

ReddyPort Fireside Chat

Dr. Barbara J. Quinn, DNP Dr. Marcia Cornell, DNP



Why Oral Care / Pneumonia Prevention?





Barbara Quinn DNP, RN, ACNS-BC, FCNS

WURSING SCHOLARSHIP

SPECIAL ISSUE ON BASIC NURSING CARE

Basic Nursing Care to Prevent Nonventilator Hospital-Acquired Pneumonia

Barbara Quinn, MSN, CNS, RN¹, Dian L. Baker, PhD, APRN-BC, PNP², Shannon Cohen, PhD, APRN-BC, FNP³, Jennifer L. Stewart, MSN, RN⁴, Christine A. Lima, PhD, MN, RN⁵, & Carol Parise, PhD⁶

Why Oral Care / Pneumonia Prevention?

30-day readmits

COPD

Problem

Why?

How

Prevent?

- Pneumonia
- Sepsis related to Pneumonia

Standardized oral care



Marcia Cornell DNP, APRN-CNS, RN ACNS-BC, NPD-BC, CEN, TCRN, FCNS

March 2017 NACNS, Atlanta

A7 – Pulmonary Conditions CNS's, Are You Addressing the New #1 HAI in Your Hospital? Pneumonia NOT Related to a Ventilator Barbara Quinn Sutter Health

Discussion Today

- 1. What are the clinical risks and costs of NV-HAP?
- 2. What are the most current research and recommendations regarding preventing NV-HAP, and why is oral hygiene crucial?
- 3. What does an evidence-based oral care program look like?
- 4. What steps can you take to obtain hospital administrative support for an oral hygiene program, including nonventilated patients?
- 5. What trends may affect the future of NV-HAP prevention?
- 6. Q&A

Infection Control & Hospital Epidemiology (2022), 43, 687-713 SHEA doi:10.1017/ice.2022.8 **SHEA/IDSA/APIC Practice Recommendation** Quick Safety Strategies to prevent ventilator-associated pneumonia, **APIC** ventilator-associated events, and nonventilator hospital-acquired pneumonia in acute-care hospitals: 2022 Update Issue 61 | September 2021 Michael Klompas MD, MPH^{1,2} , Richard Branson MSc, RRT³ , Kelly Cawcutt MD, MS⁴ , Matthew Crist MD⁵ , Eric C. Eichenwald MD^{6,7}, Linda R. Greene RN, MPS, CIC⁸, Grace Lee MD⁹, Lisa L. Maragakis MD, MPH¹⁰, Krista Powell MD, MPH⁵ ⁽ⁱ⁾, Gregory P. Priebe MD¹¹ ⁽ⁱ⁾, Kathleen Speck MPH¹², Deborah S. Yokoe MD, MPH¹³ and Sean M. Berenholtz MD. MHS12,14,15 Preventing non-ventilator hospital-acquired pneumonia Top 10 Patient Safety Introduction Non-ventilator health care-associated pneumonia (NV-HAP) 2022 Concerns 2022 Check for updates and part of being highly reliable means staving vigilant and identifying problems proac Linda R. Greene RN, BS, MPS, CIC, FAPIC This annual Top 10 list helps organizations identify in **PRACTICE P** Manager of Infection Prevention, University of Rochester Highland Hospital, Rochester, NY the Top 10, ECRI and our affiliate, the Institute for Safe Medication Practices (ISMP), analyzed a wide scope of data, including scientific literature, patient safety events or con investigated by ECRI or ISMP, client research requests and que **STATEMENT** data souro The Top 10 list also of Key Words: ABSTRACT The List for 2022 2021 Non-ventilator pneumoni. This guide is intended for IPs, nurses, and others who are involved in infection prevention efforts across the 1. Staffing shortages Non-Ventilator Healthcare-As Infection continuum of care. It reviews current literature, suggested prevention strategies, and potential tools and 2. COV/ID-19 effects on healthcare workers' mental health Provention Pneumonia (NV-HAP) techniques to guide surveillance, detection, and prevention efforts for NV-HAP 3. Bias and racism in addressing patient safet © 2020 Published by Elsevier Inc. on behalf of Association for Professionals in Infection Control and 4. Vaccine coverage gaps and errors Epidemiology, Inc. 5. Cognitive biases and diagnostic err \bigcirc 7. Human factors in operationalizing telehealth Infection Control & Hospital Epidemiology (2021), 42, 991-996 International supply chain disruptions doi:10.1017/ice.2021.239 WWW.APIC.ORG 9. Products subject to emergency use authorizati 10. Telemetry monitoring 2020 Commentary **Repeat Patient Safety Concerns** Over the years, several patient safety issues have made repeat appearances on ECRI's list of Nonventilator hospital-acquired pneumonia: A call to action eport, for a list of perennial patient safety issues ECRI The Most Trusted Voice in Healthcare Recommendations from the National Organization to Prevent Hospital-Acquir es@ecri.org 📋 🖬 🖉 🖉 🕅 Pneumonia (NOHAP) among nonventilated patients 2019 Shannon C. Munro PhD, APRN, NP-BC¹ O, Dian Baker PhD, APRN² O, Karen K. Giuliano PhD, MBA, RN³, Sheila C. Sullivan PhD, RN⁴ ⁽ⁱ⁾, Judith Haber PhD, APRN, FAAN⁵, Barbara E. Jones MD, MSc^{6,7} ⁽ⁱ⁾, Matthew B. Crist MD, MPH⁸, Richard E. Nelson PhD^{9,10}, Evan Carey PhD¹¹ (2), Olivia Lounsbury BSc¹², Michelle Lucatorto DNP, FNP-BC13, Ryan Miller MSN, RN13, Brian Pauley MSN, RN14 and Michael Klompas MD, MPH15.16 💿 NV-HAP a 2018 National The NEW ENGLAND JOURNAL of MEDICINE ORIGINAL ARTICLE Concern Changes in Prevalence of Health Care-Associated Infections in U.S. Hospitals

S.S. Magill, E. O'Leary, S.J. Janelle, D.L. Thompson, G. Dumyati, J. Nadle, L.E. Wilson,

The Impact of NV-HAP

Quality Metric	Outcomes
Incidence	0.5-1 per 100 patient admissions
Length of Stay	16 days vs. 4 days
Mortality	22% 7.3% of all hospital deaths (1 in 14 attributed deaths)
Cost	\$40,000
ICU Utilization	27% transferred to ICU 46% needed ICU care
Readmission	19%
Sepsis	36.3% of NV-HAP patients

Jones & Klompas, 2023; Baker & Quinn, 2018; Giuliano, Baker, 2020; Munro et. al. (2022); Giuliano & Baker (2020)

Etiology of Pneumonia

- Pathogens that cause pneumonia found in dental plaque
 - Saliva escapes into the trachea
 - Weakened immune system
- Disrupted physiologic defenses

Quinn, Giuliano, Baker. (2020)

• Saliva escape







HAP

Aspiration

NV-HAP Prevention Driver Diagram



Oral Hygiene is a Key Intervention

- Only intervention that addresses source control
- Most studies
- Most evidence of effectiveness
- "Essential" SHEA Guidelines

Infection Control & Hospital Epidemiology (2022), **43**, 687-713 doi:10.1017/ice.2022.88



SHEA/IDSA/APIC Practice Recommendation

Strategies to prevent ventilator-associated pneumonia, ventilator-associated events, and nonventilator hospital-acquired pneumonia in acute-care hospitals: 2022 Update

Michael Klompas MD, MPH^{1,2}, Richard Branson MSc, RRT³, Kelly Cawcutt MD, MS⁴, Matthew Crist MD⁵, Eric C. Eichenwald MD^{6,7}, Linda R. Greene RN, MPS, CIC⁸, Grace Lee MD⁹, Lisa L. Maragakis MD, MPH¹⁰, Krista Powell MD, MPH⁵, Gregory P. Priebe MD¹¹, Kathleen Speck MPH¹², Deborah S. Yokoe MD, MPH¹³ and Sean M. Berenholtz MD, MHS^{12,14,15}

Oral Hygiene Prevents NV-HAP

Study	Primary Intervention	Outcome
Quinn & Baker (2014)	Oral care 3-4X/day	-37% NVHAP, -8 deaths, -\$1.6M
Warren et al. (2019)	Oral care 3-6X/day	-50% NVHAP
Giuliano et al. (2021)	Oral care 2-3X/day	-85% NVHAP
Coury & Deitz (2022)	Oral care bundle	-58% NVHAP, -41% sepsis, -50% mortality
De Assis (2020); Fox (2015); Lacerna (2020); Wolfensberger (2023)	Pneumonia prevention bundles, all include oral care	-41%; -54%; -70%, - 31%

American Journal of Infection Control Implementation Guideline: Non-ventilator healthcare-associated pneumonia (NV-HAP): **Best practices for prevention of NV-HAP**

Table 1

American dental association-approved protocol for the use of evidence-based oral care in the acute care setting

Oral care type	Tools	Procedure	Frequency
Self/assist (may require setup)	Soft-bristled toothbrush, toothpaste with fluoride, sodium bicarbonate (optional), alcohol-free antiseptic mouth rinse, mouth and lip moisturizer (nonpetroleum-based)	Brush for 1-2 min with toothpaste, rinse with anti- septic; moisturize as needed.	2-4 times/d
Dependent/aspiration risk/nonventilated	Soft-bristled suction toothbrush, cleansing and alcohol-free antiseptic solution, mouth and lip moisturizer (nonpetroleum-based)	Brush with suction for 1-2 minutes using liquid cleansing/antiseptic solution; moisturize as needed.	2-4 times/d
Dependent/ventilated	Soft-bristled or swab suction toothbrush, cleansing and alcohol-free antiseptic solution, mouth and lip moisturizer (nonpetroleum-based)	Brush/swab with suction for 1-2 min using liquid cleansing/antiseptic solution; moisturize as needed. Optional: Brush/swab with suction 1 min with chlorhexidine 0.12%	About every <u>4 h or 6 times/d</u> Optional: Chlorhexidine 0.12% every 12 h
Dentures or edentulate (not caps)	Denture storage cup, denture brush, denture cleanser adhesive (optional)	Remove and brush/rinse dentures; brush gums and mouth; may soak dentures at night with com- mercial cleanser.	2 times/d Remove dentures while patient is sleeping

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NIV patients: Unique risk of BiPap therapy



Function

Benefits

Risks

3.1% incidence of NV-HAP in NIV patient

Increase ICU LOS

Increases risk for intubation and death

Elements of an Oral Hygiene Program

- Based on evidence, gap analysis
- Data: Outcome (NV-HAP) and Process (Oral Care)
- Policy, procedure, standard work
- Quality oral care equipment & supplies
- Documentation process
- Utilize existing resources
- Implementation Science and Change management

Gap Analysis

Best Practice	Our Gaps	Action To Take	Date Completed
Comprehensive oral care protocol for all patients (CDC, SHEA).	Only oral care protocol was for ICU ventilator patients.	Develop a new oral care protocol for all patients, including those not in ICU.	March 2012
Use oral CHG (0.12%) rinse during the perioperative period on adult CV surgery and vent pts. (CDC, ATS, IHI).		Added CHG oral care to all preprinted CV orders, and to oral care protocol for vented patients.	April 2012
Oral care supplies: soft-bristledPoor quality oral care tools.toothbrush, therapeuticAbsence of denture caretoothpaste, antiseptic mouth rinse. (ADA)supplies.		Purchase new supplies and teach staff how to use.	June 2012

Quinn, B. (2014).

Data: Process and Outcome

TELEMETRY ORAL CARE FREQUENCY



CARDIAC SURGERY PATIENTS WITH NV-HAP



Policy & Procedure

oral care for Pneumonia Prevention



POLICY & PROCEDURE

NPG-868 Oral Care, Adult

PURPOSE:

To establish a standard of practice for the provision of oral care for the adult patient that would decrease the oral microbiome burden of pneumonia causing pathogens in order to decrease the risk for hospital-acquired pneumonia.

GUIDELINE:

- Performing or assisting patients with oral care is within the scope and practice of nursing staff, and is an expectation of basic personal care. A physician's order is not required to initiate and maintain oral care.
- Nurses are responsible for identifying the type of oral care required. Nurses may delegate this task to unlicensed assistive personnel (UAP) as needed for patients. UAPs may perform and document oral care.
- Oral care will be provided to all adult patients whether they are independent, dependent non-ventilated or dependent ventilated.
 - 3.1 The independent patient would be able to perform their own oral care and are able to expectorate. They may require assistance in obtaining supplies and getting set up.
 - 3.2 The dependent non-ventilator patient is not on a mechanical ventilator with an endotracheal tube in place. This individual requires assistance in performing oral care and may have difficulties in expectorating.
 - 3.3 The dependent ventilator patient is on a mechanical ventilator with an endotracheal tube in place. This individual requires oral care to be completed by the nursing staff.
- 4. Recommendations for tools, procedure and frequency based on care type.
 - 4.1 For in depth procedural instructions refer to Lippincott.

Care Type	Tools	Procedure	Frequency
Independent	Soft bristled toothbrush	Brush teeth for 1-2 minutes	2-4 times a
	Toothpaste with fluoride	with toothpaste	day
	Alcohol-free antiseptic oral	Rinse mouth with 7ml of	
	rinse	antiseptic oral rinse for at	
	Mouth & Lip moisturizer	least 30 seconds	
		Moisturize mouth & lips as	
		needed	
Dependent	Soft bristled suction	Brush teeth with suction	2-4 times a
non-ventilated	toothbrush	toothbrush for 1-2 minutes	day
	Cleansing and alcohol-free	with cleansing antiseptic	
	antiseptic solution	solution	
	Mouth & lip moisturizer	Moisturize mouth & lips as	
		needed	

Documentation of Oral Care

← →	Notes 🖉 Wound Care 🚯 Avatar 🔢 Flowsheets Charges MAR Education Care Plan Orders	- 1			
Elowshaats		4 24 Ø E			
Flowsheets					
🖶 Elle 📱 Add Rows 🛉 LDA Avatar 🔹 📷 Add Col 👘	ssert Col 🐇 Data Validate 🖆 Hide Device Data 🔹 📊 Last Filed 🔹 Reg Doc 腔 Graph 🔹 🛱 Go to Date 📙 Responsible 📿 Rofresh 🐞 Chart Correction 🔹 🖋 N	lacro Manager 🔹			
Wound Assess/Care Wound Follow-Up Vitals I/O	Screenings Basic Assessment Complex Assessment I/O Daily Cares/Safety	Daily Cares/Safety			
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AM-PAC Daily Activity	•	Bleeding			
Toileting, which includes using toilet, bedpan or urinal	2	Contact			
Taking care of personal grooming such as brushing	3	Elopement			
Eating Meals	4	Fall			
Daily Activity - Total Score	17	Neutropenic			
DVT Nursing Reassessment		Reflux			
In the Past 24 Hours Has the Patient		Seizure			
The Patient		Spinal			
Nutrition		Suicide			
Feeding		Total hip			
Diet Type		Total knee			
Appetite		 Victim of violence 			
Fluid Restrictions		Other (Comment)			
Nutritional Supplements					
Hypoglycemia (Non-Medication) Managemen	it	Comments (Alt+M)			
Hypoglycemia Treatment					
Intake (mL)					
Hygiene		H ROW			
Hygiene	Peri care	Information			
CHG Bathing	Bathed/shower				
Oral Care		~			
Incontinence Prote Oral Care		Take the appropriate			
Skin Care Row ID: 7060 00		precautions based on			
Level of Assistance		the patient's condition.			
Comfort and Environment Interventions Refer to your					
Comfort	Gown changed	organization's policy			
Patient Preferences		for guidance.			
Reg Additional Comfort/Environmental Interventions		•			

Utilize Existing Resources

Oral Health in Healthcare Settings to Prevent Pneumonia Toolkit | HAIs | CDC

<u>Preventing Non-Ventilator-Associated Hospital-Acquired Pneumonia (NVHAP) With Oral Care</u> (nln.org)

<u>Hospital-Acquired Pneumonia Prevention by Engaging Nurses (HAPPEN) Implementation Guide</u> (va.gov)

NVHAP Implementation Guide. (2020). Table of Contents page: American Journal of Infection Control (ajicjournal.org)

<u>The Joint Commission (September 2021). quick-safety-61-nvha-pneumonia-final-9-3-21.pdf</u> (jointcommission.org)

American Association of Critical-Care Nurses (AACN). <u>Nonventilator Hospital-Acquired</u> <u>Pneumonia Prevention: The Key Role for Critical Care Nurses - AACN</u>

NV-HAP Calculator. <u>https://www.va.gov/NURSING/docs/happen/NV-HAP-Calculator-Non-VHA.xlsx</u>

Baseline NV-HAP Incidence Calculator

С

В

3	Assumed Knowledge			
4	Cost per case of NV-HAP	\$	40,000.00	
	Number of months of			
	baseline (pre-intervention)			
5	data		12	
6				

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Instructions:

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For each month of baseline data collection, collect and update only the highlighted cells in Columns A, B, and C. The built-in formulas will calculate the baseline incidence rate*. You must complete all 12 rows for the formula to work correctly. Fill out the problem/opportunity statement with the corresponding fields.

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7	Baseline Data					
8	Month	# Patient Admissions	# Diagnosed Cases of NV- HAP	NV-HAP Incidence Proportion	NV-HAP Incidence Rate*	Cost to Hospital
9	[Month 1, Year]	500	5	0.01	10.00	\$ 200,000.00
10	[Month 2, Year]			#DIV/0!	#DIV/0!	\$-
11	[Month 3, Year]			#DIV/0!	#DIV/0!	\$-
12	[Month 4, Year]			#DIV/0!	#DIV/0!	\$-
13	[Month 5, Year]			#DIV/0!	#DIV/0!	\$-
14	[Month 6, Year]			#DIV/0!	#DIV/0!	\$-
15	[Month 7, Year]			#DIV/0!	#DIV/0!	\$-
16	[Month 8, Year]			#DIV/0!	#DIV/0!	\$-
17	[Month 9, Year]			#DIV/0!	#DIV/0!	\$-
18	[Month 10, Year]			#DIV/0!	#DIV/0!	\$-
19	[Month 11, Year]			#DIV/0!	#DIV/0!	\$-
20	[Month 12, Year]			#DIV/0!	#DIV/0!	\$-
21	Average (per month)	42	0	0.00	0	\$-
22	Total	500	0	0.00	0	\$-
23	13					
24	⁴ *Incidence rate is calculated per 1,000 hospitalized patients					
25						
26	6					
27						

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Problem/Opportunity Statement:

From [Month 1, Year] to [Month 12, Year], the incidence rate of NV-HAP was [E22] cases per 1,000 hospitalized patients.

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Change Management





Influencing Administration

- Align with organizational goals
- Know your numbers
- Calculate impact
- Identify a sponsor
- Start small, scale up
- Ask for what you need
 - Supplies, education, monitoring, data, etc.

Impact on Outcomes	Measures	Impact on Organizations
Sepsis	CMS-VBP	Requires recognition & treatment/resources
Antibiotics	The Joint Commission Standard; CMS HAC	Requires more antibiotic use, cost, C. diff
Mortality	CMS Publicly Reported Data	Unanticipated patient deaths
Surgical Outcomes	CMS HAC (PSI 11, PSI 13)	Increases postop resp failure & sepsis
Length of Stay	AHRQ Quality Indicator	Incr. cost, decr. access, reflection of quality, incr. risk for complications
Readmission	CMS-VBP	Increases 30-day readmission rate

The Future of NV-HAP

 New <u>electronic surveillance</u>
 <u>tool</u> will make it feasible and accurate, give ability to track & trend

 New partnership with NDNQI & EPIC

 New emphasis on <u>non-device</u> related HAIs > JAMA Netw Open. 2023 May 1;6(5):e2314185. doi: 10.1001/jamanetworkopen.2023.14185.

Incidence and Outcomes of Non-Ventilator-Associated Hospital-Acquired Pneumonia in 284 US Hospitals Using Electronic Surveillance Criteria

Barbara E Jones ¹², Aaron L Sarvet ³, Jian Ying ⁴, Robert Jin ³, McKenna R Nevers ⁴,

Nursing and IT Global Edition

Press Ganey integrates Epic nursing quality data and automates reporting

The collaboration aims to enhance patient care by streamlining data reporting, saving time for nursing leaders and accelerating quality improvement efforts.

Infection Control & Hospital Epidemiology (2024), 1–5 doi:10.1017/iae.2023.283 SHEA

Compendium Commentary

The next frontier of healthcare-associated infection (HAI) surveillance metrics: Beyond device-associated infections

Sonali D. Advani MBBS, MPH¹ ⁽ⁱ⁾, Kelly Cawcutt MD, MS² ⁽ⁱ⁾, Michael Klompas MD, MPH³ ⁽ⁱ⁾, Jonas Marschall MD^{4,5} ⁽ⁱ⁾, Jennifer Meddings MD, MS⁶ ⁽ⁱ⁾ and Payal K. Patel MD, MPH⁷

Important Points from today:

- 1. NV-HAP is the most common hospital-acquired pneumonia, and hospitals need to monitor and establish programs for prevention.
- 2. Oral hygiene with toothbrushing at least twice daily should be the standard of care for all.
- 3. Bipap patients are at higher risk of NV-HAP and must be included in a comprehensive oral care program.
- 4. There are existing resources to help you influence leadership, design and implement your oral care program, and reduce NV-HAP.

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ECRI Top 10 Patient Safety Concerns NVHAP No 6 2022 Special

Report.pdf

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