



# Oral care: the missing piece to the patient management puzzle

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- Doctor of Speech-Language Pathology
- Board Certified Specialist in Swallowing and Swallowing Disorders

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## Non-Financial

- None

## Financial

- University of Rochester Medical Center
- Rochester Regional Health
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# Learner objectives

- Describe program elements to educate staff on the importance of oral health to the patient's overall health and quality of life
- Describe how a structured comprehensive oral care program can assist with nursing care delivery
- Discuss oral the role bacteria and oral colonization in the development of other health conditions for the patient
- List the current oral care recommendations from leading health organizations
- Define the activities required to establish a comprehensive oral care program

# Interactive portion of the presentation...

- How many of you currently have an oral care program established at your facility?
- How many of you have an oral care protocol or policy & procedure written up for your facility?
- How many of you feel like your staff are aware of and recognize the importance of oral care for your patients?
- How many of you feel like you are constantly beating your head against a wall talking about oral care and getting your staff to complete it with your patients?

## **“Why is a speech pathologist talking to me about hospital acquired pneumonia?”**

- “Isn’t this out of your scope of practice?”
- “Isn’t this more of a concern for the doctors and nurses in the hospital?”
- “What are you going to do to reduce the risk of a Patient developing pneumonia?”

# Hospital acquired pneumonia

- One of the most common types of hospital acquired infections (HAI's) in the acute care setting. <sup>1,2,3</sup>
- Ventilator Associated Acquired Pneumonia (VAP) is currently the only subset of HAP that is tracked and reported. <sup>1</sup>
- Non-Ventilator Associated Acquired Pneumonia (NV-HAP) is considered to be more common and occur more regularly than VAP. <sup>1,3,4</sup>
- Cost to treat a patient with NV-HAP ranges between \$40,000-65,000. <sup>3, 4</sup>

1. Baker, D.L. & Giuliano, K.K. (2021). Prevention practices for nonventilator hospital acquired pneumonia: A survey of the Society for Healthcare Epidemiology of America (SHEA) Research Network (SRN). *Infection Control and Epidemiology*. 43(3): 379-380. <https://doi.org/10.1017/ice.2021.427>
2. Kaneoka, A., Pisegna, J.M., Miloro, K.V., Lo M, S.H., Riquelme, L.F., LaValley, M.P., & Langmore, S.E. (2015) Prevention of healthcare-associated pneumonia with oral care in individuals without mechanical ventilation: A systematic review and meta-analysis of randomized control trial. *Infect Control Hosp Epidemiol*. 36(8):899-906.
3. Talley, L., Lamb, J., Harl, J., Lorenz, H., Green, Lindsey, M. (2016). HAP prevention for nonventilated adults in acute care. *Nursing Management*. 47(12):42-48. [doi: 10.1097/01.NUMA.0000508259.34475.4c](https://doi.org/10.1097/01.NUMA.0000508259.34475.4c)
4. Quinn, B., Baker D.L., Cohen S, Stewart J.L., Lima C.A., & Parise C. (2014). Basic nursing care to prevent non-ventilator hospital-acquired pneumonia. *Journal of Nursing Scholarship*. 46 (1): 11-19.1
5. Feider, L.L., Mitchell, P., & Bridges, E. (2010). Oral care practices for orally intubated critically ill adults. *American Journal of Critical Care Nurses*. 19(2): 175-183).
6. Giuliano, K.K., Baker, D., Thakkar-Samtani, M., Glick, M., Restrepo, M.I., Scannapieco, F.A., Heaton, L.J., & Frantsve-Hawley, J. (2022). Incidence, mortality, and cost trends in non-ventilator hospital-acquired pneumonia in Medicaid beneficiaries. *American Journal of Infection Control*. <https://doi.org/10.1016/j.ajic.2022.06.016>



# PRACTICE POSITION STATEMENT

Non-Ventilator Healthcare-Associated  
Pneumonia (NV-HAP)

[WWW.APIC.ORG](http://WWW.APIC.ORG) | 1



Commentary

## Nonventilator hospital-acquired pneumonia: A call to action

Recommendations from the National Organization to Prevent Hospital-Acquired Pneumonia (NOHAP) among nonventilated patients

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### Executive Summary

In 2020 a group of U.S. healthcare leaders formed the National Organization to Prevent Hospital-Acquired Pneumonia (NOHAP) to issue a call to action to address non-ventilator-associated hospital-acquired pneumonia (NVHAP). NVHAP is one of the most common and morbid healthcare-associated infections, but it is not tracked, reported, or actively prevented by most hospitals. This national call to action includes (1) launching a national healthcare conversation about NVHAP prevention; (2) adding NVHAP prevention measures to education for patients, healthcare professionals, and students; (3) challenging healthcare systems and insurers to implement and support NVHAP prevention; and (4) encouraging researchers to develop new strategies for NVHAP surveillance and prevention. The purpose of this document is to outline research needs to support the NVHAP call to action. Primary needs include the development of better models to estimate the economic cost of NVHAP, to elucidate the pathophysiology of NVHAP and identify the most promising pathways for prevention, to develop objective and efficient surveillance methods to track NVHAP, to rigorously test the impact of prevention strategies proposed to prevent NVHAP, and to identify the policy levers that will best engage hospitals in NVHAP surveillance and prevention. A joint task force developed this document including stakeholders from the Veterans' Health Administration (VHA), the U.S. Centers for Disease Control and Prevention (CDC), The Joint Commission, the American Dental Association, the Patient Safety Movement Foundation, Oral Health Nursing Education and Practice (OHNEP), Teaching Oral-Systemic Health (TOSH), industry partners and academia.

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### 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

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### Abstract

The purpose of this document is to highlight practical recommendations to assist acute care hospitals to prioritize and implement strategies to prevent ventilator-associated pneumonia (VAP), ventilator-associated events (VAE), and non-ventilator hospital-acquired pneumonia (NV-HAP) in adults, children, and neonates. This document updates the Strategies to Prevent Ventilator-Associated Pneumonia in Acute Care Hospitals published in 2014. This expert guidance document is sponsored by the Society for Healthcare Epidemiology (SHEA), and is the product of a collaborative effort led by SHEA, the Infectious Diseases Society of America, the American Hospital Association, the Association for Professionals in Infection Control and Epidemiology, and The Joint Commission, with major contributions from representatives of a number of organizations and societies with content expertise.

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### Major Article

## Recommendations for change in infection prevention programs and practice



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### Keywords:

Infection prevention and control programs  
Surveillance  
Environment of care  
Decolonization  
Healthcare-associated infections  
Antibiotic-resistant organisms  
Emerging pathogens

### ABSTRACT

Fifty years of evolution in infection prevention and control programs have involved significant accomplishments related to clinical practices, methodologies, and technology. However, regulatory mandates, and resource and research limitations, coupled with emerging infection threats such as the COVID-19 pandemic, present considerable challenges for infection preventionists. This article provides guidance and recommendations in 14 key areas. These interventions should be considered for implementation by United States health care facilities in the near future.

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<sup>1</sup> Munro, S.C., Baker, D., Giuliano, K.K., Sullivan, S.C., Haber, J., Jones, B.E., Crist, M.B., Nelson, R.E., Carey, E., Lounsbury, O., Lucatorto, M., Miller, R., Pauley, B. & Klompas, M. (2021). Nonventilator hospital-acquired pneumonia: A call to action. Recommendations from the National Organization to Prevent Hospital-Acquired Pneumonia (NOHAP) among nonventilated patients. *Infection Control & Hospital Epidemiology*. 42: 991-996. <https://doi.org/10.1017/ice.2021.239>

<sup>2</sup> Garcia, R., Barnes, S., Boukidjian, R., Kaye Goss, L., Spencer, M., Septimus, E.J., Wright, M., Munro, S., Reese, S.M., Fakhri, M.G., Edmiston, C.E., & Levesque, M. (2022). Recommendations for change in infection prevention programs and practice. *American Journal of Infection Control*. 50:1281-1295. <https://doi.org/10.1016/j.ajic.2022.04.007>

<sup>3</sup> Klompas, M., Branson, R., Cawcutt, K., Crist, M., Eichenwald, E.C., Greene, L.R., Lee, G., Maragakis, L.L., Powell, K., Priebe, G.P., Speck, K., Yokoe, D.S., & Berenholtz, S.M. (2022). Strategies to prevent ventilator-associated pneumonia, ventilator-associated events, and non-ventilator hospital-acquired pneumonia in acute-care hospitals: 2022 Update. *Infection Control & Hospital Epidemiology*. 43: 687-713. [doi:10.1017/ice.2022.88](https://doi.org/10.1017/ice.2022.88)



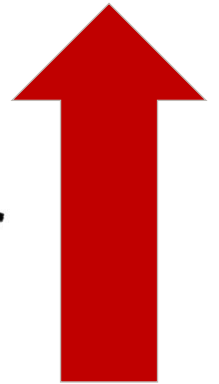
# What does oral care have to do with pneumonia?

- Aspiration pneumonia has an increased risk of developing following micro-aspiration of the colonized oral flora from a patient's mouth<sup>1</sup>

<sup>1</sup>Langmore, S.E, Terpenning, M.S, Schork, A., Chen, Y, Murray, J.T, Lopatin, D, & Loesche, W.J. (1998). Predictors of aspiration pneumonia: How important is dysphagia? *Dysphagia*. 13 (2): 69-81. <https://doi:10.1007/PL00009559>



**Mortality**

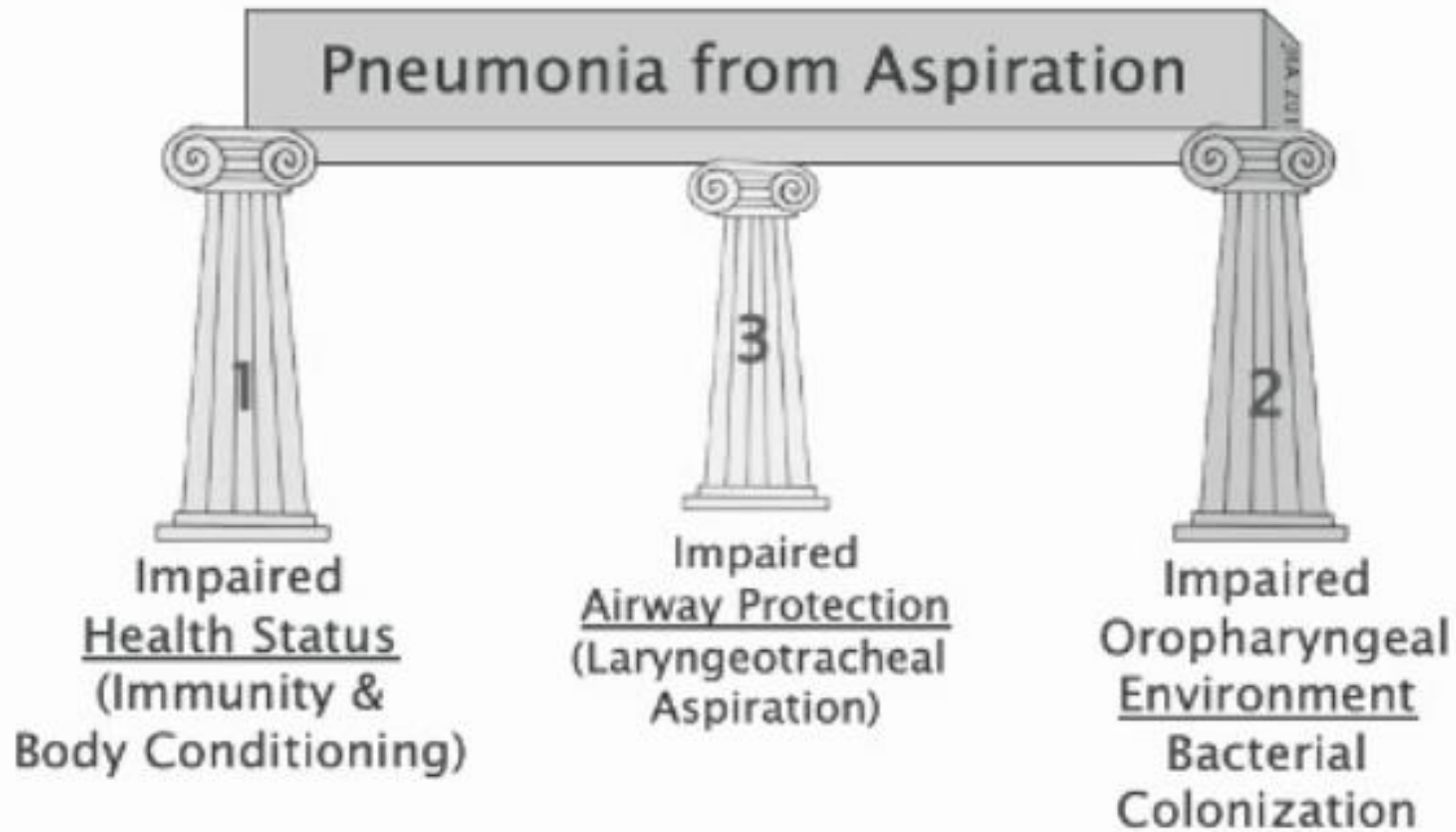


<sup>1</sup> Talley, L., Lamb, J., Harl, J., Lorenz, H., Green, Lindsey, M. (2016). HAP prevention for nonventilated adults in acute care. *Nursing Management*. 47(12):42-48. [doi: 10.1097/01.NUMA.0000508259.34475.4c](https://doi.org/10.1097/01.NUMA.0000508259.34475.4c)

<sup>2</sup> Kaneoka, A., Pisegna, J.M., Miloro, K.V., Lo M, S.H., Riquelme, L.F., LaValley, M.P., & Langmore, S.E. (2015) Prevention of healthcare-associated pneumonia with oral care in individuals without mechanical ventilation: A systematic review and meta-analysis of randomized control trial. *Infect Control Hosp Epidemiol*. 36(8):899-906.

<sup>3</sup> Quinn, B., Baker D.L., Cohen S, Stewart J.L., Lima C.A., & Parise C. (2014). Basic nursing care to prevent non-ventilator hospital-acquired pneumonia. *Journal of Nursing Scholarship*. 46 (1): 11-19.1

# The 3 pillars of aspiration pneumonia





# HAPPI initiative<sup>1</sup>

- Quinn & Baker, 2014
- Rate of NV-HAP per 100 patient days decreased from 0.49 to 0.3 (38.8%).
- Overall number of cases of NV-HAP was reduced by 37% during the 12-month intervention period.
- Estimated 8 lives saved
- Cost savings of \$1.72 million
- 500 extra hospital days averted.
- ROI was \$1.6 million

# Current oral care recommendations



<sup>1</sup> [www.americandentalassociation.com](http://www.americandentalassociation.com)

<sup>2</sup> Munro, S., Haile-Mariam, A., Greenwell, C., Demirci, S., Farooqi, O., & Vasudeva, S. (2018). Implementation and dissemination of a Department of Veterans Affairs oral care initiative to decreasing hospital acquired pneumonia in adult patients: Prevent Hospital-Acquired Pneumonia Among Nonventilated Patients. *Nursing Administration Quarterly*, 42(4), 363-372

[https://journals.lww.com/naqjournal/Abstract/2018/10000/Implementation\\_and\\_Dissemination\\_of\\_a\\_Department.14.aspx](https://journals.lww.com/naqjournal/Abstract/2018/10000/Implementation_and_Dissemination_of_a_Department.14.aspx)

<sup>3</sup> Quinn, B., Giuliano, K.K., Baker, D., (2020). Non-ventilator health care-associated pneumonia (NV-HAP): Best practices for prevention of NV-HAP. *American Journal of Infection Control*. 48: A23-27.

<https://doi.org/10.1016/j.ajic.2020.03.06>

# Barriers to oral care completion<sup>1</sup>

- Leadership buy-in
- Education to staff who consistently turn over
- Staff recognition that oral care is mandatory for every patient vs. optional (“It can be done later”)
- Necessary and effective supplies
- Documentation of completed oral care
- Empowering the patient and their caregivers to ask for oral care supplies; educating them on the importance of oral care in the medical setting
- Tracking NV-HAP incidence rates

<sup>1</sup> Munro, S.C., Baker, D., Giuliano, K.K., Sullivan, S.C., Haber, J., Jones, B.E., Crist, M.B., Nelson, R.E., Carey, E., Lounsbury, O., Lucatorto, M., Miller, R., Pauley, B. & Klompas, M. (2021). Nonventilator hospital-acquired pneumonia: A call to action. Recommendations from the National Organization to Prevent Hospital-Acquired Pneumonia (NOHAP) among nonventilated patients. *Infection Control & Hospital Epidemiology*. 42: 991-996. <https://doi.org/10.1017/ice.2021.239>



# What can be done?

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Build your team

---

Literature Review - Know your evidence

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Purchase and stock necessary supplies

---

Education to staff

---

Training on oral care completion & documentation

---

Performance monitoring and feedback

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Quality Improvement initiatives

# Teamwork makes the dream work!



# Know the literature



Applied Nursing Research  
Volume 44, December 2018, Pages 48-53



Original article

Reducing missed oral care opportunities to prevent non-ventilator associated hospital acquired pneumonia at the Department of Veterans Affairs

Shannon Munro PhD, APRN, BC, FNP<sup>a</sup>, Dian Baker PhD, APRN, BC, PNP<sup>b</sup>

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## Prevention practices for nonventilator hospital-acquired pneumonia: A survey of the Society for Healthcare Epidemiology of America (SHEA) Research Network (SRN)

Published online by Cambridge University Press: 04 October 2021

Dian L. Baker and Karen K. Giuliano

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## A mixed-methods evaluation of the national implementation of the Hospital-Acquired Pneumonia Prevention by Engaging Nurses (HAPPEN) initiative

Published online by Cambridge University Press: 30 August 2022

Lauren D. Stevenson , Shannon Munro, Robert Klocko and George Sayre

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## Continuous Quality Improvement

# Implementation of a Standardized Oral Care Protocol to Decrease Non-Ventilator Hospital-Acquired Pneumonia

Kristin Pritts  
Cindy Kerber

Susana Calderon  
Pam Bigler

American Journal of Infection Control 50 (2022) 1281–1295

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Journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)

Major Article

Recommendations for change in infection prevention programs and practice

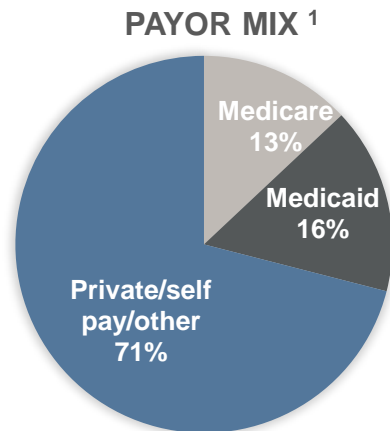
Robert Garcia BS, MT(ASCP), CIC, FAPIC<sup>a,\*</sup>, Sue Barnes RN, BSN, CIC, FAPIC<sup>b</sup>, Roy Boukidjian MSN, CIC, NE-BC<sup>c</sup>, Linda Kaye Goss DNP, BS, APRN, COHN-S, CIC, FAPIC<sup>d</sup>, Maureen Spencer MEd, BSN, RN, CIC, FAPIC<sup>e</sup>, Edward J. Septimus MD<sup>f</sup>, Marc-Oliver Wright MT(ASCP), MS, CIC, FAPIC<sup>g</sup>, Shannon Munro PhD, APRN, BC, NP<sup>h</sup>, Sara M. Reese PhD, MPH, CIC, FAPIC<sup>i</sup>, Mohamad G. Fakih MD, MPH<sup>j</sup>, Charles E. Edmiston MS, PhD, CIC, FIDSA, FSHEA, FAPIC<sup>k</sup>, Martin Levesque BA, BS, MPH, MBA, CIC, FAPIC<sup>l</sup>

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<sup>d</sup> Department of Infection Prevention, The Queen's Health System, Honolulu, HI  
<sup>e</sup> Infection Prevention Consultant, Huddersfield, MA  
<sup>f</sup> Department of Population Medicine, Harvard Medical School, Boston, MA  
<sup>g</sup> Clinical Science, Central Region, PHL, Inc., Marana, WI  
<sup>h</sup> Department of Veterans Affairs Medical Center, Research and Development, Salem, VA  
<sup>i</sup> Quality and Patient Safety Department, SCL Health System, Broomfield, CO  
<sup>j</sup> Clinical Network Services, Accurian Healthcare and Wayne State University School of Medicine, Grosse Pointe Woods, MI  
<sup>k</sup> Department of Surgery, Medical College of Wisconsin, Milwaukee, WI  
<sup>l</sup> System Infection Prevention and Control, Henry Ford Health, Detroit, MI

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# Benefits & potential results

## NV-HAP



Non-ventilator hospital-acquired pneumonia <small>Diagnoses not present on admission</small>	Medicare claims <sup>2</sup>	Estimated All Payor claims <sup>2</sup>
2019 NV-HAPs	82	322
Cost to treat one NV-HAP <sup>3</sup>	\$39,897	
Est. annual cost to treat Commercial NV-HAPs	\$3,271,554	
Est annual cost to treat All-Payor NV-HAPs	\$12,846,834	

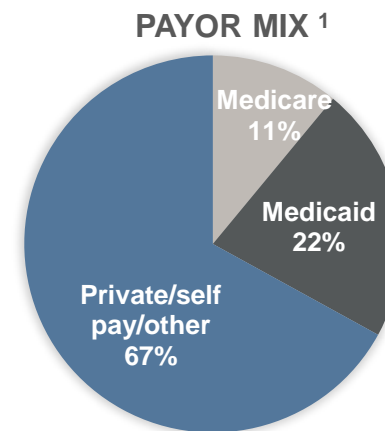
### Pneumonia & Sepsis

#### Healthcare utilization project database (APIC) – 2017<sup>4</sup>

In this study, sepsis developed in 36.3% of patients with non-ventilator pneumonia (NV-HAP)

1. Medicare cost report. Financial data for hospital cost report period ending 12/31/2019. 2. Reflects Medicare ICD-10 codes J18.9, J151.211, J15.212, J17, J14, J13, J15, J15.5, J16.8, J15.4 for primary and secondary diagnoses not Present on Admission (POA). POA estimated for Commercial Claims based on Medicare ratio. Definitive Healthcare algorithms and estimates. 3. Giuliano K, Baker D, Quinn B. The epidemiology of non ventilator hospital acquired pneumonia in the United States. American Journal of Infection Control. October 2017. 4. Giuliano K, Quinn B, Baker D. Non-ventilator Hospital Acquired Pneumonia versus Pneumonia as an Admission Diagnoses in Patients who Develop Sepsis: Incidence and Cost. Poster presented at Association for Professionals in Infection Control and Epidemiology 2017 Conference: June 16, 2017; Portland, OR

## NV-HAP



Non-ventilator hospital-acquired pneumonia <small>Diagnoses not present on admission</small>	Medicare claims <sup>2</sup>	Estimated All Payor claims <sup>2</sup>
2019 NV-HAPs	27	90
Cost to treat one NV-HAP <sup>3</sup>	\$39,897	
Est. annual cost to treat Commercial NV-HAPs	\$1,077,219	
Est annual cost to treat All-Payor NV-HAPs	\$3,590,730	

### Pneumonia & Sepsis

#### Healthcare utilization project database (APIC) – 2017<sup>4</sup>

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# Oral care supplies



# Oral care protocol

Policy & Procedure					
<b>Title:</b>	Oral Care	<b>Date of Origin:</b>	Integrated	<b>Policy #:</b>	NP S23 Nursing Practice
		<b>Last Reviewed:</b>			
		<b>Last Revised:</b>		<b>Page:</b>	1 of 4
		<b>Effective:</b>	5/2018		
<b>Affiliate</b>	<input checked="" type="checkbox"/> RGH <input checked="" type="checkbox"/> NWCH <input checked="" type="checkbox"/> Unity	<input checked="" type="checkbox"/> Clifton <input checked="" type="checkbox"/> UMMC			
For purposes of this policy, "Rochester Regional Health" shall collectively refer to the affiliates identified in the header of the policy.					
<b>Policy Statement:</b>	<ul style="list-style-type: none"> <li>To guide the RN, LPN, and Technician in providing individual and timely patient oral care.</li> <li>Support initial and ongoing oral assessments with appropriate interventions.</li> <li>Prevent complications associated with colonization of the oral cavity with nosocomial bacteria and reduce aspiration of oral bacteria into the lungs.</li> </ul>				
<b>Procedure:</b>	<p><b>I. Assessment</b></p> <ol style="list-style-type: none"> <li><b>Examine</b> oral cavity (teeth, gums, tongue and palate), lips and condition of dentures/partial plate, if present.             <ol style="list-style-type: none"> <li>Unity ICU: Complete Oral Assessment score.</li> </ol> </li> <li><b>Identify</b> patient's ability to perform self-oral care.</li> <li><b>Collaborate</b> with Occupational Therapy as appropriate for evaluation of any potential adaptive equipment necessary for individual to assume independence with oral care.</li> <li><b>Identify</b> if patient at <b>high risk</b> and requiring attentive oral care:             <ol style="list-style-type: none"> <li>Admitted with oral problems</li> <li>Artificial airways (oropharyngeal airway, endotracheal tube, tracheostomy tube) and those with tubes recently removed</li> <li>Compromised gag reflex</li> <li>Immunocompromised</li> <li>Nothing by Mouth status</li> <li>Unable to perform own oral care</li> <li>Unresponsive</li> </ol> </li> <li><b>Oral care frequency</b> is based on assessment of high or low risk.             <ol style="list-style-type: none"> <li><b>High Risk:</b> Brush teeth routinely every 12 hours and as needed. Initiate mouth care every 2 – 4 hours.</li> <li><b>Low Risk:</b> brush teeth routinely every 12 hours and as needed. Swab mouth routinely every 4 – 8 hours.</li> </ol> </li> </ol> <p><b>II. Oral Care</b></p> <ol style="list-style-type: none"> <li>Care Provided for Patient with Own Teeth             <ol style="list-style-type: none"> <li>If determined that patient able to perform oral care independently, ensure appropriate supplies available.</li> <li>Position patient upright as tolerated or in side lying position, if unable to sit upright.</li> <li>Brush teeth and rinse.</li> <li>Allow patient to spit into emesis basin or use an oral suction to remove water and debris.</li> </ol> </li> </ol>				

# Oral care protocol<sup>1</sup>

- At minimum, completed 2x per day (1)
- Toothbrush / paste
- Debridement of dentition and oral mucosa for 2 minutes
- Soak Dentures
- Suction Toothbrush kit
- Oral Moisturizer

# Education, education, education



WHO TO EDUCATE?



HOW TO EDUCATE?



WHAT TO EDUCATE ON?

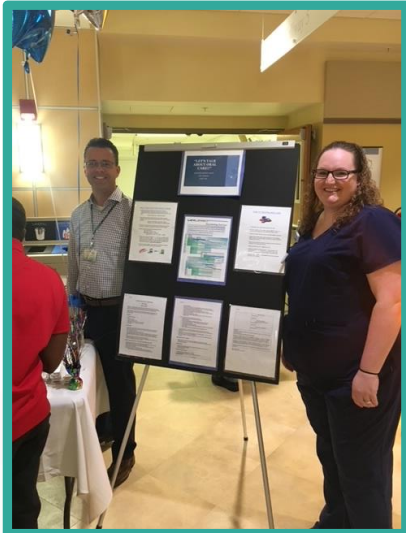
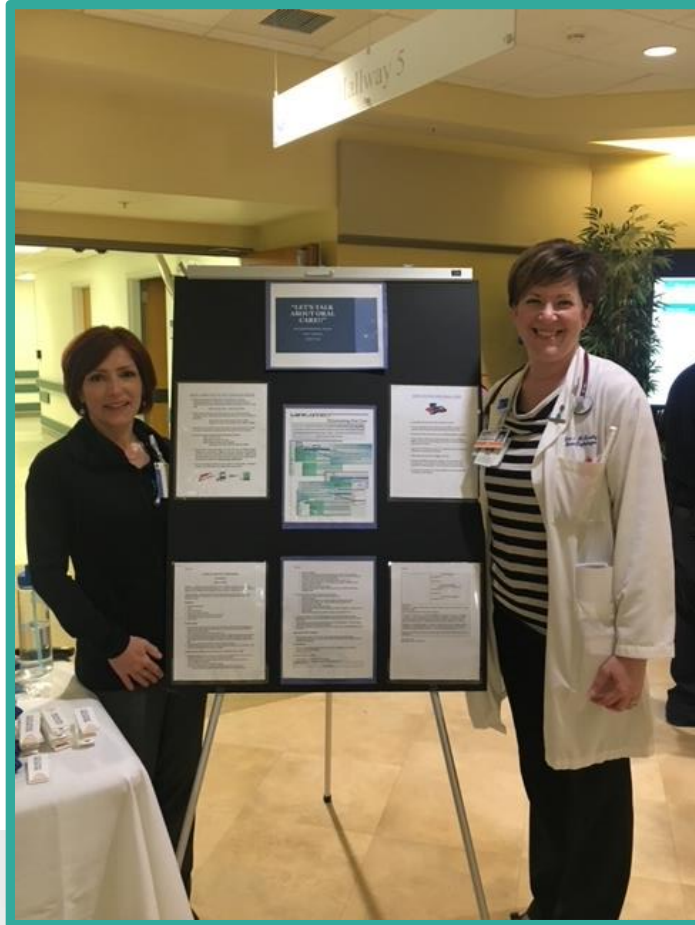


# Who to educate?

- Patient Care Techs (PCTs)
- Nurses
- Physician Assistants / Advanced Practice Providers (APPs)
- Physicians
- OTs
- PTs
- Patients
- Family members / Caregivers

# Education to medical staff, nursing, patients & caregivers

- Monthly new Nursing orientation
- PCT orientation
- Annual Nursing competency fair
- Town Hall rounding
- "Run the Code" for ICU and ICU Step-Down unit
- In-the-Moment Teaching
- SLP Note documentation
- Medical Resident Noon conferences
- Frequently Asked Questions sheets (FAQs)
- Bedside oral care poster



# Sample hospital education “Run the code”

## ORAL CARE FACTS YOU SHOULD KNOW

- ❖ Aspiration pneumonia develops after the inhalation of colonized oropharyngeal material. Aspiration of colonized secretions from the oropharynx is the primary mechanism by which bacteria gain entrance to the lungs.
- ❖ Elderly patients and Non-ventilated patients with conditions including dysphagia, stroke, COPD and cancer and many more are at risk for aspiration pneumonia.
- ❖ Aspiration of oral bacteria, dried collections of secretions and/or po intake can result in respiratory compromise and the need for acute intubation.
- ❖ Hospital Acquired Pneumonia (HAP) consequences include:
  - 18.8% mortality rate
  - Mean length of stay: 15.2 days
  - Mean hospital charges: up to \$65,292
- ❖ Patient Care Techs and Nurses are the first line of defense against aspiration of oral bacteria. **YOU** are the most important and responsible provider to protect our patients from aspiration pneumonia. **YOU** can help decrease health care costs associated with pneumonia, decrease length of stay and most importantly, improve patient satisfaction!
- ❖ Oral Care supplies available at Unity Hospital: Toothbrushes, toothpaste, denture cups, Efferdent, Oral Moisturizer, Sage suction toothbrush kits.



## HOW TO PROVIDE ORAL CARE



- You do **NOT** need an order/task to perform oral care.
- Per Unity Hospital Oral Care policy, oral care **MUST** be done, at a minimum, with morning care and at bedtime (2 times per day).
- Patients who cannot perform oral care themselves **MUST** be assisted.
- Patients who are NPO and/or cannot easily spit out the toothpaste **MUST** receive oral care with Sage oral care kit or suction toothbrush and swab every 4 hours.
- Using a pink swab and water is **NOT** mouth care.
- Denture care **MUST** be provided, denture cup and cleanser to be provided/used.
- Patients who are comfort care **MUST** have oral care provided as a quality of life measure.

# Frequently asked questions (FAQs) & bedside oral care poster

Oral Care

Oral Care Frequently Asked Questions

**Why do I need to do oral/mouth care?**  
 Research has shown that poor oral health may increase the risk of respiratory illness, such as pneumonia, in individuals who are already ill. Oral care may decrease bacteria in the mouth and throat that will thereby reduce risk for infection.

**How frequently should I be doing mouth care?**  
 According to the American Dental Association (ADA), everyone should brush their teeth at least twice a day for 2 minutes at a time. For those people who are admitted to the hospital and/or are considered immunocompromised, it may be recommended that mouth care be done more frequently.

**What products should I use?**  
 The basic products needed for adequate mouth care include: a toothbrush, toothpaste, dental floss or floss picks, and an oral rinsing agent (i.e., mouthwash). An electric toothbrush may be recommended if there are signs of gum decay, an increase in dental sensitivity or a loss of sensation to the tongue, cheek or lips (to increase sensation to those areas).

**What is the best and most complete way to do mouth care?**  
 It is recommended that everyone should brush not only their teeth / dentures, but also their tongue blade, hard palate and cheeks to remove excess debris and a build up of oral bacteria. As previously stated, the ADA recommends a minimum of brushing twice a day, for at least 2 minutes at a time.

**What if I have dentures? How do I do mouth care? I soak my dentures overnight... isn't that enough?**  
 For those who wear dentures, whether they are full or partial dentures, it is recommended that you soak your dentures on a daily basis. After the dentures are done soaking, gently brush them as you would your natural dentition with a soft toothbrush to remove excess debris and rinse with water. In addition, it is important to brush your gums, tongue and hard palate to remove any excess debris from those surfaces and prevent a build-up of oral bacteria.

**What's the difference between an alcohol rinse and an alcohol free rinse?**  
 Mouthwash normally gives a burning sensation in the mouth due to the amount of alcohol in the liquid. Mouthwash is kept in the mouth for at least 60 seconds after your done brushing your teeth with toothpaste. This will kill any remaining germs. Mouth rinse helps control bad breath in addition to helping to prevent a buildup of plaque on the teeth. Mouth rinse is normally swished in the mouth for at least 60 seconds prior to brushing and flossing. The primary difference between mouthwash and mouth rinse is that one is used before brushing and the other is used after brushing as indicated on the instructions printed on the back of each product. (visit [www.chow.com/difference](http://www.chow.com/difference) for information on mouthwash and mouth rinse)

OVER FOR MORE

ORAL CARE GUIDELINES

Independent oral care with toothbrush and toothpaste

Assisted oral care with toothbrush and toothpaste

Sage Oral Care of 4 hours

Sage Oral Care of 8 hours

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Sage Oral Care PRN

Oral Suctioning PRN

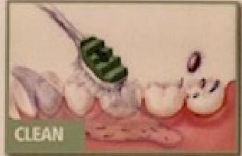
Remove and soak dentures in Efferdent each day. Brush, rinse and replace.

**Pros of good oral care**  
 Comprehensive oral hygiene helps address aspiration of subglottic secretions through routine suctioning to minimize oral secretions which can migrate to the subglottic area and cause aspiration pneumonia.<sup>1</sup>

**Who's at risk?**  
 "Any condition that increases the volume of bacterial burden of oropharyngeal secretions in a person with impaired defense mechanisms may lead to aspiration pneumonia."<sup>1</sup>

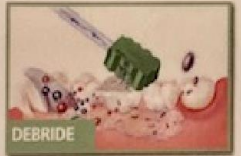
**Additional risk factors<sup>3,4</sup>**

- Dependency for feeding
- COPD
- Renal Disease
- Malignancy Neurologic Dysphagia
- Dependency for oral care
- Dementia
- Liver Disease
- Suppressed Immune System
- Number of missing teeth
- Stroke
- Enteral Feeding
- Emergency Room Admission



**CLEAN**

Brushing and suctioning with an antiseptic agent kills<sup>1</sup> and mechanically removes bacterial biofilms (dental plaque) from teeth and oral tissues.



**DEBRIDE**

Suctioning and suctioning with Perio-A-Mini<sup>®</sup> solution helps remove dead, loosened biofilms.<sup>4</sup>

# Nursing Documentation of Oral Cavity

- Secretion Management
  - Are secretions thick? Coating their oral cavity?
  - Does the tongue blade appear dry and cracked? Deep fissures?
  - Dried secretions coating the Pt's teeth/
  - Dry, cracked lips?
  - Residual food or meds along the tongue, gums, buccal cavities, under the dentures?
  - Foul breath odor?
  - Can the patient only cough up their phlegm, secretions to their mouth (oral cavity) and then the patient re-swallows (and potentially aspirates) their saliva?
  
- Reportable conditions: Loose teeth, excess plaque build up, loose fitting dentures/plates, oral sores, white tongue, inflammation, c/o mouth pain.

# Nursing oral cavity assessment

Date:			
Assessment of Oral Health Risk for Aspiration Pneumonia			
Name:			
Gender:	<input type="checkbox"/> Male <input type="checkbox"/> Female	Date of Birth:	
Past History of Aspiration Pneumonia	<input type="checkbox"/> No <input type="checkbox"/> Yes If yes, state when: _____		
1. Most Recent Dental Visit:	<input type="checkbox"/> Less than 6 months	<input type="checkbox"/> More than 6 months	<input type="checkbox"/> Don't know
2. Contact information of patient's dentist:	<input type="checkbox"/> Patient is currently not under the care of a dentist		
	Name: Address: Telephone:		
3. Does the patient have natural dentition?	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> Upper <input type="checkbox"/> Lower	
4. Does the patient have potential risk factors for aspiration pneumonia?	<input type="checkbox"/> Tooth Decay <input type="checkbox"/> Plaque / Calculus <input type="checkbox"/> Tooth Mobility <input type="checkbox"/> Gingival Recession <input type="checkbox"/> Retained Roots <input type="checkbox"/> Dental Implant <input type="checkbox"/> Intraoral Swelling / drainage <input type="checkbox"/> Coated/Hairy Tongue <input type="checkbox"/> Inflamed Oral Mucosa <input type="checkbox"/> Other _____		
5. Does the patient have dentures?	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> Upper <input type="checkbox"/> Lower	<input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> Implant Retained <input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> Implant Retained
6. Are the dentures in good condition?	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> Not applicable	
7. Do the dentures fit well?	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> Not applicable	
8. Can the patient remove denture to clean around the implants? (if applicable)	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> Not applicable	
9. Is the patient able to perform oral hygiene procedures?	<input type="checkbox"/> Yes <input type="checkbox"/> No If no, specify why? _____		
10. Based on answers to Questions 1-9, does the patient require an immediate dental appointment?	<input type="checkbox"/> No <input type="checkbox"/> Yes If yes, specify reasons for dental appointment _____		

# Training on oral care completion & documentation



## CareConnect

### Documenting Oral Care

Oral care is performed by patients or for patients multiple times per day, especially if the patient is NPO and cannot perform their own oral care—this requires oral care and documentation of oral care every 4 hours. Listed below are the steps to document oral care in Care Connect.

To begin documenting, click on the **Flowsheets** activity tab, which will open the patient assessment documentation.

Then click on the **"Daily Cares/Safety"** tab. If oral care has not been previously documented, choose the **"Add Rows"** icon at the top of the page.

After the **"Add Rows"** icon is selected a pop-up search window opens. Type **"Oral Care"** in the search field and you can select oral care from the list that appears.

Now you can document in the Oral Care section based on the type of oral care that was performed.



Flowsheets

ED from 1/10/2023 in UH Emerg  
1/12/2023

0034 0324

		1m	5m	10m
<b>Mobility</b>				
Repositioning Device				
Head of Bed Elevated				
Heels/Feet				
Range of Motion				
Transport Method				
Anti-Embolism Devices				
Anti-Embolism Intervention				
<b>Continuous Passive Motion</b>				
CPM				
<b>Nutrition</b>				
Feeding				
Appetite				
Fluid Restrictions				
<b>Hygiene</b>				
Hygiene				
<b>Oral Care</b>				
Skin Care	Teeth brushed			
Level of Assistance	Denture care			
<b>Suction</b>				
Suctioning-General (Daily)	Lip moisturizer applied			
	Mouth swabbed			
<b>Miscellaneous Devices</b>				
Miscellaneous Devices	Mouth moisturizer			
	Mouth suctioned			
<b>Temperature</b>				
Cooling/Warming Device	SAGE oral care			
Device Mode	Suction toothette			
Device Set Point	Other (Comment)			
Device/Water Temperature				

- Precautions
- Universal Fall Prec...
- OTHER
- Safe Environment
- Restraint Alternatives
- Family/Significant...
- Mobility
- Continuous Passive...
- Nutrition
- Hygiene
- Suction
- Miscellaneous Devi...
- Temperature
- Telemetry Details

# Performance, monitoring & feedback



WEEKLY AUDITS



QUARTERLY AUDITS



IN-THE-MOMENT  
TEACHING

# Our outcomes

88% of patient rooms had oral care supplies present and stocked.

58% of patients required enhanced oral care completed with Sage/Stryker products.

55% of those patients had oral care completed.

22.4% of oral care was documented in EPIC/Care Connect EMR.

# Quality improvement initiatives

A6		Current Condition- Define/Measure:			
	A	B	C	D	E
4	<p><b>Problem Background- Define:</b> Patients are not receiving oral care on a regular or consistent basis and as a result the risk of hospital acquired pneumonia (HAP) increases. This problem existed pre-covid and excellerated through covid. The current SLP team is new to UH and RRH. There is an existing oral care policy which sets the current standard but this is not consistently followed. Unity Hospital is the primary focus for this project with possibility to include other RRH sites.</p>		<p><b>New Action Items- Improve:</b> Reduce incidence of hospital acquired pneumonia and subsequent increased length of stay and associated risks (sepsis, death) by improving quality and consistency of oral care. <b>**Improve the frequency, consistency and quality of oral care on the medical surgical units at Unity Hospital.</b></p> <p>Audits: Focus on presence of oral products, Interview/Inspect patients for completion of oral care, Audit flow sheet tracking/documentation                      Oral care committee meeting combined with Falls and Infection Prevention                      Recommend additional oral product- SAGE oral antiseptic wash</p>		
5					
6	<p><b>Current Condition- Define/Measure:</b>                      In 2021 at Unity Hospital, there were 305 non-ventillator dependent patients with incidents of HAP and 89 deaths. The LOS for typical inpatient was 4.6 days (national average), but for patient with HAP average LOS was 37.3 days. (Unit by Unit breakdown is not available). ICU and 2400/2500 already seem to have a process in place, however other acute units do not. (Complete process map for 24/2500- LUCID program)</p> <p>— — — —</p>		<p><b>Implementation- Improve:</b></p>		
7					
8					
9					
10	<p><b>Problem Statement - Define:</b>  <b>SMART Goal:</b> Reduce incidence of HAP at Unity Hospital related to the lack of oral care by 10% by November 2023 through: a.) implementation of oral care program including education of all staff ; b.) collaboration with unit leadership; c.) unit and chart audits                      Short Term Goals: Focus on High risk Units, 2300, 4100, 4200. 1)Patients will receive oral care daily based on unit audits. 2)Patients will have oral care supplies readily accessible in rooms,</p>		<p><b>Results- Improve/Control:</b></p>		
11					
12			<p><b>Standardization- Control:</b> (will use this section to add any policy updates)</p>		
13					

# Surgical program oral care initiative

- Limited literature regarding the impact of oral care on the prevention of SSIs or HAP.
- Quinn & Baker – HAPPI initiative expanded
- Surgical program – add oral care to pre op checklist and done post operatively
- Results: 75% reduction in post op pneumonia, 600 less hospital days, \$3.4 million saved.

# Example hospital surgical oral hygiene program

## Pre-anesthesia

- Chlorhexidine gluconate (CHG) 0.12%  
15mL swish and spit (cost 0.18 cents per dose)

## Post- operative inpatient

- Toothbrushing and CHG twice a day for 5 days
- Toothbrushes and paste were already given to the patient upon admission

## Post-operative outpatient

- Toothbrushing twice a day for 5 days

# Future direction & focus

- Increase the awareness and recognition of oral care as an important and relatively simple intervention to mitigate incidence rate of NV-HAP.
- Garner administration's buy-in to ensure completion of oral care.
- Examine the quality of oral care completion by nursing staff.
- Improve and increase documentation of oral care by medical staff ("If it's not documented, it wasn't done").
- Gather data on the outcomes of the surgical oral care program.

# References

- [www.americandentalassociation.com](http://www.americandentalassociation.com)
- Aronovitch, S.A. (1997). Oral care and it's role in WOC nursing. *JWOCN*. 24(2): 79-85.
- Ashford, J.R. (2005). Pneumonia: Factors beyond aspiration. *Perspectives in Swallowing and Swallowing Disorders. Dysphagia*. 14, 10-16.
- Baker, D.L., Davis, J, & Quinn, B. (2019). Association for Professionals in Infection Control & Epidemiology Practice Position Statement on Non-Ventilator Healthcare-Associated Pneumonia (NV-HAP).
- Baker, D. and Quinn, B. (2016 Apr.). Interprofessional Partnerships to Prevent Non-ventilator Hospital-acquired Pneumonia. Poster presented at AORN Conference.
- Baker, D.L. & Giuliano, K.K. (2021). Prevention practices for nonventilator hospital acquired pneumonia: A survey of the Society for Healthcare Epidemiology of America (SHEA) Research Network (SRN). *Infection Control and Epidemiology*. 43(3): 379-380. <https://doi.org/10.1017/ice.2021.427>
- Feider, L.L., Mitchell, P., & Bridges, E. (2010). Oral care practices for orally intubated critically ill adults. *American Journal of Critical Care Nurses*. 19(2): 175-183).
- Fiske J, Griffiths J, Jamieson R, et al. (2000). Guidelines for oral health care for long-stay patients and residents. *Gerodontology*. 17:55–64.
- Garcia, R., Barnes, S., Boukidjian, R., Kaye Goss, L., Spencer, M., Septimus, E.J., Wright, M., Munro, S., Reese, S.M., Fakhri, M.G., Edmiston, C.E., & Levesque, M. (2022). Recommendations for change in infection prevention programs and practice. *American Journal of Infection Control*. 50:1281-1295.  
<https://doi.org/10.1016/j.ajic.2022.04.007>



# References

- Giuliano, K.K., Baker, D., Thakkar-Samtani, M., Glick, M., Restrepo, M.I., Scannapieco, F.A., Heaton, L.J., & Frantsve-Hawley, J. (2022). Incidence, mortality, and cost trends in non-ventilator hospital-acquired pneumonia in Medicaid beneficiaries. *American Journal of Infection Control*. <https://doi.org/10.1016/j.ajic.2022.06.016>
- Kaneoka, A., Pisegna, J.M., Miloro, K.V., Lo M, S.H., Riquelme, L.F., LaValley, M.P., & Langmore, S.E. (2015) Prevention of healthcare-associated pneumonia with oral care in individuals without mechanical ventilation: A systematic review and meta-analysis of randomized control trial. *Infect Control Hosp Epidemiol*. 36(8):899-906.
- Klompas, M., Branson, R., Cawcutt, K., Crist, M., Eichenwald, E.C., Greene, L.R., Lee, G., Maragakis, L.L., Powell, K., Priebe, G.P., Speck, K., Yokoe, D.S., & Berenholtz, S.M. (2022). Strategies to prevent ventilator-associated pneumonia, ventilator-associated events, and non-ventilator hospital-acquired pneumonia in acute-care hospitals: 2022 Update. *Infection Control & Hospital Epidemiology*. 43: 687-713. [doi:10.1017/ice.2022.88](https://doi.org/10.1017/ice.2022.88)
- Langmore, S.E, Terpenning, M.S, Schork, A., Chen, Y, Murray, J.T, Lopatin, D, & Loesche, W.J. (1998). Predictors of aspiration pneumonia: How important is dysphagia? *Dysphagia*. 13 (2): 69-81. [https://doi:10.1007/PL00009559](https://doi.org/10.1007/PL00009559).
- Munro, S.C., Baker, D., Giuliano, K.K., Sullivan, S.C., Haber, J., Jones, B.E., Crist, M.B., Nelson, R.E., Carey, E., Lounsbury, O., Lucatorto, M., Miller, R., Pauley, B. & Klompas, M. (2021). Nonventilator hospital-acquired pneumonia: A call to action. Recommendations from the National Organization to Prevent Hospital-Acquired Pneumonia (NOHAP) among nonventilated patients. *Infection Control & Hospital Epidemiology*. 42: 991-996. [https://Doi:10.1017/ice.2021.239](https://doi.org/10.1017/ice.2021.239)
- Munro, S., Haile-Mariam, A., Greenwell, C., Demirci, S., Farooqi, O., & Vasudeva, S. (2018). Implementation and dissemination of a Department of Veterans Affairs oral care initiative to decreasing hospital acquired pneumonia in adult patients: Prevent Hospital-Acquired Pneumonia Among Nonventilated Patients. *Nursing Administration Quarterly*, 42(4), 363–372. [https://journals.lww.com/naqjournal/Abstract/2018/10000/Implementation\\_and\\_Dissemination\\_of\\_a\\_Department.14.aspx](https://journals.lww.com/naqjournal/Abstract/2018/10000/Implementation_and_Dissemination_of_a_Department.14.aspx)

# References

- Pritts, K., Calderon, S., Kerber, C., & Bigler, P. (2020). Implementation of a standardized oral care protocol to decrease non-ventilator hospital-acquired pneumonia. *Med-Surg Nursing*. 29(6): 387-390
- Quinn, B., Baker D.L., Cohen S, Stewart J.L., Lima C.A., & Parise C. (2014). Basic nursing care to prevent non-ventilator hospital-acquired pneumonia. *Journal of Nursing Scholarship*. 46 (1): 11–19.1
- Quinn, B., Giuliano, K.K., Baker, D., (2020). Non-ventilator health care-associated pneumonia (NV-HAP): Best practices for prevention of NV-HAP. *American Journal of Infection Control*. 48: A23-27. <https://doi.org/10.1016/j.ajic.2020.03.06>
- Sarin, J., Balasubramaniam, R., Corcoran, AM., Laudenbach, JM., & Stoopler, ET. (2008). Reducing the risk of aspiration pneumonia among elderly patients in long-term care facilities through oral health interventions. *Journal of American Medical Directors Association*. 9:128-135.
- Sheffler, K. (2018). The Power of a Toothbrush. *The ASHA Leader*. 23(5).
- Stevenson, L., Munro, S., Klocko, R., & Sayre, G. (2022). A mixed-methods evaluation of the national implementation of the Hospital-Acquired Pneumonia Prevention by Engaging Nurses (HAPPEN) initiative. *Infection Control & Hospital Epidemiology*, 1-8. [doi:10.1017/ice.2022.99](https://doi.org/10.1017/ice.2022.99)
- Talley, L., Lamb, J., Harl, J., Lorenz, H., Green, Lindsey, M. (2016). HAP prevention for nonventilated adults in acute care. *Nursing Management*. 47(12):42-48. [doi: 10.1097/01.NUMA.0000508259.34475.4c](https://doi.org/10.1097/01.NUMA.0000508259.34475.4c)

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