

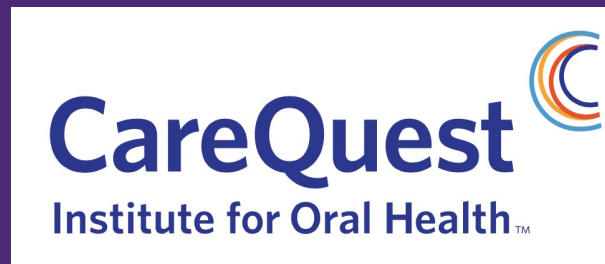
Oral Care in Non-Ventilator Associated Hospital-Acquired Pneumonia (NVHAP)

Judith Haber, PhD, APRN, FAAN

The Ursula Springer Leadership Professor in Nursing
Executive Director, Oral Health Nursing Education and Practice (OHNEP)
NYU Rory Meyers College of Nursing

Jessamin Cipollina, MA

Program Manager, Oral Health Nursing Education and Practice (OHNEP)
NYU Rory Meyers College of Nursing



NYU

**RORY MEYERS
COLLEGE OF NURSING**

Oral Health Nursing Education and Practice (OHNEP)



OHNEP
Oral Health Nursing
Education and Practice

Home About Education Faculty Toolkit Resources Practice News Events Contact Us

Reducing Oral Health Disparities Across The Lifespan

News

- Interprofessional Education and Practice- Future of Nursing Summit 2017
- The Midwifery Profession: Frontline Providers of Oral Health Care for Women and Newborns- ACNM 2017 Presentation
- OHNEP Program Director, Erin Hartnett, DNP, APRN-BC, CPNP, received the Georgetown University Outstanding Alumna Award!
- OHNEP Executive Director, Judith Haber, PhD, APRN-BC, FAAN, named Health Equity Hero by DentaQuest!

OHNEP LEADS THE WAY

OHNEP is at the vanguard of helping nurse practitioners, nurse-midwives, nurses, and other health professionals incorporate oral health into patient care.

Why? Oral health and general health are interconnected. Research evidence links poor oral health like periodontal disease with diabetes, cancer, heart and lung diseases, and progression of dementia and Alzheimer's, among others. Yet, few health professionals integrate oral health in their clinical practice.

OHNEP is changing that.

As a national voice promoting interprofessional oral health integration, OHNEP advocates, educates, creates and promotes resources that educators and clinicians can use to improve the quality of oral health care in their patients. The OHNEP website serves as a knowledge center and portal for best practices.



www.ohnep.org

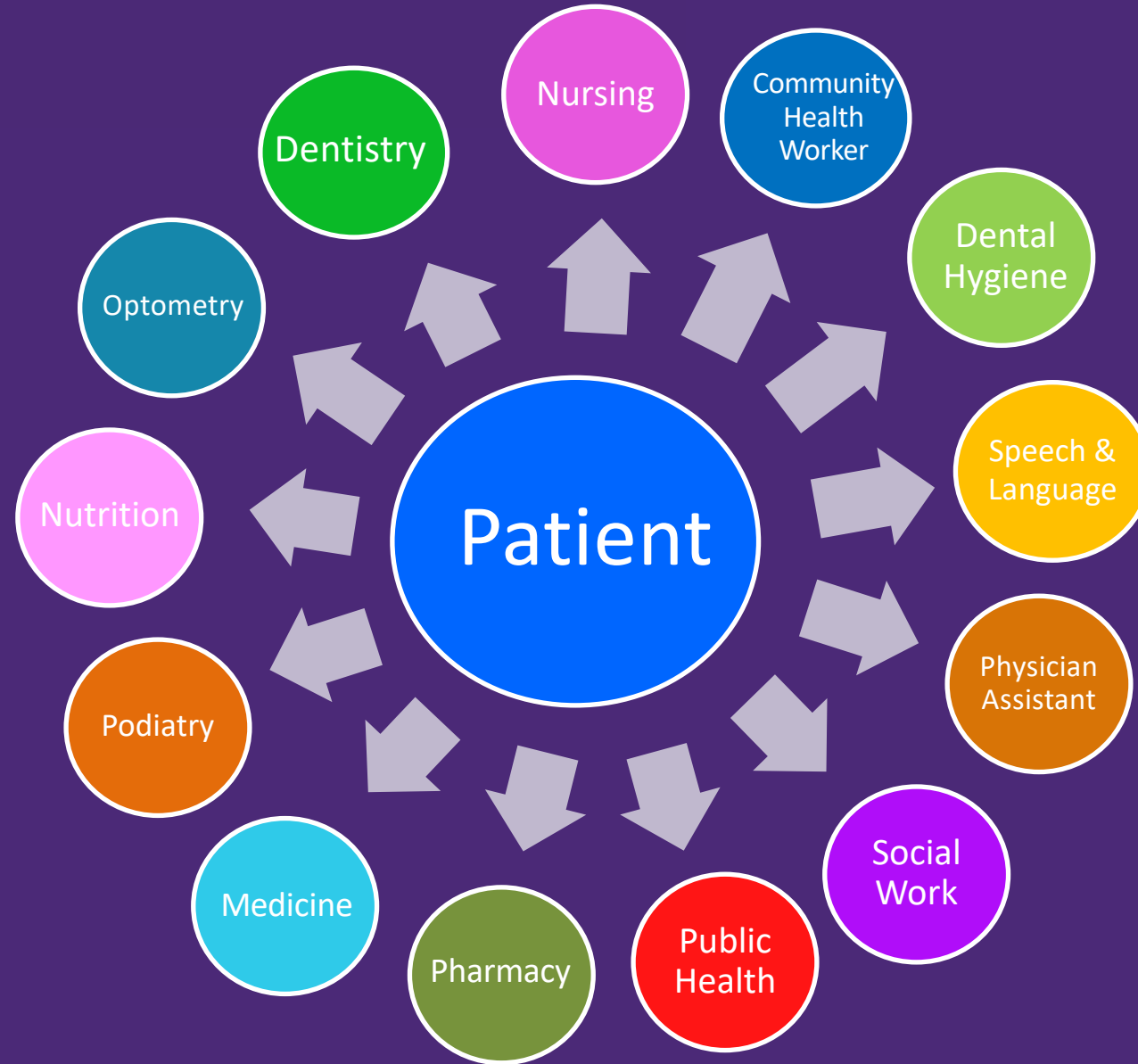
Prevention and Management of NVHAP Calls for an *Interprofessional* Team



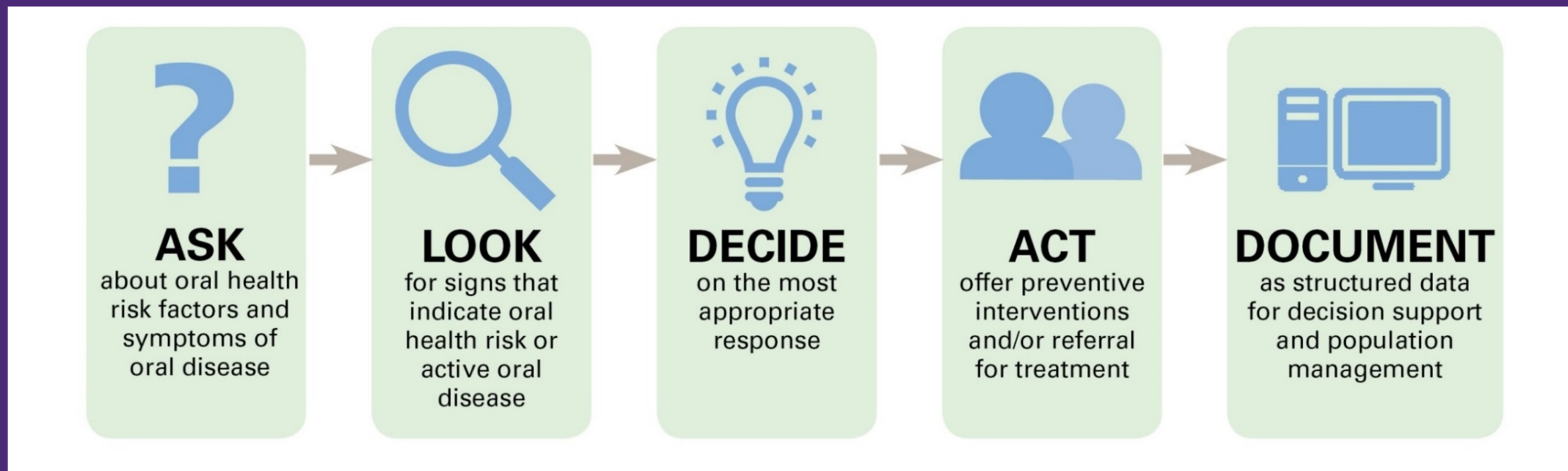
- 4.2 million RNs
- 325,000 NPs
- 12,000 MWs
- 1 million MD/DO
- 139,000 PAs
- 200,000 DDS/DMD
- 195,000 dental hygienists
- 150 dental therapists



Whole Person Care



Oral Health Delivery Framework (2015)



Available at: www.QualisHealth.org/white-paper

HEENT to HEENOT – Putting the Mouth Back in the Head



COMMENTARIES

attendance at health-care appointments. *Diabetes Diabetes Care* 2012;35:1307-1310.

80. Liang X, Wang Q, Yang X, et al. Effect of mobile phone intervention for diabetes on glycosylated hemoglobin levels: a meta-analysis. *Diabet Med* 2011;28(4):455-462.

81. Fren C, Knight R, Robinson S, et al. Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial. *Lancet* 2011;377(9775):144-50.

82. Potho JI, Mendonca-Venkatesh SK, Wilson EC, Lange J, Fagella R. Access to mobile communication technology and willingness to participate in automated telephone calls among the elderly. *J Am Geriatr Soc* 2011;59(10):1843-1847.

83. Potho JI, Mendonca-Venkatesh SK, Ganes M, Mohamed M, Mariani N, Kulkarni S. A preliminary study of

Putting the Mouth Back in the Head: HEENT to HEENOT

Improving oral health is a leading population health goal; however, curricula preparing health professionals have a dearth of oral health content and clinical experiences. We detail an educational and clinical innovation transitioning the traditional head, ears, nose, and throat (HEENT) examination to the addition of the teeth, gums, mucosa, tongue, and palate examination (HEENOT) for assessment, diagnosis, and treatment of oral-systemic health. Many New York University nursing, dental, and medical faculty and students have been exposed to interprofessional oral health HEENOT classrooms, simulation, and clinical experiences. This was associated with increased dental-primary care referrals.

This innovation has potential to build interprofessional oral health workforce capacity that addresses a significant public health issue, increases oral health care access, and improves oral-systemic health across the lifespan. (*Am J Public Health*. 2015;105:K32-K31. doi:10.2196/AJPH.2014.300492)

Judith Haber, PhD, APRN, BC, Erin Harvett, DNP, CFNP, BC, Kenneth Allen, DDS, MBA, Doreen Hallak, PhD, CFNP, BC, Caroline Dorsner, MSN, FNP, BC, Julia Lange-Kessler, DNP, CM, RN, Macielene Lloyd, MS, FNP, BC, PMHNP, BC, Edelidge Thomas, DNP, ANP, BC, and Dorothy Wohlman, DNP, ANP, BC, PCNP, BC

DURING THE DECADE FOLLOWING publication of the Surgeon General's Report, *Oral Health in America*, health professionals, physicians (MDs), nurse practitioners (NPs), nurse-midwives (NMs), and physician assistants (PAs) began to align with the dental profession to heed Satcher's call to "view the mouth as a window to the body."¹ The most significant interprofessional movement that followed this report occurred with family practice and pediatric physicians coming together to work on preventive oral health initiatives for children in which those professionals would provide screenings, fluoride varnish, and referrals for children to find dental homes.

Mobilization of the overall health community to work collaboratively has been slower. Development of "Bridges for Life: A National Oral Health Curriculum"² represented an important interprofessional "tipping point" for engaging health professionals focused on treating populations across the lifespan in considering oral health and its relationship to overall health as an integral component of their practice.

Yet, evidence from national databases monitoring oral health data continue to reveal a high

incidence and prevalence of dental caries, especially in lower socioeconomic and minority group populations.^{3,4} Data from the 2009–2012 National Health and Nutrition Examination Survey⁵ reveal that approximately one in four children (1.9%) aged 3 to 5 years living at the poverty level have untreated dental caries. The survey data further reveal that 19% of non-Hispanic Black children aged 3 to 5 years and 20% of Hispanic children aged 6 to 9 years had untreated dental caries compared with non-Hispanic White children aged 3 to 5 years (1.1%) and 6 to 9 years (1.4%).⁶ Although national statistics show an improvement in access to oral health care for children aged 5 years and older, the data reveal significant disparities in access to care for children aged 2 to 4 years.⁷

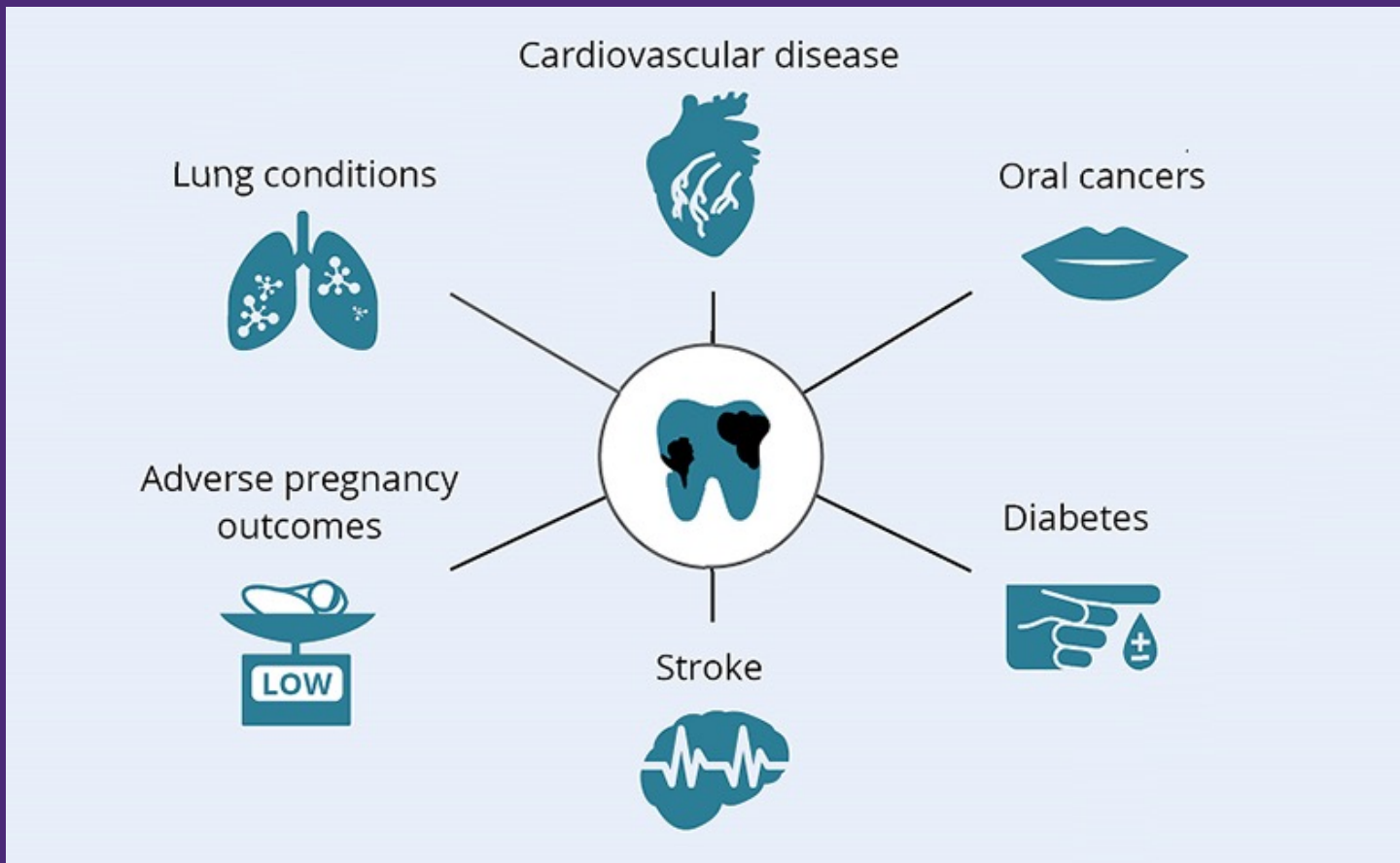
In the adult population, oral cancer morbidity and mortality rates have not declined over the past 10 years, at least in part related to absent or inadequate oral examinations,⁸ and human papillomavirus is associated with the recent rise in the incidence of oropharyngeal cancer.⁹ Among adults aged 65 years and older, only 30% have a dental benefit.¹⁰ Primary care providers have been

challenged by the Institute of Medicine to play a significant role in improving those oral health disparities by building interprofessional oral health workforce capacity.¹¹

One important component of the problem is that the majority of curricula for preparing health professionals have a dearth of oral health content and clinical experiences. Approximately 70% of medical schools include 4 hours or less on oral health in their curricula; 10% have no oral health content at all.¹² Similarly, NPs and NMs have also not had a defined oral health curricular knowledge base nor a set of oral health clinical competencies.^{13,14} The PA programs have generally followed medical school curricula and have not required dental or health content or competencies.¹⁵

The recent publication of several important national reports, two oral health reports by the Institute of Medicine,^{16,17} the listing of oral health as one of the Healthy People 2020 Leading Health Indicators,¹⁸ the release of the Health Resources and Services Administration document "Integration of Oral Health and Primary Care Practice,"¹⁹ and the dissemination of "Oral Health Care During Pregnancy: A

Oral Health & Overall Health: The Oral-Systemic Connection



Non-ventilator Hospital-acquired Pneumonia



- 1st most common HAI in U.S.
- Affects 1 in every 100 hospitalized patients
- Increased morbidity → 50% are not discharged back home
- Increased mortality → 15%-30%
- Extended LOS → 4-9 days
- Increased Cost → \$28K to \$109K
- 2x likely for readmission <30 day



Non-ventilator Hospital-acquired Pneumonia



- Hospital-acquired pneumonia is **an infection of the lungs that occurs during hospital stays**. NVHAP is a subset of HAP defined as pneumonia identified ≥ 48 h (2 days) in patients without mechanical ventilation.
- Primary source of pneumonia is aspiration of bacteria present in the oral biofilm
 - Dental plaque becomes the reservoir for pathogens including antibiotic-resistant organisms in the hospital setting
 - Plaque buildup and bacterial overgrowth, along with micro-aspiration when patients are bedridden and lying supine, increases the risk for NVHAP
 - Reducing the bacterial burden in the mouth through consistent oral care is associated with a significant reduction in the incidence of NVHAP

How the Healthcare Team Can Make a Difference

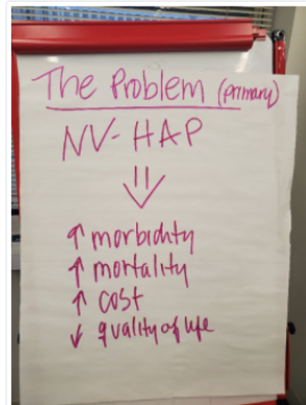
- Maintain regular oral care with consistent toothbrushing, flossing and denture cleaning.
- Elevate the head of the patient's bed.
- Minimize the use of acid-suppressing medications and sedation.
- Perform dysphagia screening in high-risk patients.
- Use modified diets and feeding strategies for patients with abnormal swallowing.
- Follow standardized processes to place and manage feeding tubes.
- Conduct breathing exercises, chest physiotherapy and incentive spirometry.
- Educate patients and families about NVHAP prevention.



National Organization for NV-HAP Prevention and Hospital-Acquired Pneumonia Prevention by Engaging Nurses (HAPPEN) Web Pages



National Organization for NV-HAP Prevention (NOHAP)



Saving lives by preventing Non-Ventilator Hospital-Acquired Pneumonia (NV-HAP)

Hospital-Acquired Pneumonia (HAP) is the #1 hospital-acquired infection in the U.S. and 60% of HAP cases occur among non-ventilated patients. Fortunately, we are discovering effective ways to prevent Non-Ventilator Hospital-Acquired Pneumonia (NV-HAP).

The National Organization for NV-HAP Prevention (NOHAP) is a network of healthcare leaders designing a national NV-HAP research agenda and developing policies to combat NV-HAP. The goal is to implement effective prevention strategies to improve patient safety, enhance quality of life, and save lives.

We are working to educate patients and health care providers on these prevention strategies, such as improving oral care for Veterans and the general public.

HAPPEN (Hospital-Acquired Pneumonia Prevention by Engaging Nurses)



Providing consistent oral care to hospitalized Veterans and long-term care residents cuts the risk of developing pneumonia in half.

The HAPPEN team is collaborating with VA leaders, the CDC, the Joint Commission, FDA, HRSA, insurers including Medicare and Medicaid, the Patient Safety Movement Foundation, academia, and private industry to develop a national research agenda, policy, and an implementation/marketing plan for the nation.

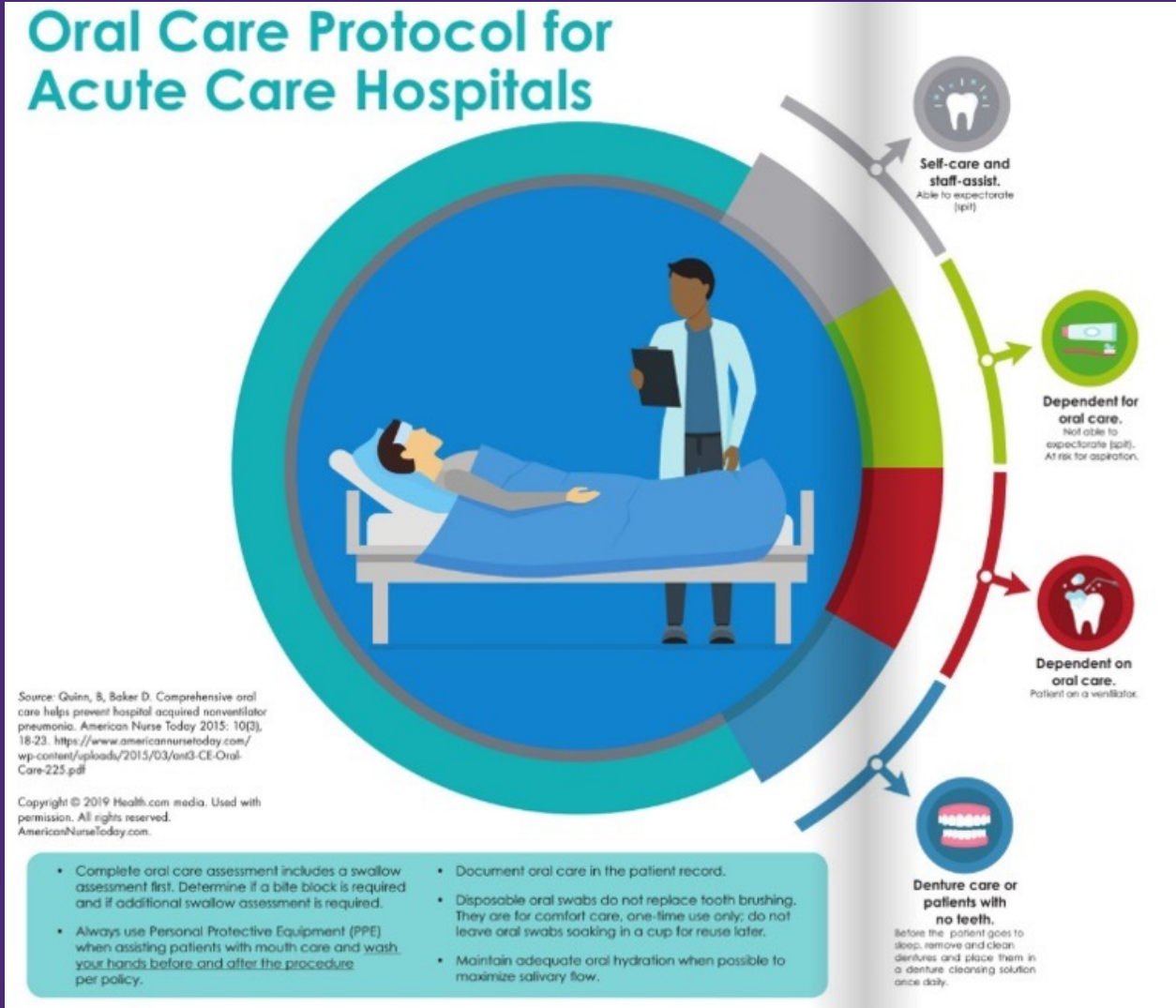
HAPPEN team members at each site include professionals in nursing, medicine, infection control, quality management, dental, speech and language pathology, and others.

VA hospitals that have implemented the program report a decrease in pneumonia rates of 40-60%. Implementation doesn't require a significant investment in either time or money.



More information available through the Veterans Health Administration (VHA) website <https://www.va.gov/health/>

Integrating Oral Health Care into Patient Management to Prevent Hospital-Acquired Pneumonia: A Team Approach



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 (2021), 1–6
doi:10.1017/ice.2021.239

Commentary

Nonventilator hospital-acquired pneumonia: A call to action

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

Shannon C. Munro PhD, APRN, NP-BC¹, Dian Baker PhD, APRN², Karen K. Giuliano PhD, MBA, RN³, Sheila C. Sullivan PhD, RN⁴, Judith Haber PhD, APRN, FAAN⁵, Barbara E. Jones MD, MSc^{6,7}, Matthew B. Crist MD, MPH⁸, Richard E. Nelson PhD^{9,10}, Evan Carey PhD¹¹, Olivia Lounsbury BSc¹², Michelle Lucatorto DNP, FNP-BC¹³, Ryan Miller MSN, RN¹³, Brian Pauley MSN, RN¹⁴ and Michael Klompas MD, MPH^{15,16}

¹Research and Development, Salem Veterans Affairs Medical Center, Salem, ²School of Nursing, California State University, Sacramento, California, ³College of Nursing & Institute for Applied Life Sciences, University of Massachusetts–Amherst, Amherst, Massachusetts, ⁴Research, Evidence Based Practice and Analytics, Office of Nursing Services, Department of Veterans Affairs, Washington, DC, ⁵Oral Health Nursing Education and Practice, Rory Meyers College of Nursing, New York University, New York, New York, ⁶Pulmonary & Critical Care Medicine, University of Utah, Salt Lake City, Utah, ⁷Salt Lake City Veterans Affairs Healthcare System, Salt Lake City, Utah, ⁸Division of Health Care Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, ⁹Division of Epidemiology, University of Utah School of Medicine, Salt Lake City, Utah, ¹⁰George E. Wahlen Department of Veterans Affairs Medical Center, Salt Lake City, Utah, ¹¹Research and Development, Rocky Mountain Regional Veterans Affairs Medical Center, Aurora, Colorado, ¹²Patient Safety Movement Foundation, Irvine, California, ¹³Office of Nursing Services, Department of Veterans Affairs, Washington, DC, ¹⁴Geriatrics & Extended Care, Veterans Affairs Pacific Islands Healthcare System, Honolulu, Hawaii, ¹⁵Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston and ¹⁶Department of Medicine, Brigham and Women's Hospital, Boston

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.

(Received 13 May 2021; accepted 14 May 2021)

Non-ventilator-associated hospital-acquired pneumonia (NVHAP) affects ~1 in every 100 hospitalized patients, has a crude mortality rate of 15%–30%, extends hospital length-of-stay by up to 15 days, requires ICU admission in up to 46% of non-ICU cases, increases antibiotic utilization, and is associated with readmission within 30 days in up to 20% of survivors.^{1–5}

Despite the considerable morbidity, mortality, and cost associated with NVHAP, there are currently no requirements nor standards for hospitals to track or prevent this complication. Healthcare organizations and policy makers have dedicated considerable resources to preventing other healthcare-associated infections over the past 20 years. These actions have resulted in striking decreases in many device-associated infections, including ventilator-associated pneumonia. NVHAP rates, however, remain persistently high.^{6,7} Stakeholders from government, healthcare, industry, and academia formed the National Organization to Prevent Hospital Acquired Pneumonia (NOHAP) in 2020 to highlight the clinical importance of NVHAP and to catalyze a coordinated movement

Author for correspondence: Michael Klompas, E-mail: mklompas@wh.harvard.edu
Cite this article: Munro SC, et al. (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*, <https://doi.org/10.1017/ice.2021.239>

© The Author(s), 2021. Published by Cambridge University Press on behalf of The Society for Healthcare Epidemiology of America

The Joint Commission: Preventing Non-ventilator Hospital-acquired Pneumonia



Quick Safety

Issue 61 | September 2021

Preventing non-ventilator hospital-acquired pneumonia

Issue:

It's estimated that one in every 100 hospitalized patients will be affected by non-ventilator hospital-acquired pneumonia (NVHAP). While NVHAP is a significant patient safety and quality of care concern, it is not currently recognized as one of the National Database of Nursing Quality indicators for which hospitals are held accountable; nor is it one of the conditions that the Centers for Medicare & Medicaid Services (CMS) requires hospitals to report to the Centers for Disease Control & Prevention (CDC) National Healthcare Safety Network; and it is not integrated into the CMS current pay-for-reporting or performance programs.¹ As a result, this leaves NVHAP a health care-acquired condition without national tracking or accountability, and, most likely, is unaddressed by health care organizations.

A recent article in the journal *Infection Control & Hospital Epidemiology* (ICHE) detailed a call to action from national organizations, including The Joint Commission, to address NVHAP. The call to action includes launching a national health care conversation about NVHAP prevention and encouraging researchers to develop new strategies for NVHAP surveillance and prevention. This issue of *Quick Safety* focuses on the call's challenge to health care systems to implement and support NVHAP prevention, and to add NVHAP prevention measures to education for patients, health care professionals and students.¹

Current NVHAP prevention strategies

Since the development of NVHAP requires a complex interaction of events that includes aspiration of microorganisms present in the oral cavity and a vulnerable host, most prevention measures target primary source control, and may include:^{1,2}

- Maintaining regular oral care^{1,2,3,4,5,6}
- Maintaining patient mobility^{1,3,5,6,7}
- Elevating the head of the patient's bed^{1,3,5,6}
- Reducing the use of acid-suppressing medications¹
- Minimizing sedation^{1,5}
- Performing dysphagia screening in high-risk patients¹
- Using modified diets and feeding strategies for patients with abnormal swallowing^{1,3,5}
- Following standardized processes to place and manage feeding tubes^{1,5}
- Breathing exercises^{1,3,6}
- Using chest physiotherapy¹
- Using incentive spirometry^{1,5,6}
- Educating the patient and family about NVHAP prevention¹

Safety actions to consider:

The call to action acknowledges that strategies to improve the prevention, recognition, and treatment of NVHAP are currently limited by gaps in understanding of the pathogenesis of NVHAP. Also, surveillance is challenging because the clinical criteria for NVHAP are subjective, often inaccurate, variably documented, and labor intensive to apply. Despite these limitations and challenges, there are actions that hospitals and medical centers can take to prevent NVHAP while improving the quality of care and patient safety, lowering the risk of sepsis, reducing health care costs, and saving lives.¹

1. Obtain buy-in from leadership and health care providers about the importance of NVHAP prevention.¹
2. Overcome beliefs that NVHAP prevention strategies such as oral hygiene and mobility are optional tasks rather than standard-of-care interventions.¹
3. Procure supplies necessary to implement effective interventions.⁴
4. Educate staff about the risks of NVHAP and prevention methods such as aspiration precautions.^{3,5} Provide training on techniques to encourage patients to comply with oral care^{2,4} and maintaining mobility.^{5,7}
5. Implement processes that make oral care and mobility an expectation for routine care of non-ventilated patients.

Policy Updates



Veterans Health Administration (VHA) network directors reporting on NVHAP prevention in their ECF plan (in progress).

Press Ganey is moving forward with developing a data use agreement/memorandum of understanding with the VHA Office of Nursing Services and Office of Nursing Informatics.

NVHAP to be added to the list of National Database of Nursing Quality Indicators (NDNQI), which would power system-wide transformation of health care organizations to include oral health as an NVHAP quality indicator.

SNOWMED terminology for NVHAP are being reviewed by the National Quality Forum (NQF) for inclusion as standardized clinical terminology for electronic health records (EHR). This would locate oral health as part of the standardized terminology used for documentation of client data in EHR.

Oral Health in America: Advances and Challenges

One paragraph on VAP, three mentions regarding pneumonia and oral care.



Implementation Updates



VA Implementation

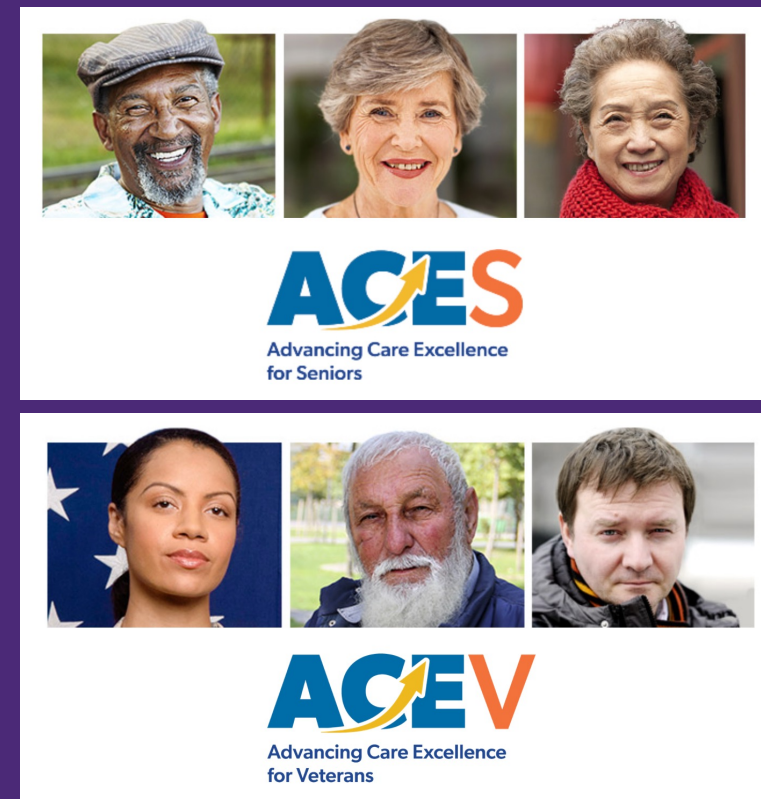
Performance will be part of network directors ECF plan (in progress)
HAPPEN Initiative was adopted enterprise-wide July 2021
Monitoring NV-HAP outcome and process measures nationwide

National League for Nursing: Advancing Care Excellence for Seniors (ACE.S) And Veterans (ACE.V) Training

One of the teaching strategies offers guidelines for faculty to use to teach students to prevent NV-HAP by integrating the oral care protocol into the care of hospitalized Veterans and civilians

OHNEP undergraduate interprofessional oral health faculty toolkit
<http://ohnep.org/faculty-toolkit>

NOHAP Social Media/Communication Campaign/Patient Empowerment
Social media kit/patient education on the NOHAP site

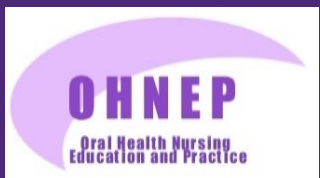


NEW! Undergraduate Interprofessional Oral Health Faculty Tool Kit

- ✓ Microbiology
- ✓ Anatomy & Physiology
- ✓ Pathophysiology
- ✓ Research Methods
- ✓ Pharmacology
- ✓ Health Assessment & Promotion
- ✓ Fundamentals



- ✓ Nursing Care of Adults & Older Adults
- ✓ Nursing Care of Children
- ✓ Maternity & Women's Health
- ✓ Community
- ✓ Psychiatric-Mental Health
- ✓ Leadership in Nursing
- ✓ Professional Nursing



Available at <http://ohnep.org/faculty-toolkit>

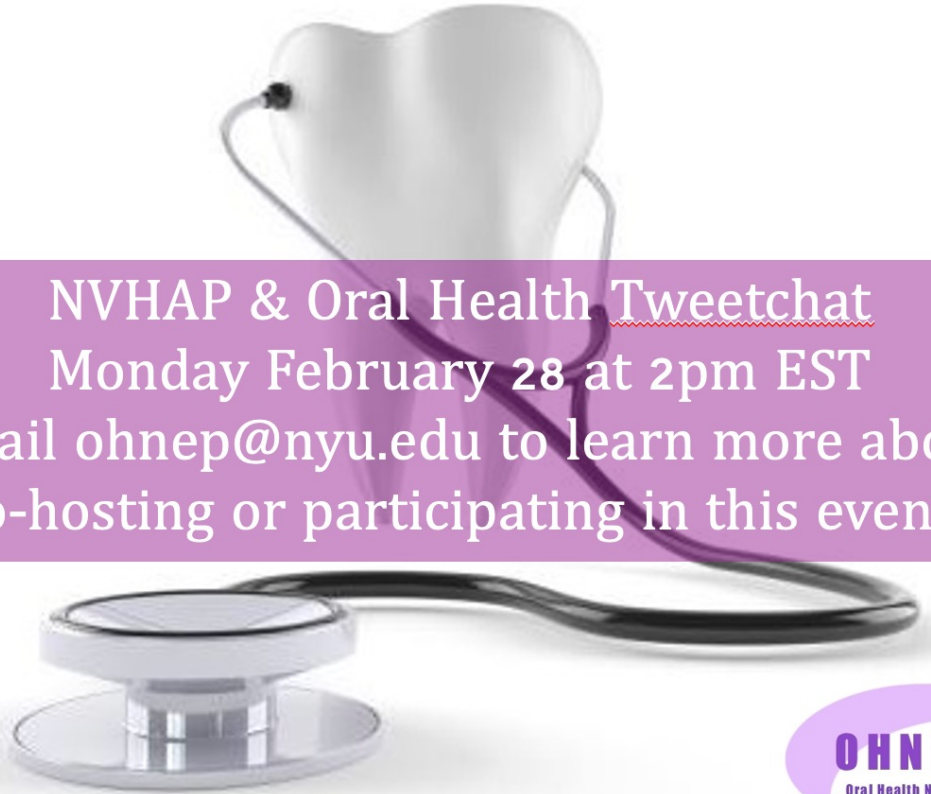
NVHAP & Oral Health Tweetchat

February 28th 2pm EST

Join us for our live Tweetchat to learn more about the importance of oral care in preventing NVHAP.

Contact Jessamin at ohnep@nyu.edu about participating in this event!

Follow us on Twitter [@All4OralHealth](https://twitter.com/All4OralHealth)



NVHAP & Oral Health Tweetchat
Monday February 28 at 2pm EST
Email ohnep@nyu.edu to learn more about
co-hosting or participating in this event!



References

- Baker DL, Giuliano KK. Prevention practices for nonventilator hospital-acquired pneumonia: A survey of the Society for Healthcare Epidemiology of America Research Network. *Infect Control Hosp Epidemiol.* 2021;1-2.
- Carey E... Munro S. Non-ventilator associated hospital acquired pneumonia incidence and health outcomes among U.S. Veterans from 2016-2020. *AJIC* 2021.
- Giuliano K,...Baker D. Oral care as prevention for nonventilator hospital-acquired pneumonia: A four-unit cluster randomized study. *AJN* 2021;121(6), 24-33.
- Haber J, Hartnett E, et al. Attaining interprofessional competencies by connecting oral health to overall health. *J Dental Education* 2021, April; 85(4).
- Carr JR, Jones BE, et al. Deploying an electronic clinical decision support tool for diagnosis and treatment of pneumonia into rural and critical access hospitals: Utilization, effect on processes of care, and clinician satisfaction. *J Rural Health.* 2022;38(1):262-269.
- Dela Cruz CS...Jones BE, et al. Understanding the host in the management of pneumonia. An official American Thoracic Society workshop report. *Ann Am Thorac Soc.* 2021;18(7):1087-1097.
- Burgette J.... Joskow RW, Chalmers NI. Advancing oral health policy through persuasive messaging and effective research measures. *J Public Health Dent* 2021 Dec 81(1).
- Munro S,...Lucatorto M, Hehr A, Ochylski S. Implementing oral care as a nursing intervention to reduce hospital acquired pneumonia across the VA Healthcare System. *Comput Inform Nurs* 2021;10.1097/CIN.0000000000000808
- Munro S, Baker D, Giuliano K, Sullivan SC, Haber J, Jones B, Crist M, Nelson RE, Carey E, Lounsbury O, Lucatorto M, Miller R, Pauley B, Klompas M. Non-ventilator hospital-acquired pneumonia: A call to action. Recommendations from the national organization to prevent hospital acquired pneumonia among non-ventilated patients. *ICHE* 2021, June 9.
- Scannapieco F. Poor oral health in the etiology and prevention of aspiration pneumonia. *Dent Clin North Am.* 2021;65(2):307-321.
- Munro S, Baker D. Integrating oral health care into patient management to prevent hospital-acquired pneumonia: a team approach. *Journal of the Michigan Dental Association*, 2019. <https://www.michigandental.org/Portals/pro/Journals/July%202019/html5/index.html?page=1&noflash>