Preventing Ventilator-Associated Pneumonia: Implementing the *VAP Bundle*

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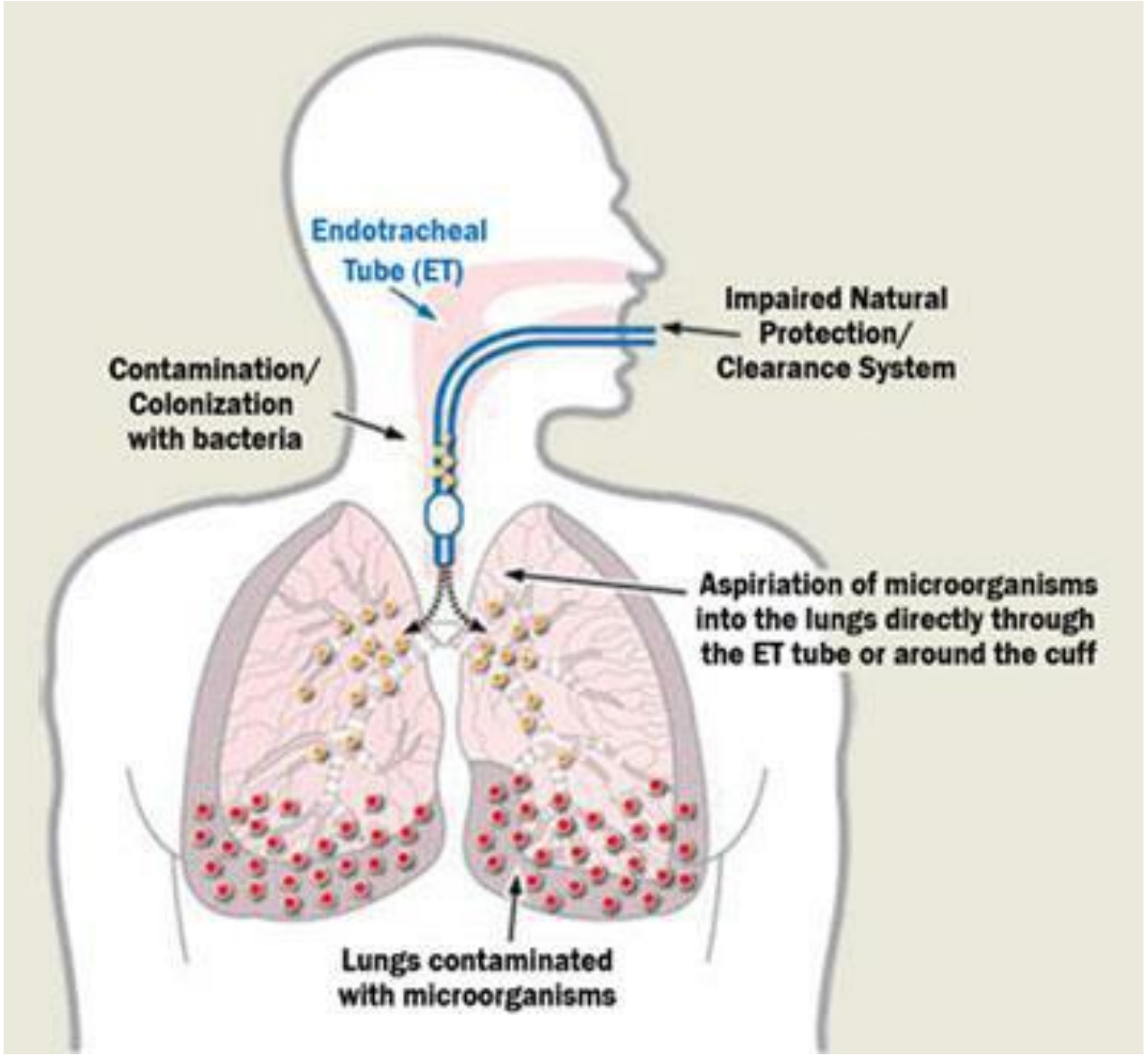
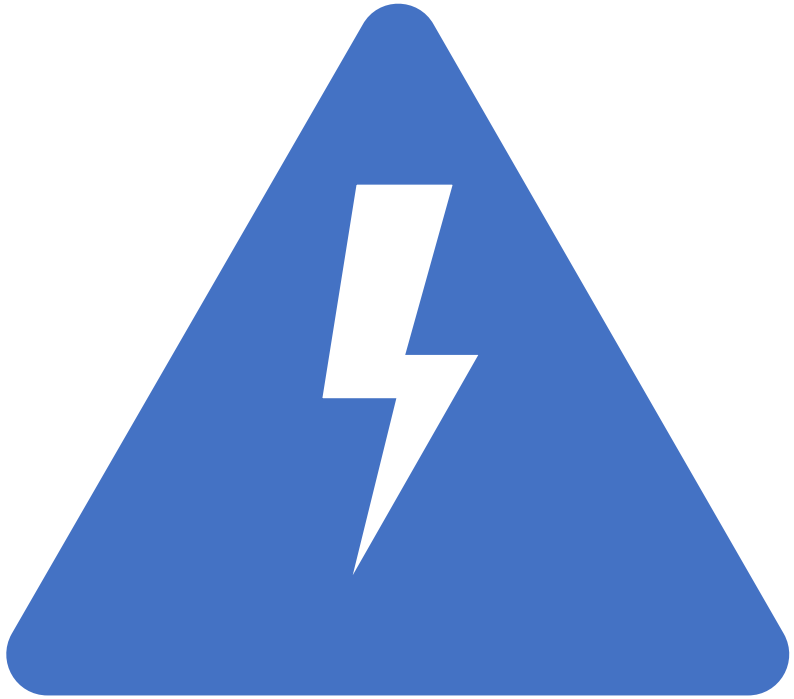
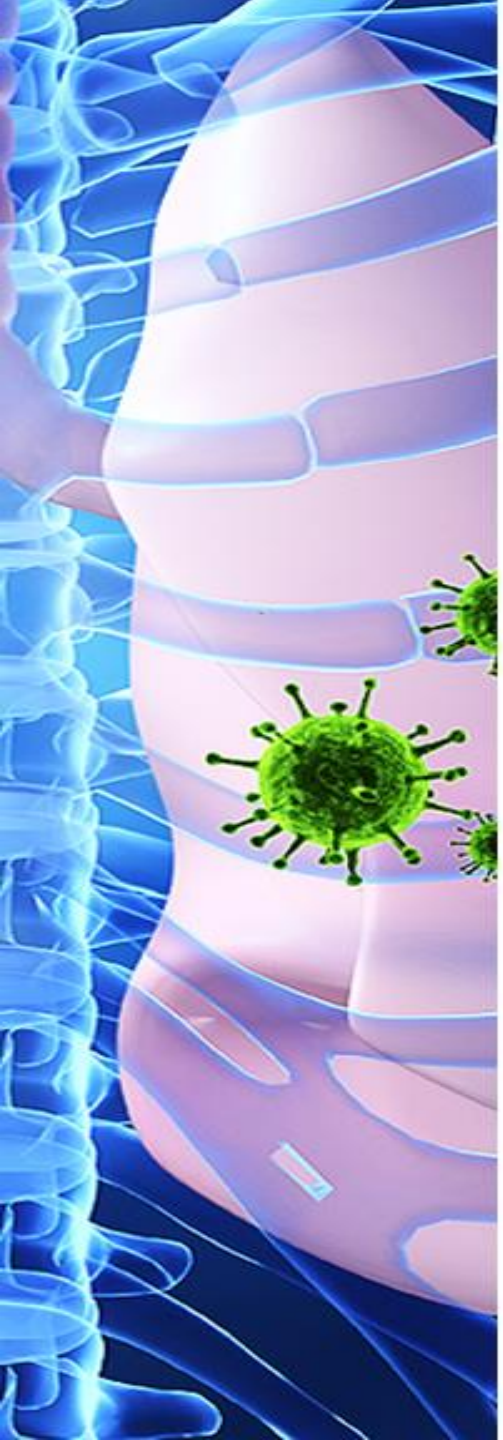
Life Healthcare



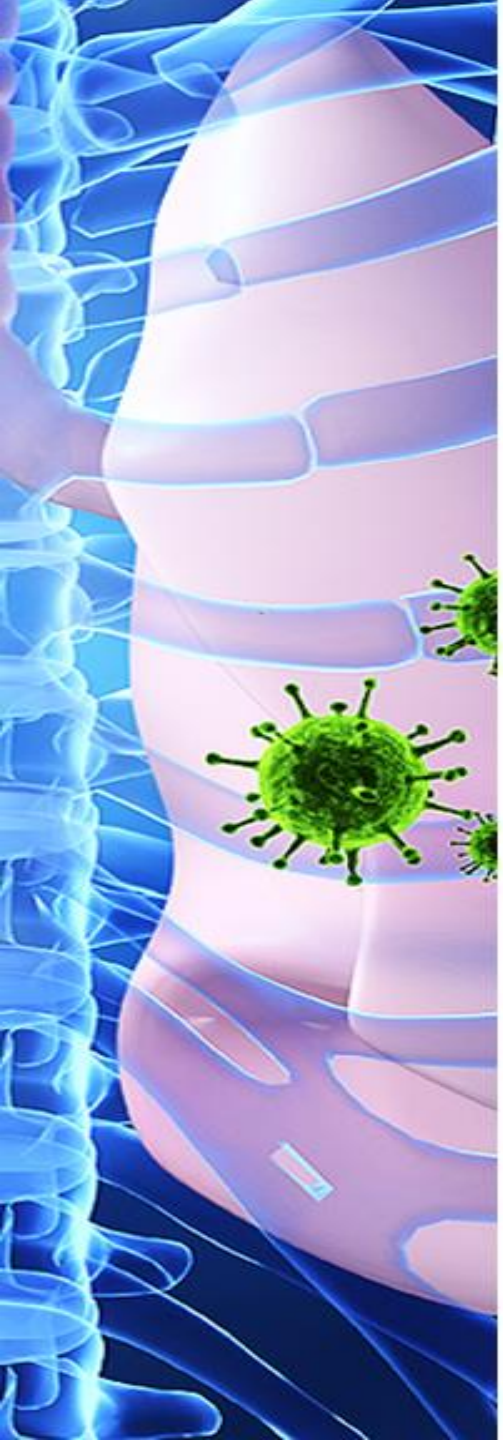


Preventing VAP: The Power of the Bundle



Objectives

- Define Ventilator-Associated Pneumonia (VAP)
- Understand the components of the VAP Bundle
- Review the evidence behind the bundle
- Explore strategies for implementation and compliance
- Discuss outcome monitoring and improvements



What is VAP

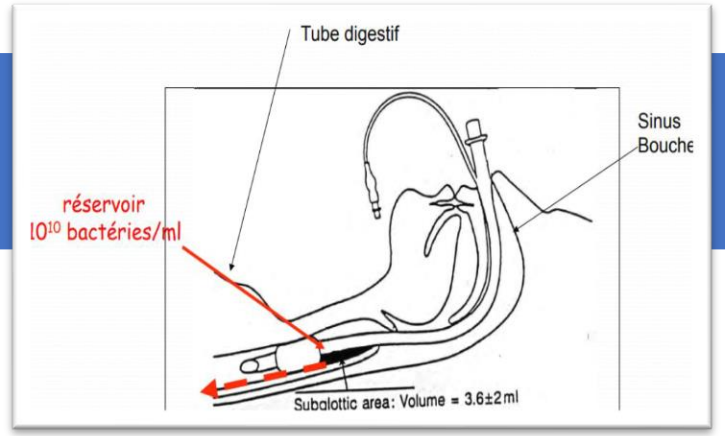
A pneumonia which occurs when the patient is on mechanical ventilation for > 2 consecutive calendar days on the date of event

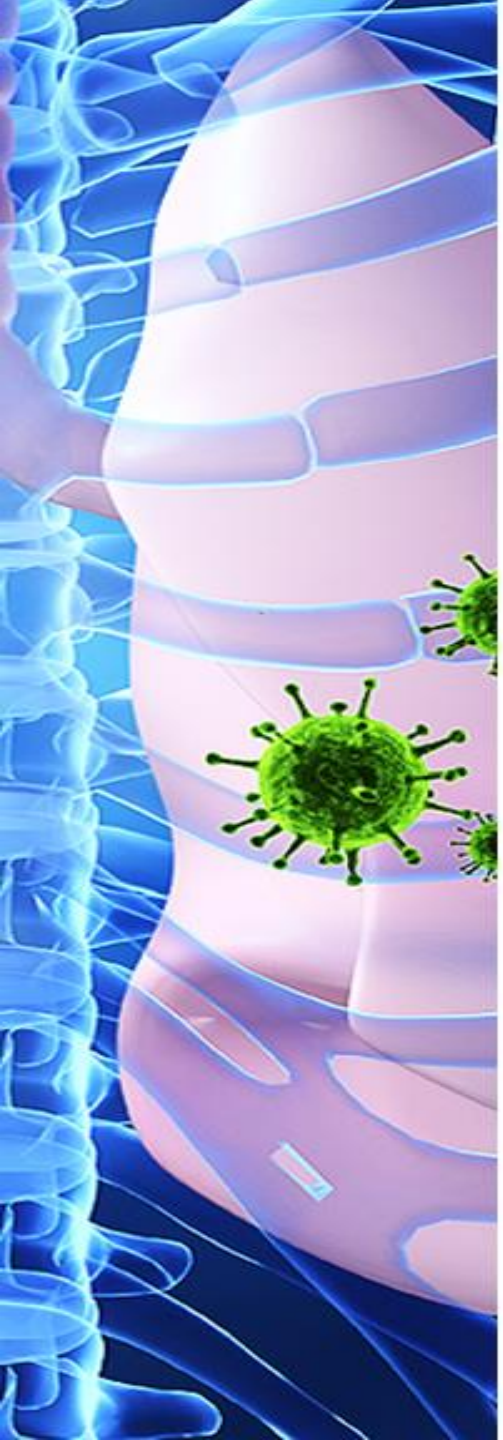
NHSN, Device-associated Module-PNEU ,Jan 2025

Pathophysiology:

- ❑Presence of bacteria +++ in the oropharynx (dental plaque)
- ❑Change in the flora, low pathogenic => enteric bacteria (GERD, AB) Gastroesophageal Reflux Disease (GERD) and Abdominal Bloating
- ❑Stagnation and accumulation of secretions above the cuff in the subglottic space
- ❑Microinhalations: passage between the cuff and the tracheal wall
- ❑Bronchial colonisation

=Ventilator Associated Pneumonia



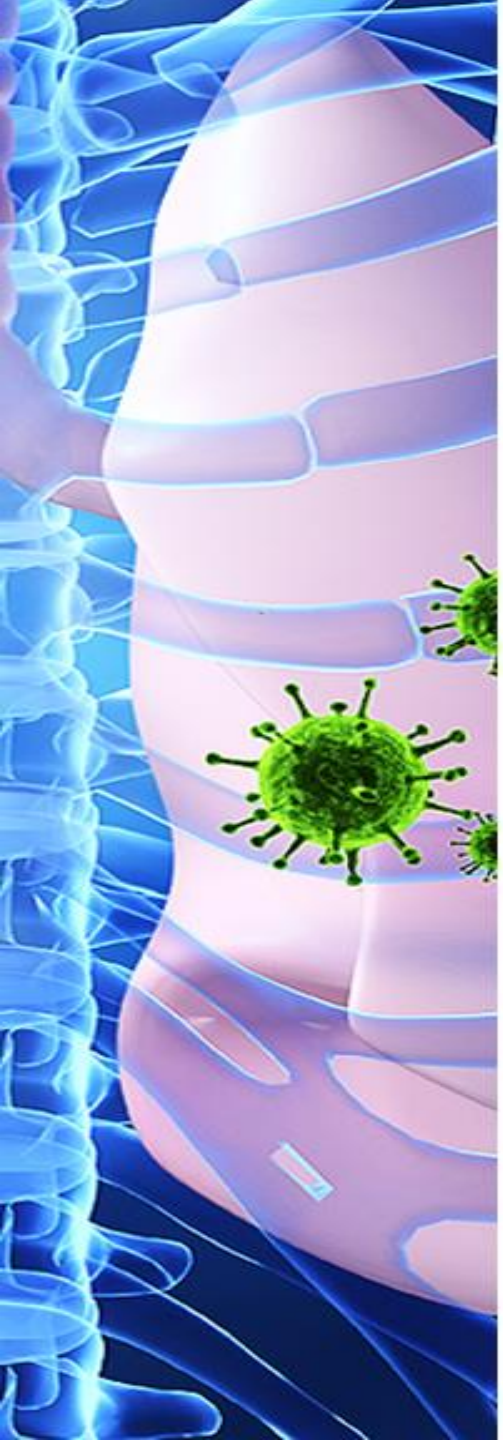


Why the VAP bundle

What is a bundle?

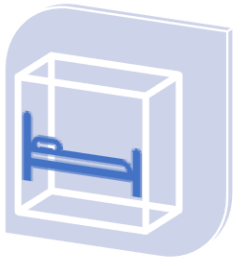
- ❑ A limited number of simple measures with proven effectiveness
- ❑ When implemented together, these can change healthcare practices and thereby improve patient outcomes.

- ❑ Evidence-based interventions that reduce VAP incidence
- ❑ Bundle approach increases compliance and synergy
- ❑ Part of broader quality and safety initiatives (e.g., CDC)



Elements of the VAP bundle

Adults, Paediatrics and Neonates

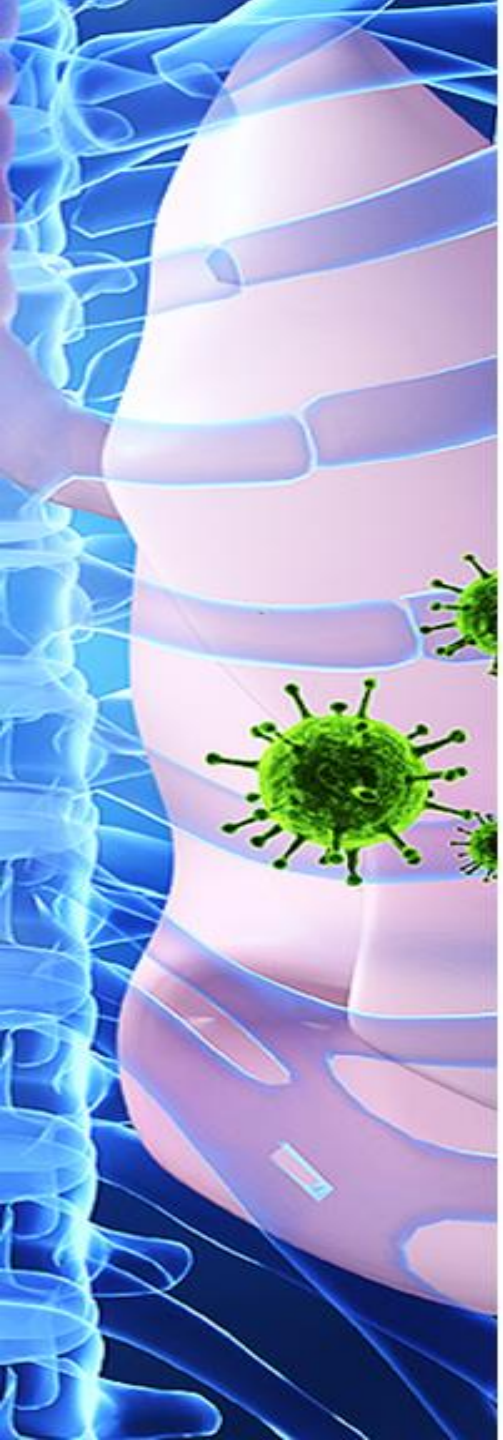


ELEVATION OF THE HEAD OF BED (30°–45°)

DAILY SEDATION VACATION & ASSESSMENT FOR EXTUBATION

(DVT) PROPHYLAXIS

MOUTH CARE

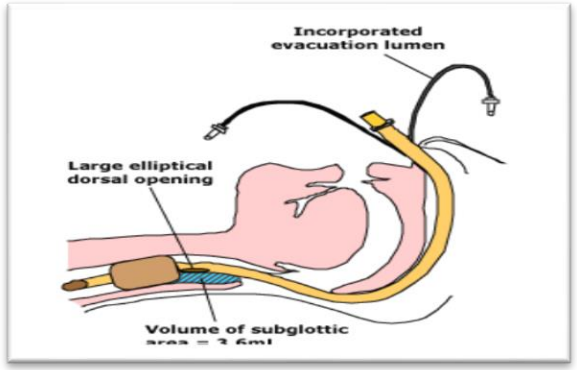


Elevation of the head of bed

- Reduces aspiration risk and reflux(Reduced passage of gastric secretions into the respiratory tract)

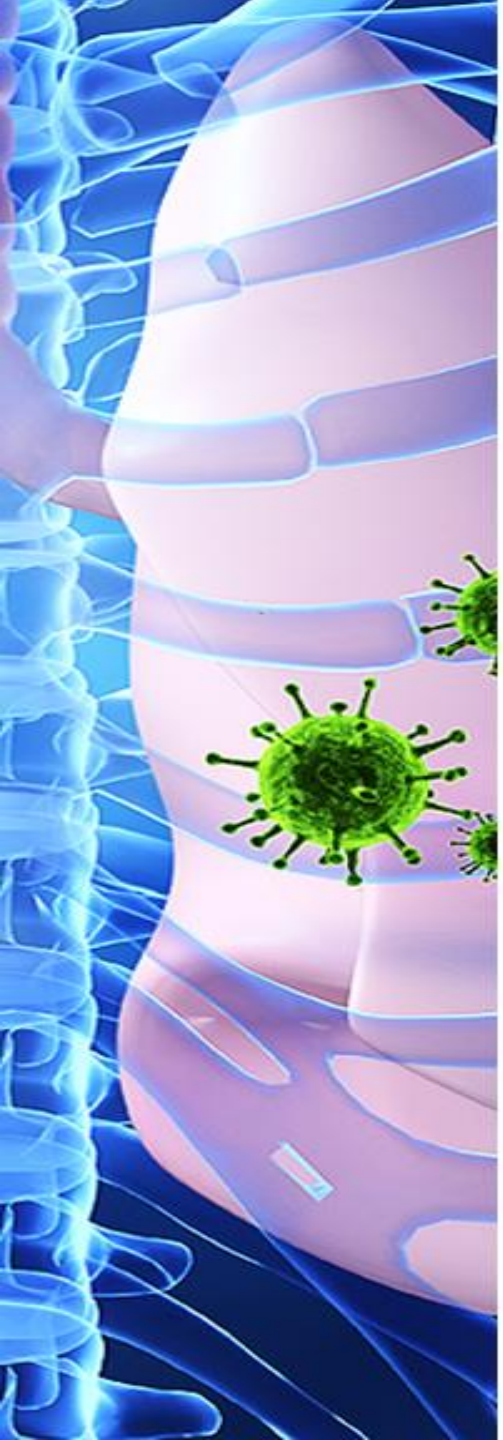
Improved ventilation

****Drakulovic. Lancet 1999. 86 patients. 39 (30-45°) vs. 47 (0°). VAP in 8% vs. 34%.****



- Consistently maintain 30°–45° ***unless it is contra indicated*** e.g. Hypotension, cerebral haemodynamics, C-spine instability etc

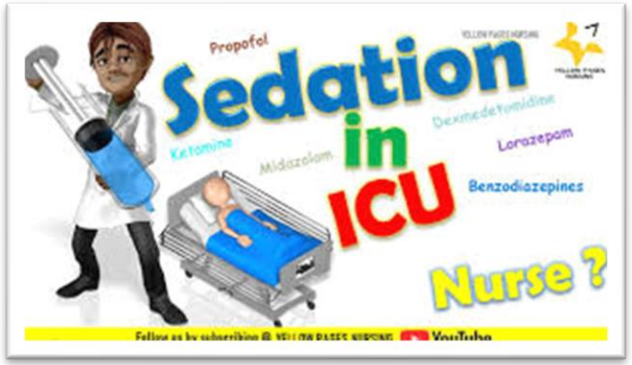
- Audit for compliance



Sedation vacation

- ❑ Lighten sedation daily to assess neurologic readiness
- ❑ Decrease duration of mechanical ventilation
- ❑ Pair with spontaneous breathing trials
- ❑ Requires coordination with the sedation team

NB: ***Take into consideration the contra indications e.g., continuous inotropic support, severe ARDS, risk of self extubating etc.***



A study conducted revealed that a daily sedation vacation protocol in patients with intravenous sedation reduced the incidence of ventilator-associated pneumonia (VAP). Therefore, nurses are recommended to use the daily sedation vacation protocol to prevent VAP.

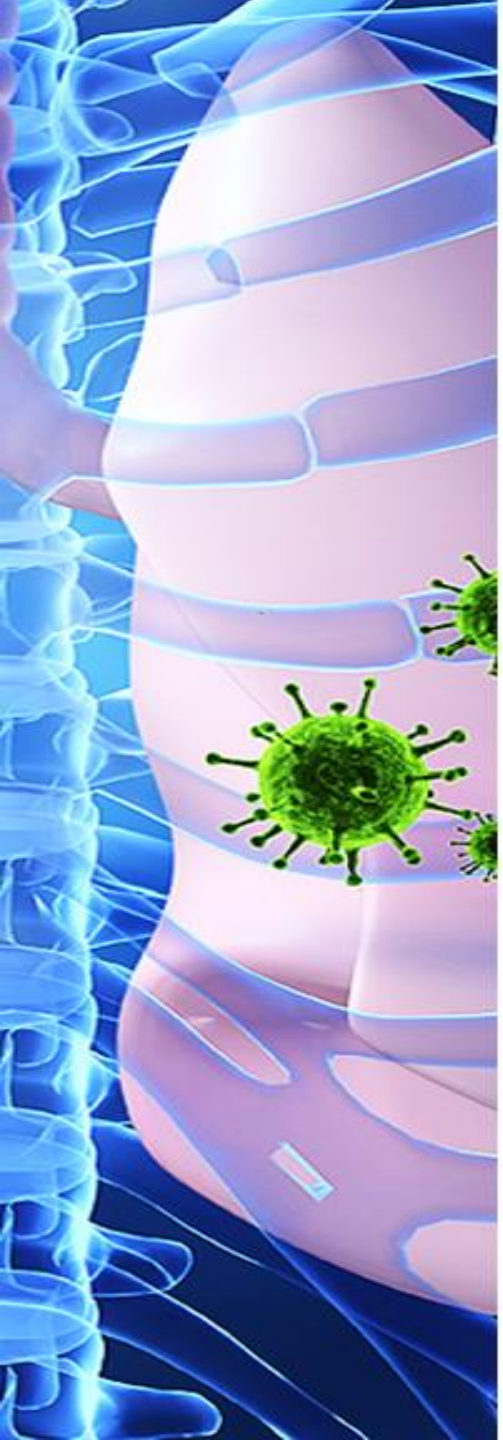
Shahabi M, Yousefi H, Yazdannik AR, Alikiaii B. The effect of daily sedation interruption protocol on early incidence of ventilator-associated pneumonia among patients hospitalized in critical care units receiving mechanical ventilation. Iran J Nurs Midwifery Res. 2016 Sep-Oct;21(5):541-546

Ferraioli D, Ferguson L, Carberry M. Quality improvement project aimed at improving the reliability of spontaneous awakening trials in a district general intensive care unit. BMJ Open Qual. 2019;8(2):e000518.

DVT prophylaxis

- Prevent complications from immobility e.g. PE(pulmonary embolism)
- Includes mechanical (compression devices) or pharmacologic
- Individualise based on bleeding profile

NB:N/A to neonates

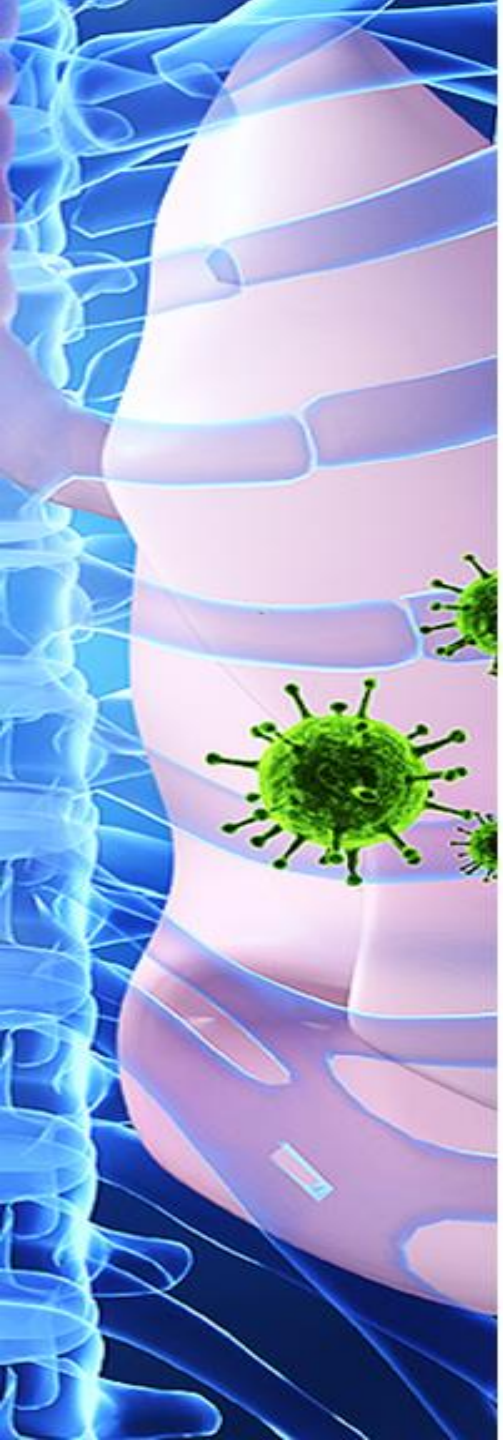


Mouth care

- ❑ Reduces oral bacterial colonisation
- ❑ CHG oral care every 6 hours for adults and sterile water, colostrum for neonates)
- ❑ Standardise protocol and educate staff

- ❖ Lack of chewing/saliva=> Development of dental plaque (1mm3 plaque = 100,000,000 bacteria)

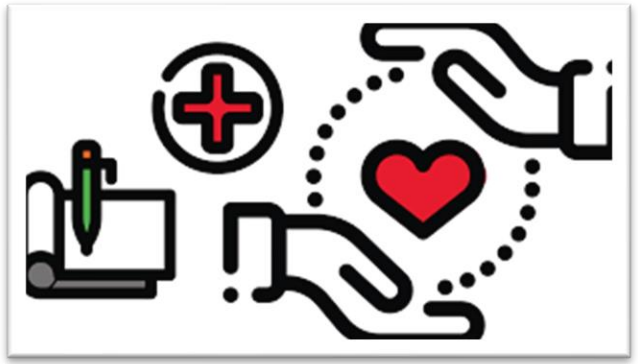
- ❖ Chlorhexidine => Reduction of dental plaque microorganisms

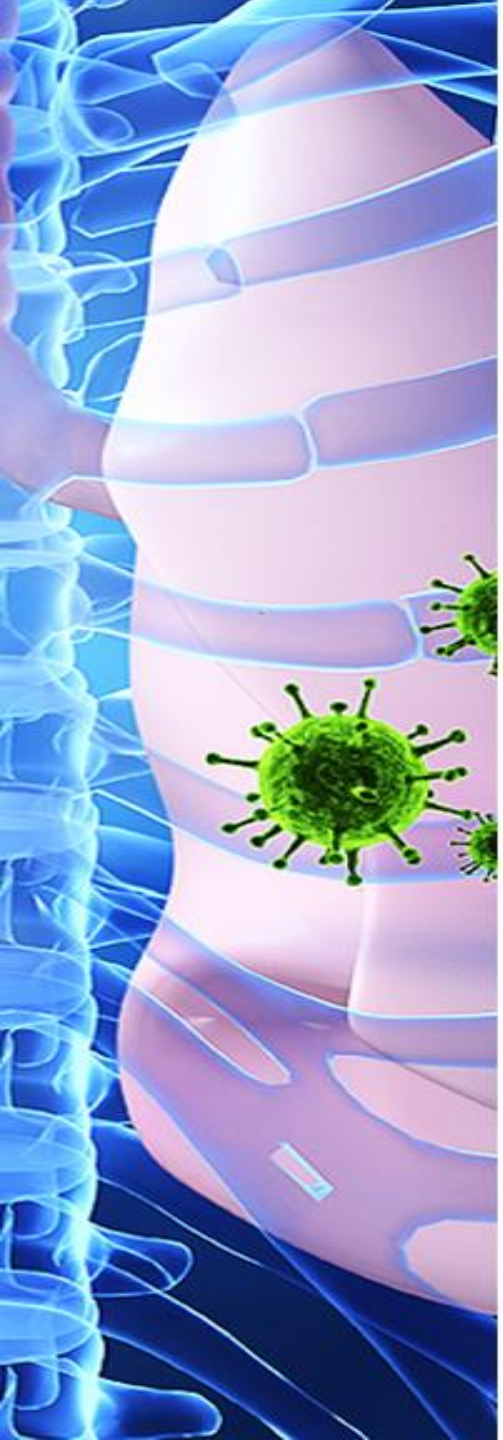


Implementation tips

Implementation is about culture change

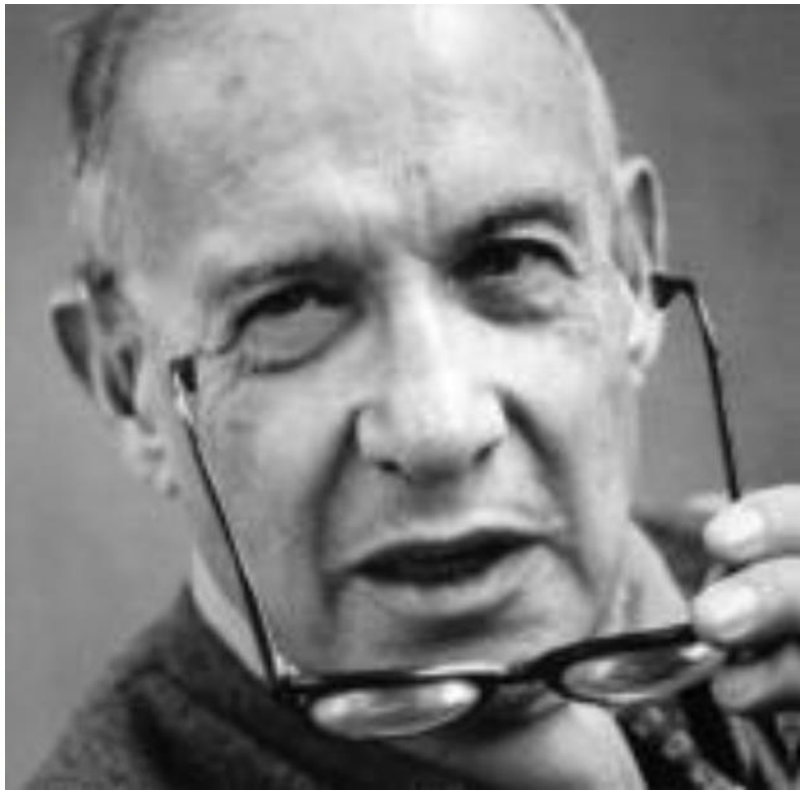
- ❑ Use checklists and protocols
- ❑ Engage with the multidisclinary teams
- ❑ Staff education and reminders
- ❑ Leadership support





Measuring outcomes

- ❑ Monitor VAP rates (e.g., per 1000 ventilator days)
- ❑ Correlate bundle compliance with infection rates
- ❑ Conduct regular audits
- ❑ Provide real time feedback
- ❑ Celebrate improvements and set goals



« If you can’t measure it, you can’t improve it » Peter Drucker 1909 - 2005

Key Takeaways

- ❑ VAP is preventable
- ❑ The bundle is simple but effective
- ❑ Consistency is key
- ❑ Your role is vital!
- ❑ Sustained practice = Sustained results

Thank you