

VAP Guideline Review



Summer Meeting: Day of Trauma
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VAP Guideline Review Workgroup



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VAP Guideline Review



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OBJECTIVES

- Define Ventilator Associated Pneumonia (VAP)
 - Diagnose VAP appropriately
 - Identify preventative strategies
 - Provide appropriate treatment
 - Accessing the guideline on the GQIP website
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Ventilator Associated Pneumonia Definition

- VAP is defined as a pneumonia that develops 48 hours after endotracheal intubation
 - It is the most common nosocomial infection encountered in the Intensive Care Unit
 - The incidence can be as high as 27%
 - Annual cost in the United States can vary from \$0.8 billion to 1.5 billion annually
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Ventilator Associated Pneumonia Definition

- The mortality ranges from 20-50%
 - Annual cost in the United States can vary from \$0.8 billion to 1.5 billion annually
 - Given the associated morbidity, mortality, and costs, the utilization of well-defined algorithms to facilitate diagnosis and treatment is being promoted.
 - The CDC has also updated its guideline in recent years to an algorithm to assist with appropriate diagnosis, treatment, and prevention.
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Ventilator Associated Pneumonia Definition

- A state guideline was created by GQIP in 2017
 - This guideline was developed after extensive research to reflect NTDB definitions, CDC guidelines, and NTDB algorithms.
 - Recently, a group of volunteers from the GQIP collaborative have assembled to review the prior guideline and to make revisions reflective of recent recommendations.
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Diagnosing VAP


- Patients with impaired gas exchange and 3 out of 4 clinical findings
 - Abnormal temperature ($>38^{\circ}$ C or $<36^{\circ}$ C).
 - Abnormal WBC ($>12,000$ cells/mcl or $<4,000$ cells/mcl) or presence of $> 10\%$ bands.
 - Macroscopically purulent sputum.
 - New or changing infiltrate on chest radiograph.
- A bronchoalveolar lavage should be performed to obtain the specimen which should be sent for a quantitative culture
- VAP diagnosis is confirmed with BAL with $> 10^5$ cfu/mL ($> 10^4$ cfu/mL for mini-BAL)

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VAP Guideline Review



Prevention guidelines now include the ABCDE Bundle

 GEORGIA QUALITY IMPROVEMENT PROGRAM		VAP Prevention Strategies	
➤ Subglottic suctioning		➤ Analgesia and sedation choice	
➤ Frequent rotation		➤ Minimize delirium & pain	
➤ Head of bed elevation >30°		➤ Early mobility and exercise	
➤ Antiseptic oral care		➤ Closed endotracheal suctioning	
➤ Metered dose inhaler or nebulizer		➤ Humidifier change every 5-7 days	
➤ Daily SAT and SBT		➤ Change vent circuit only when needed	
➤ Avoid gastric distension		➤ Maintain cuff pressure 20-30 cm H ₂ O	



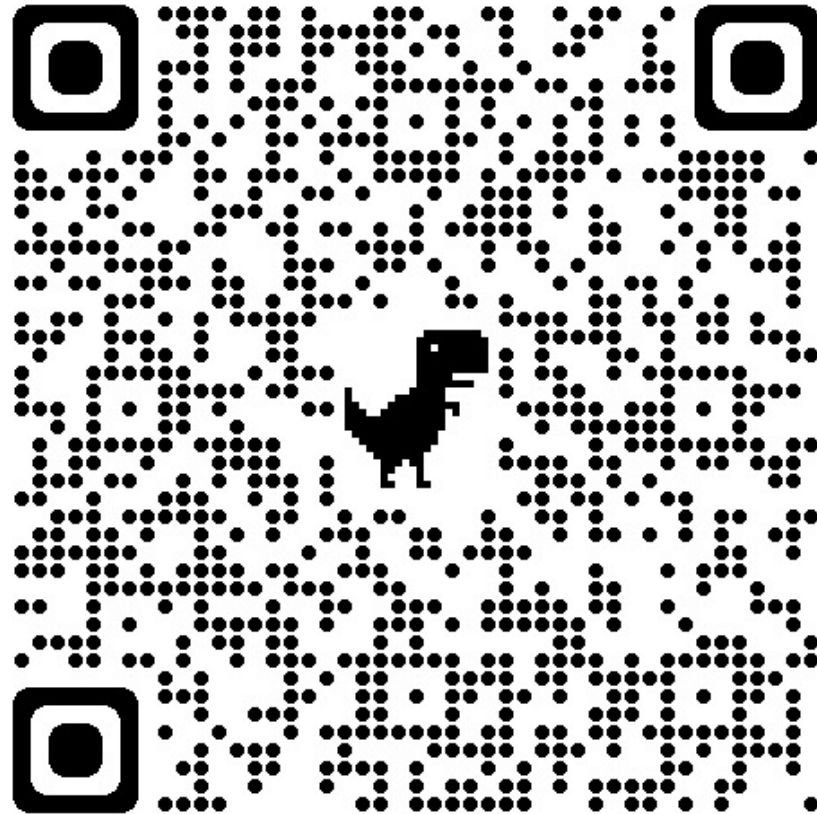
ABCDE Bundle

- A- Assess, prevent, and manage pain
 - B- Both SATs (spontaneous awakening trials) and SBTs (spontaneous breathing trials)
 - C- Choice of sedation
 - D- Delirium: assess, prevent, and manage
 - E- Early mobility and exercise
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Treatment

- Only initiate antibiotics after initial results obtained except in the setting of sepsis
 - Empiric antibiotics based on hospital antibiograms
 - Recommended treatment duration is 7 days
 - If still has clinical signs of VAP, repeat culture after 4 days and if still $>10^4$ cfu/ml (10^3 cfu/ml on mini-bal) treat for 14 days
 - Certain pathogens (Pseudomonas, ESBL, Stenotrophomonas, or Acinetobacter) should be treated for 14 days minimum
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VAP Guideline Review



<https://trauma.georgia.gov/gqip/georgia-trauma-quality-collaborative/member-resources/guidelines>



Conclusion

- Despite extensive research and discussions, the prevention, diagnosis, and treatment of VAP in the multi-trauma patient remains difficult
 - Utilizing well designed algorithms has facilitated the diagnosis and treatment
 - It remains a significant source of morbidity, mortality, and expense
 - Through GQIP, a multi-disciplinary collaboration has led to the development and revision of a guideline that will serve as a resource to improve the care and outcomes of patients in our trauma centers.
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VAP Guideline Review



- References available on GQIP website under the VAP guideline
- Prevention strategies pocket card available at registration table for sharing with trauma center staff