

Non-Ventilator Hospital-Acquired Pneumonia:

**Building a Business Case for
Improving Care**

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Disclaimers

- Stryker/Sage Products—speaker on healthcare quality & safety

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Objectives

1. Briefly describe the incidence & impact of non-ventilator hospital-acquired pneumonia (NVHAP)
2. Describe key aspects of developing a business case for prevention of NVHAP

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Hospital-Acquired Pneumonia

- Previously called Nosocomial Pneumonia
- Newest guideline terminology:
- HAP
 - (Pneumonia not associated with mechanical ventilation, occurring ≥ 48 hrs after admission)
- VAP (Ventilator Associated Pneumonia occurring $>48 - 72$ hrs after intubation)

(Kallil et al. 2016)

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Point Prevalence Study

Types of Hospital-acquired infections (HAIs)

- Pneumonia (25.8%)
- GI infections (21.3%)
- Surgical site infections (16.2%)
- Primary Bloodstream infections (12.2%)
- Urinary tract infections (9.1%)
- Other (15.5%)

Incidence

- 32.6 to 35.4 million US patients at risk for NVHAP¹
- Incidence 1.6%, representing a rate of 3.63 per 1,000 patient days²
- 14% of pneumonia diagnoses during hospitalizations were associated with NVHAP³

1. Baker & Quinn, 2018 2. Giuliano, Baker & Quinn, 2017 3. Corrado et al., 2017

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Cost & Mortality

- Using Healthcare Utilization Project (HCUP) data
 - Preventing 100 cases of NVHAP → save up to \$4 million
 - 700-900 hospital days
 - 20-30 lives (Giuliano et al. 2016)
- Literature average cost per case ranges \$28,000 - \$40,000
- Mortality 14.5-30.9%

Davis. Pa Patient Saf Advis, 9(3); 2012, Giuliano, K. et al. (2016) AORN Poster 2016, Magill, S.S. et al. (2014) NEJM. 370(13), p 1198-1208, Micek, et. al. CHEST 2016 Online first, See, et. al., ICHE, 37, pp 818-824 doi:10.1017/ice.2016.74

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Building a Business Case for Preventing NVHAP

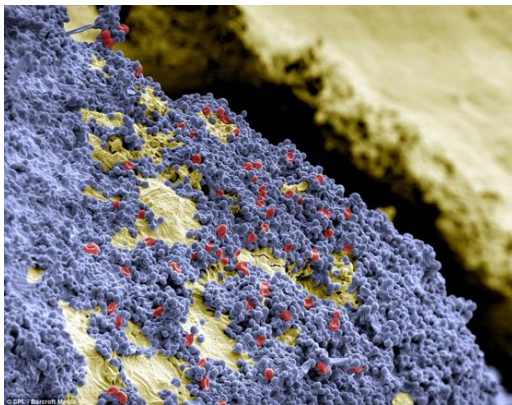
- Promote early ambulation/mobilization
- Deep breathing
- Measures to prevent aspiration
- Comprehensive oral care

Back
to
Basics!

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Bet you won't forget to brush tonight! These gruesome 'alien invaders' are the bacteria lurking in the plaque on your TEETH

By [Lucy Crossley for MailOnline](#) Published: 11:18 EDT, 31 August 2014 | Updated: 08:04 EDT, 1 September 2014



Stuck on the surface:

This magnified image shows a blue carpet of spherical bacteria and red blood cells clinging to the surface of the yellow tooth

<https://www.dailymail.co.uk/sciencetech/article-2739068/Bet-won-t-forget-brush-tonight-These-gruesome-alien-invaders-bacteria-lurking-plaque-TEETH.html>

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Pneumonia

“From the hygienic standpoint, the secretions of the mouth constitute the chief, if not the only, source of respiratory infection.....”

Mouth Disinfection in the Prophylaxis and Treatment of Pneumonia

Augustus Wadsworth, 1906

Wadsworth, A. The Journal of Infectious Disease 1906;3(5):774-797, Page 796

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Oral hygiene effective in prevention of HAP

- **Passaro et al. 2016**

Systematic review - oral hygiene most effective to prevent HAP compared to other interventions

- **Pederson et al. 2016**

Perioperative oral hygiene was found to reduce both nosocomial pneumonia and surgical site infections

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In Hospitals, Pneumonia Is a Lethal Enemy

Basic nursing care could curb the top hospital-acquired infection in America, a new study says

BY LUCETTE LAGNADO

AT A TIME WHEN the public is concerned with drug-resistant superbugs, researchers have identified another danger of going to the hospital: contracting pneumonia.

equipment thoroughly, controlling the use of antibiotics and dispensing hand sanitizer to patients, visitors and staff. But Dr. Baker and her co-author Barbara Quinn contend that hospitals could prevent many



Dian Baker, above left, and Barbara Quinn believe nursing care can help contain hospital-acquired pneumonia.

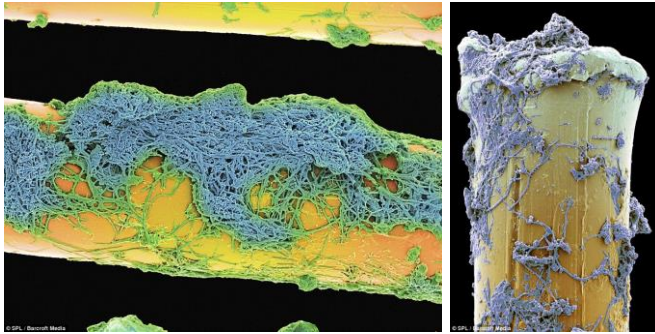
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Oral Care Protocol - Endorsed by ADA

Patient Type	Tools	Procedure	Frequency
Self Care / Assist	Brush, paste, rinse, moisturizer	Provide tools Brush 1-2 minutes Rinse	4 X / day
Dependent / Aspiration Risk / Non-vent	Suction toothbrush kit (4)	Package instructions	4 X / day
Dependent / Vent	ICU Suction toothbrush kit (6) CHG	Package instructions	6 X / day CHG 2X / day
Dentures	Tools + Cleanser Adhesive	Remove dentures & soak Brush gums, mouth Rinse	4X / day

Bet you won't forget to brush tonight! These gruesome 'alien invaders' are the bacteria lurking in the plaque on your TEETH

By [Lucy Crossley for MailOnline](#) Published: 11:18 EDT, 31 August 2014 | Updated: 08:04 EDT, 1 September 2014



Given the brush off:

These images from the scanning electron microscope show bristles from a used toothbrush covered in dental plaque

<https://www.dailymail.co.uk/sciencetech/article-2739068/Bet-won-t-forget-brush-tonight-These-gruesome-alien-invaders-bacteria-lurking-plaque-TEETH.html>

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A toothbrush is not a toothbrush....



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Developing the Business Case

- Know your audience
- Include all key stakeholders
- Provide a foundation without losing the focus
- Don't use abbreviations that the reader does not know
- Will you be able to discuss your business plan, or does it stand alone?
- Date it and put your name and contact on the document

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The Business Case

1. Stakeholder/constituent support
2. Description of the program, services or supplies being requested, scope of request
3. Market demand, impact on patients
4. Influence on revenue, ROI
5. Measure(s) of patient care improvement/success
6. Investment with changes in supplies/equipment
7. Competencies or education needed by staff
8. Gant chart of the change process

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The Business Case

1. Stakeholder/Constituent Support—CNO, Pulmonary, Infection Prevention, Pharmacy, Supply Chain/Materials Mgmt, Respiratory Care, Quality Improvement
2. Description of the program, services or supplies being requested, scope of request
 - What is the problem, rate/incidence of NVHAP?
 - Rate per 1000 pt days = $(\# \text{ NVHAP cases} / \text{Total \# pt days}) \times 1000$
 - What are you requesting and why?
 - Be specific!!
 - What are the data and/or evidence-based practice to support a change?
 - What is the scope—specific units, entire hospital, system?

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The Business Case

3. Influence on Patient Care/Revenue
 - National data on length of stay for NVHAP
 - Your hospital's data on length of stay for NVHAP
 - Extra hospital days = $\# \text{ NVHAP cases} \times 4 \text{ days}$
 - Estimated financial impact on your hospital
 - Extra hospital days = $\# \text{ NVHAP cases} \times 4 \text{ days} \times \text{cost per day}$
 - Cost = $\# \text{ NVHAP cases} \times \$40,000$

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The Business Case

4. Measures of Improvement/Success

- Rate/incidence
- Length of stay
- Change in excess cost of care
- Patient satisfaction
- Timeframe for change

5. Investment with change in supplies/equipment

- Need multiple stakeholders—including review of contracts, input from proposed supplier
- Will vary how this is determined hospital to hospital
- Include the proposed clinical improvements/outcome and the financial aspect
- May need to include discussion of supplies/equipment in clinical setting presently—will it be an immediate change or transitional change as present supplies are used

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The Business Plan

6. Competencies needed by staff

- How will staff will be educated
- Time involved
- Plan for change in equipment, supplies
- How to sustain competencies

7. Gant chart/Proposed timeline for change

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Change is difficult....

Make it **EASY** to do the right thing

Hospitals have two dynamic levels impacting clinical performance

Processes----fit change into the flow of clinical care

Personnel----skilled nurses with hearts and minds with a focus on the patient

- however may have variable levels of attention, time and expertise
- do not leave out additional clinical personnel who are at the point of care

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Your TO DO List

- Is your hospital is monitoring NVHAP as a metric?
- What is your unit and hospital's NVHAP incidence?
- Determine if you have a protocol for comprehensive oral care—is it based on EBP?
- Take evidence-based practice information to your Practice or Research Committee---do you need to educate and reinforce oral care? Are your supplies/equipment adequate?
- Develop a business plan if you need a change in equipment/supplies
- Be a Leader, take action, help patients and save lives!

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Final Thoughts.....

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