

## Article Summary\*

# Bacterial Growth in Secretions and on Suctioning Equipment of Orally Intubated Patients: A Pilot Study

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### BACKGROUND:

Causative factors for VAP include: contamination of equipment, colonization of oropharynx and microaspiration of secretions.

### OBJECTIVE:

Identify pathogens associated with VAP in oral and endotracheal aspirates and to evaluate growth on oral and endotracheal suctioning equipment.

### STUDY METHOD DESIGN:

20 subjects. Specimens from the mouth, sputum and equipment for culturing were obtained at 24 hours (N=18) and 48 hours (N=10).

### HIGHLIGHTS:

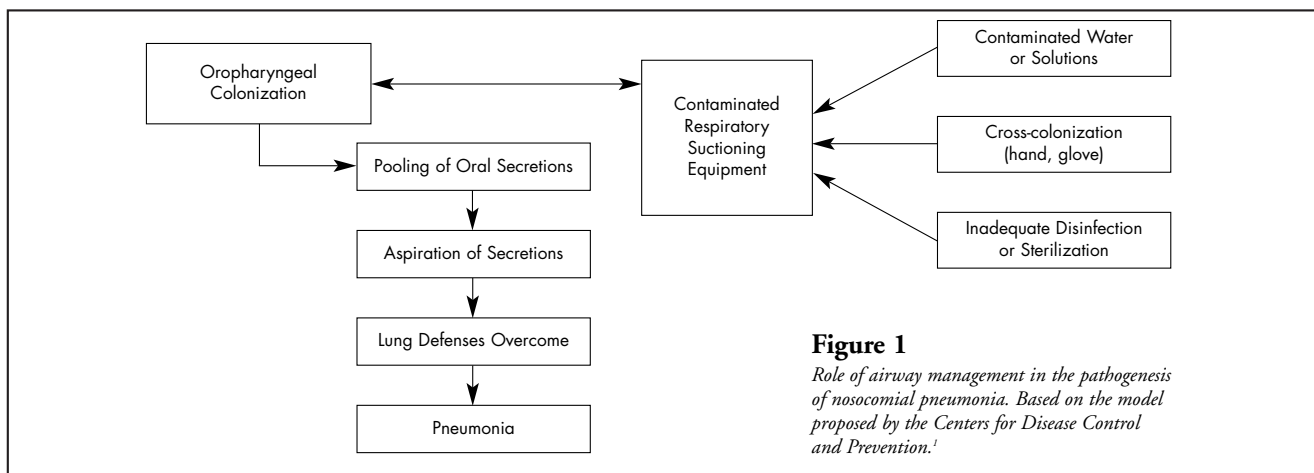
- CDC median rates of VAP are 4.2 to 16.3 cases per 1000 vent days in adult ICU's.
- Estimated occurrence of VAP in ICU's is 10% to 65%.
- Mortality rates 20%-70%.
- VAP increases length of stay by 16-17 days.
- VAP increased costs by almost \$30,000 per case.
- No standard for storing the oral suction device exists.
- The reusable oral suction device (Yankauer) may become colonized with bacteria that do not normally reside in the oral cavity and may be the same microbes that cause VAP.
- Location of "Yankauer": 66% of time—shelf—bedside, 13% in patient's bed; 51% uncovered.

### RESULTS:

- All subjects had bacteria present that could cause VAP.
- 67% of sputum cultures contained bacteria that could cause VAP.
- 94% of tonsil suction services colonized after 24 hours of use.
- Gram-positive and gram-negative bacteria and antibiotic resistant organisms, all of which may cause VAP, were present.

### CONCLUSION:

- While colonization (presence of bacteria) can occur without causing infection (VAP), it is a risk factor for VAP.
- Equipment used in the oral cavity and for suctioning the endotracheal tube that becomes colonized with potential VAP pathogens may increase the likelihood of lung colonization and therefore increase the incidence of VAP.
- Risks associated with colonization of oral care and respiratory care equipment must be addressed more fully.
- "Perhaps oral care should move to the forefront and its impact on the overall health of critically ill patients should be examined."



**Figure 1**

*Role of airway management in the pathogenesis of nosocomial pneumonia. Based on the model proposed by the Centers for Disease Control and Prevention.<sup>1</sup>*

<sup>1</sup> Guidelines for the prevention of nosocomial pneumonia. Centers for Disease Control and Prevention. *MMWR Morb Mortal Wkly Rep.* 1997;46:RR1-RR79.

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