moistened with sterile water for injections for infants whose teeth haven't erupted and for all patients who are nil by mouth every 2 hours.
- The head of the bed should be elevated/tilted 30 degrees unless the patient has an unstable spinal injury.
- Draining of ventilator tubing should be placed downwards and away from the patient.
- Ventilator circuits are to be changed every 2 weeks or when visibly soiled.
- Nebuliser sets should be attached to the dry circuit of the ventilator humidifier for all patients regardless of whether a nebuliser is required or not.

SUCTION PRACTICES

Preventing aspiration is important in the prevention of VAP (SARI Guidelines 2011). Secretions can become contaminated and must be eliminated where possible. The following practices should take place:

- Appropriate size suction catheters should be used for each patient.
- Appropriate hand hygiene should be performed before suctioning (moment 2) and after suctioning (moment 3)
- Suction catheters are single use only.
- Suction catheters should only be opened just prior to use to prevent cross contamination.
- Yankeur suction tubes are to be replaced after each use.
- Water galipots for flushing suction tubing should be discarded after each use.
- Sterile water bottles to be replaced every 24 hours or if contaminated.
- Suction containers should be changed every 24 hours or sooner if required.
- Suction baskets are to be washed in between patient use or if visibly soiled.
- Naso and oropharyngeal secretions should be removed in intubated patients and the mouth should always be suctioned prior to nasal suctioning (Westrope and Robinson 2013)

VENTILATOR CIRCUITS AND MACHINERY

- Maintain a closed ventilation circuit where possible.
- Ventilator circuits are changed every two weeks unless visibly soiled.
- Ventilator tubing should be discarded post extubation.
- Should a patient require re-intubation new ventilator tubing should be used to minimize cross contamination.
- All nebulisers sets are connected to the dry side of the humidifier for each patient. This will minimize disconnection from the ventilator in the event that a nebuliser must be administered. Nebulisers are for single patient use only.
- Ventilator equipment must be cleaned as per hospital policy, upon each patient discharge and if visibly soiled.
- Water for humidification should be in date and must be replenished if depleted.

- Heated humidification must be provided for all invasively ventilated patients.
- Ventilator filter must be changed every 24 hours.

PEPTIC ULCER PROPHYLAXIS AND ORAL HYGIENE:

The administration of a prophylactic proton pump inhibitor such as omeprazole should be considered with all invasively ventilated patients.

Poor oral hygiene in those who are mechanically ventilated can contribute to bacterial colonisation of the oropharynx and can stimulate a VAP occurrence (SARI Guidelines 2011). Medications that are frequently used in the PICU such as Intropes / Diuretics / Sedatives can significantly contribute to a patient acquiring a VAP (OLCHC Mouthcare Guidelines 2016).

ORAL HYGIENE SHALL BE PERFORMED AS FOLLOWS:

- Hand hygiene prior to oral hygiene (moment 2) and after carrying out oral hygiene (moment 3)
- Explanation to the child as appropriate
- Collect the necessary equipment required.
- Use of a soft bristled toothbrush and yankeur suction device.
- Apply a smear of non-foaming toothpaste to the toothbrush.
- Teeth must be brushed for a minimum of 2 minutes where the child's condition allows.
- Ensure that the tongue is brushed gently.
- Suction out any excess toothpaste but do not rinse.
- Rinse toothbrush after use and allow to air dry.
- Store the toothbrush in a designated container for each patient.
- Sterile water and gauze is to be used for infants who do not have any teeth present every 2 hours.

Mouthcare should take place every at a minimum of 2 hours in those who are nil by mouth as their condition allows.

7.0 Implementation Plan

All clinical PICU staff will have training and education in regards to this SOP. All clinical PICU staff have a responsibility to familiarise themselves with and maintain a high standard of care in accordance with all departmental policies and protocols.

8.0 Evaluation and Audit

The structure and compliance with this SOP will be evaluated on an ongoing basis within the PICU department. Any significant changes will be discussed at staff meetings, which are held on a regular basis

9.0 References

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