Worcestershire Acute Hospitals NHS Trust

Guideline for the Prevention of Ventilator Associated Pneumonia in ICU

Key Document code:	WAHT-KD-022
Key Document Owner	Clinical Director ICM
Approved by:	*Intensive Care Forum*
Date of Approval:	*24th January 2024*
Date of review:	*24th January 2027*

Key Amendments

Date	Amendment	Approved by
24th Jan 24	New document to replace Guideline for the Prevention of Aspiration of Ventilated Patients within ICCU (30 Degree Tilt)	ICM Forum

- Ventilator-associated pneumonia (VAP) is a common health-care associated infection occurring in 10-20% of patients mechanically ventilated in ICU.
- VAP increases mortality, prolongs the duration of mechanical ventilation, lengthens ICU stay and represents a significant burden of antimicrobials in the ICU.
- VAP occurs because the obtunded, intubated patient is at risk of inoculation of the lower respiratory tract with microorganisms.
- The source of the potential inoculate includes the oropharynx, subglottic area, sinuses and gastro-intestinal tract.
- Interventions to prevent VAP aim to prevent repeated micro aspiration, colonization of the upper airway / GI tract with pathogenic organisms or to prevent contamination of the ventilator / respiratory equipment.

Bundle interventions for the prevention of VAP:

Elevation of head of bed (Minimum 30 º)

- VAP is associated with nursing the patient in a supine position
- Elevating the bed to 45 degrees has been shown to reduce VAP, although practically this is not easily achievable. The exact degree of elevation required to prevent VAP is unclear; Aim to avoid the supine position and raise the bed to 30º as a minimum.
- Elevated head position should be established regardless of the resting position of the patient (e.g. if tilted to facilitate pressure offload)
- Elevated head position should be considered and documented on a daily basis as part of the ward round check list.

Exclusions to elevation of head of bed:

- Spinal instability, suspected or a spinal cord injury. These patients are excluded from these guidelines and the information documented in the patients records. If the bed can be tilted the degree at which the tilt is applied should be documented on ICCA.
- Patients requiring prone positioning. (Severe respiratory instability requiring specific positioning). The bed can be tilted – the degree at which the tilt is applied should be documented on ICCA
- Patients with acute pelvic injuries / unstable pelvis.
- Patients with specific post-operative instructions. E.g. non-routine hip surgery
- Significant haemodynamic instability. Once period of instability has resolved, the 30º position should be established.

Use of subglottic secretion drainage

- Secretions that pool above the ETT cuff but below the vocal cords are a potential source of pathogens that could cause VAP.
- The benefits of subglottic secretion drainage have been analysed in several meta-analyses with a consistent signal of a reduction in VAP
- Endotracheal tubes and tracheostomies with sub-glottic suction ports (SGTs) are recommended for use in patients who are anticipated to require mechanical ventilation on the Intensive Care unit for more than 48 hours.
- SGTs are available on the Intensive Care units and in the emergency departments.

Daily sedation holds

- There is evidence that daily sedation holds reduce the duration of mechanical ventilation, and therefore reduce the risk of developing VAP.
- The detailed management of sedation is outlined in a separate policy (Analgesia, Sedation and Management of Delirium in Critically Ill Adult Patients)
- In summary, sedation should be titrated to achieve a RASS score of 0 to -1. Or to a prescribed score determined by the reviewing doctor.
- Daily sedation holds should take place when the RASS score is <0, or less than the prescribed ideal score.
- Daily sedation holds should be considered and documented on a daily basis as part of the ward round check list.
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Exclusions to sedation holds:

- Dying patients
- Patients requiring extraordinary respiratory support such as prone position, inverse ratio ventilation
- Patients on neuromuscular blocking drugs

Avoidance of scheduled ventilator circuit changes

- Humidified gasses condense in the ventilator circuitry and are at risk of becoming contaminated.
- Frequent changes of the circuit is a risk factor for the development of VAP, probably due the excessive manipulation of the ventilator circuit.
- Ventilator circuits should be changed every 7 days, unless visibly soiled.

References

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