Preventing hospital-acquired pneumonia: From knowing to doing

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SAGE-GSNPS-PPT-910416_REV-0_en_us

Disclosures

- **Clinical Consultant, Speaker Bureau, Stryker/Sage LLC (since 2023)**
- **Research Grant recipient, Sage LLC (2012, 2015)**
- **This presentation was developed with Stryker's Sage business.**

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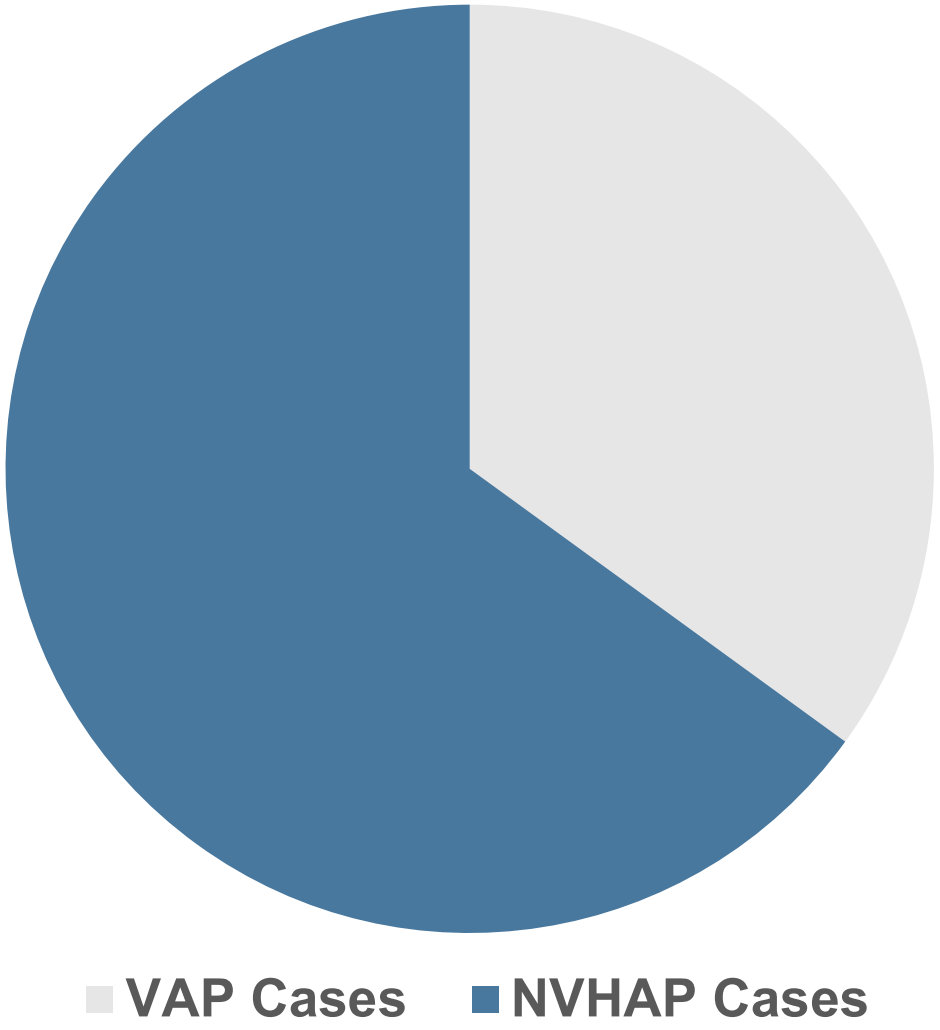
Objectives

- Discuss the significance of Hospital-Acquired Pneumonia (HAP).
- Describe the etiology and risk factors for HAP.
- Identify updated evidence-based HAP prevention every hospital can adopt.
- Name the three (3) parts of implementation science that will move any evidence-based practice from knowing to doing.

Significance of hospital-acquired pneumonia

2 Types of hospital-acquired pneumonia



Magill, S.S., O'Leary, S.J., Janelle, D.L., et al. (2018). Changes in prevalence of healthcare-associated infections in U.S. hospitals, NEJM, 379(18), 1732-1744. doi: 10.1056/NEJMoa1801550

Prevalence of hospital-acquired infections in the U.S.

167,000
Patients/year

- **Pneumonia** **24.3%**
  - **VAP** **39%**
  - **NV-HAP** **61%**
- **Surgical Site** **24.1%**
- **Urinary Tract** **14%**
  - **CAUTI** **84%**
- **GI** **19%**
  - **C. diff** **71%**
- **Bloodstream** **11%**
  - **CLABSI** **84%**
- **Other** **17%**

Magill, et al. (2018) (adapted from Table 4. Percentages of All Surveyed Patients with Specific Types of HCAIs, 2011 vs. 2015 Survey

Impact of NV-HAP and VAP

Impact	VAP	NV-HAP
Incidence	0-4.4/1,000 vent days (1, 2)	0.5-2.12/100 admits; 1.23-5.9/1,000 days (3, 4)
Mortality	4.4-13 (1), 19.4 (3), 23% (5)	13.9-22% (3, 4) 7.3% of all hosp. deaths (4)
LOS	28 days (3) and prolongs vent & ICU days (2)	4-15.9 days (3, 4)
Cost	$40,144 (2)	$28,000-$40,000 (3)
30-Day Readmission	23% (6)	19% (7)
Location	ICU only	ALL Units

1. AACN Practice Alert. (2017). Oral care for acutely and critically ill patients. Critical Care Nurse, 37(3), e19-e21. 2. Papazian, L., Klompas, M., & Luyt, C.E. (2020). Ventilator-associated pneumonia in adults: A narrative review. Intensive Care Medicine, 46, 888-906.Giuliano, Baker, Quinn, 2018. 3. Jones, B.E., Sarvet, A.L., Ying, J. et al. (2023). Incidence and outcomes of non-ventilator-associated hospital-acquired pneumonia in 284 US hospitals using electronic surveillance criteria. JAMA Network Open, (5), e2314185.Davis, 2018. 4. Lodise, T.P, Law, A., Spilsbury-Cantalupo, M., et al. (2021). Hospital readmissions and mortality among intubated and mechanically ventilated adult subjects with pneumonia due to gram-negative bacteria. Respiratory Care, 6(5), 742-750. 5. Baker, D, & Quinn, B. (2018). Hospital-acquired pneumonia prevention initiative-2: Incidence of nonventilator hospital-acquired pneumonia in the United States, AJIC, 46, 2-7.

Pneumonia and sepsis

Table: Common sites of infection of patients with severe sepsis by sex and associated crude mortality rates[1]

Site of infection	Frequency (%)		Mortality (%)	
	Male	Female	Male	Female
Respiratory	41.8	25.8	22.0	22.0
Bacteremia, site unspec	21.0	20.0	33.5	34.9
Genitourinary	10.3	18.0	8.6	7.8
Abdominal	8.6	8.1	9.8	10.6
Device-related	1.2	1.0	9.5	9.5
Wound/soft tissue	9.0	7.5	9.4	11.7
Central nervous system	0.7	0.5	17.3	17.5
Endocarditis	0.9	0.5	23.8	28.1
Other/unspec	6.7	8.6	7.6	6.5

Up to

50%

of sepsis cases may initiate from pneumonia.[2]

Recreated based on data from Mayr FB, Yende S, Linde-Zwirble WT, Peck-Palmer OM, Barnato AE, Weissfeld LA, Angus DC. Infection rate and acute organ dysfunction risk as explanations for racial differences in severe sepsis. JAMA 2010; 303:2495-503; PMID:20571016; http://dx.doi.org/10.1001/jama.2010.851

1. Mayr, Yende, & Angus. (2014) Epidemiology of severe sepsis, Virulence, 5(1): 4-11 **2.** Angus & van der Poll. (2013). Severe sepsis and septic shock. NEJM, 369(9), 840-851

Sepsis and CMS

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

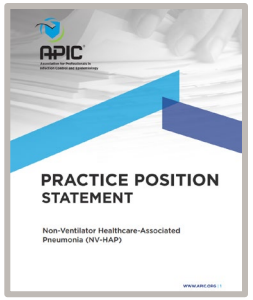
CMS proposing SEP-1 for VBP in 2026. [1]

Key Patient Education Campaign from CDC to "Get Ahead of Sepsis"[2]

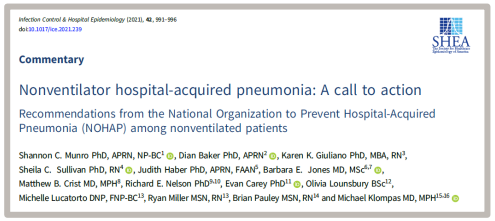
Prevent infection!

1. Rhee, et al. (2023) **2.** CDC. (2023). How can I get ahead of sepsis? Sepsis. Retrieved 11.21.23 from https://www.cdc.gov/sepsis/prevention/index.html

NV-HAP a growing concern



2019
APIC published first Practice Position Statement on NVHAP (2)

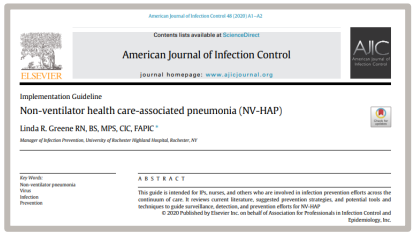


2021
National Call to Action to prevent NVHAP (4)

2022
ECRI Top 10 Patient Safety Concerns included NVHAP for the first time (6)

2016
CDC added HAIs to list of top 10 public health problems/concerns (1)

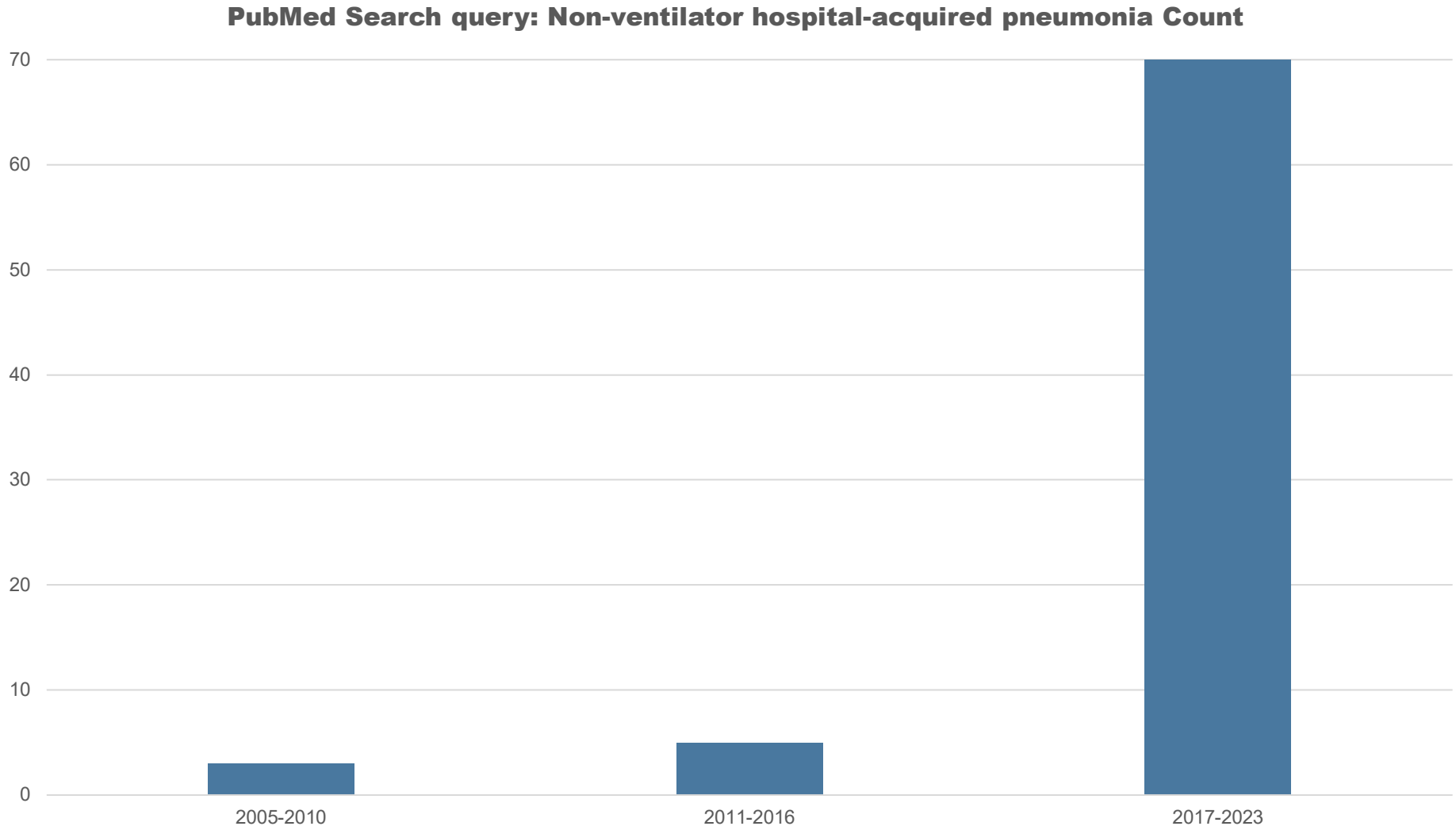
2020
APIC published Implementation Guideline for NVHAP (3)



2021
The Joint Commission issued a Quick Safety #61 (5)

2022
SHEA/IDSA/APIC Practice Recommendation Update includes NVHAP (7)

Publication numbers reflect increased awareness and urgency



PubMed Search Query, 11.01.23

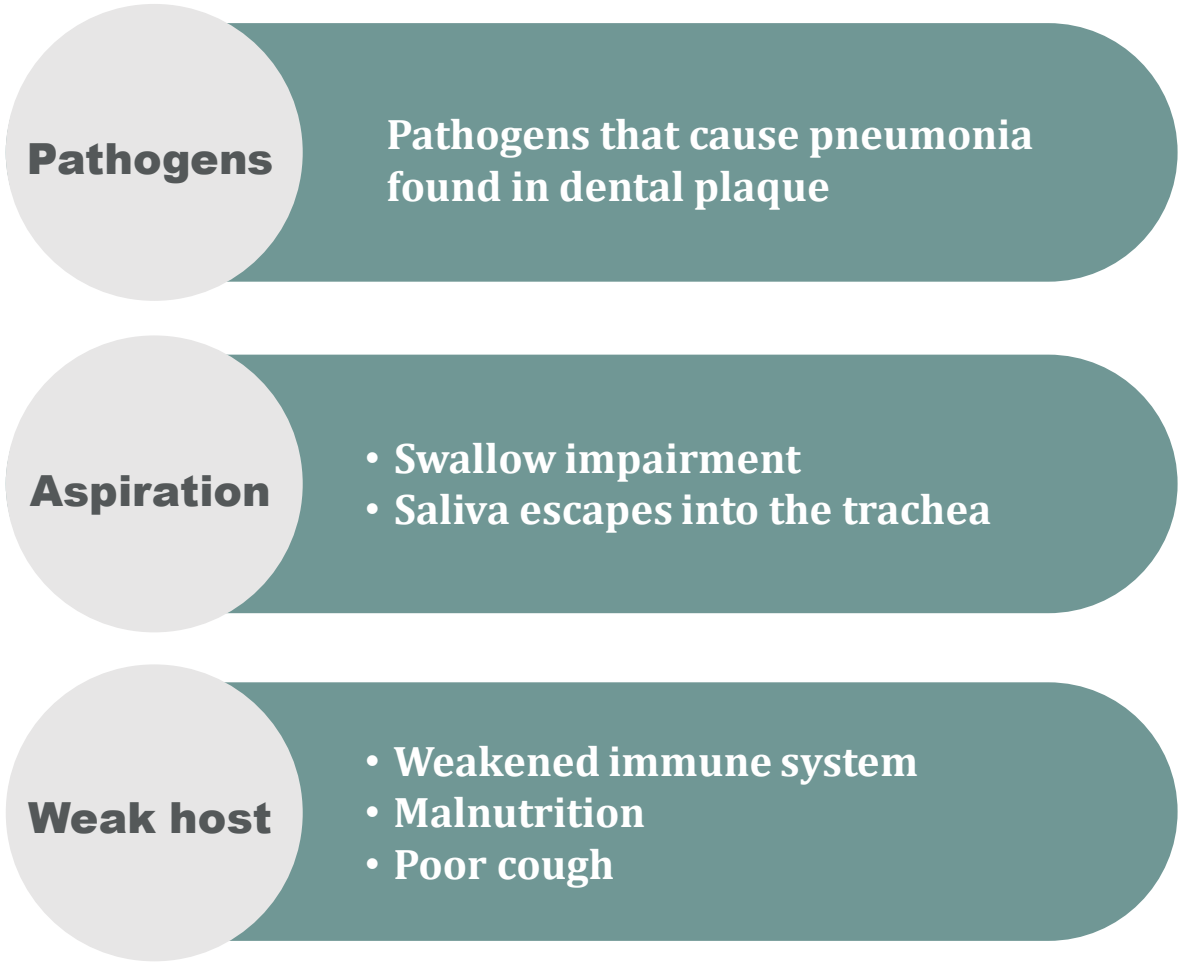
Why hospitals ~~should~~ will care about HAP

Impact on Patients	Impact on Organizations	Measures
Leads to avoidable sepsis	Requires recognition & treatment/resources	CMS-HVBP
Requires antibiotic treatment	Requires more antibiotic use, cost, C. diff	The Joint Commission Standard; CMS HAC
Contributes to high mortality rate	Unanticipated patient deaths	CMS Publicly Reported Data
Lowers surgical outcomes (1)	Increases postop resp failure & sepsis	CMS HAC (PSI 11, PSI 13)
Lengthens hospital stay, increases risk of complications	Increases cost, decreases access, reflection of quality	AHRQ Quality Indicator
Increases risk for readmission (2)	Increases 30-day readmission rate	CMS-VBP

1. Tevis, SE, Cobian, AG, Truong, HP, et al (2016). Implications of multiple complications on the postoperative recovery of general surgery patients. Ann Surg. 263(6), 1213-1218. **2.** Baker, Quinn (2018) HAPPI-2. AJIC

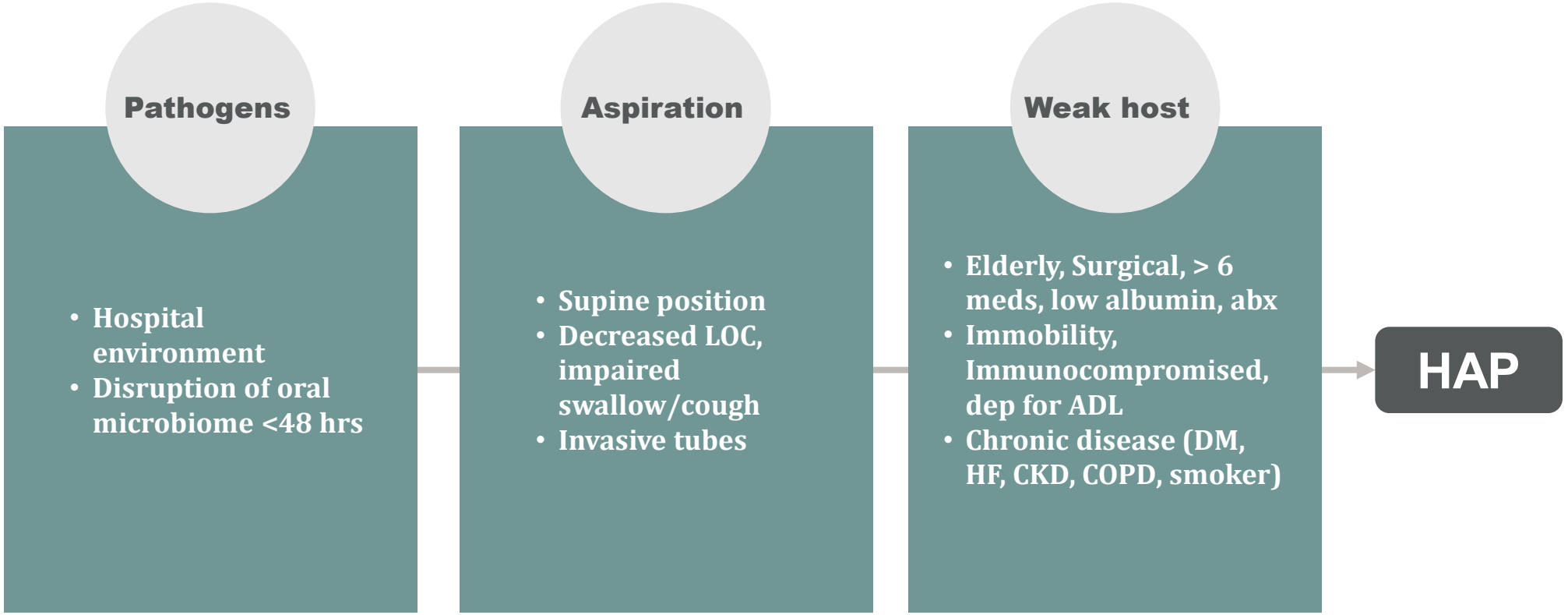
Etiology and risk factors for HAP

Etiology of pneumonia

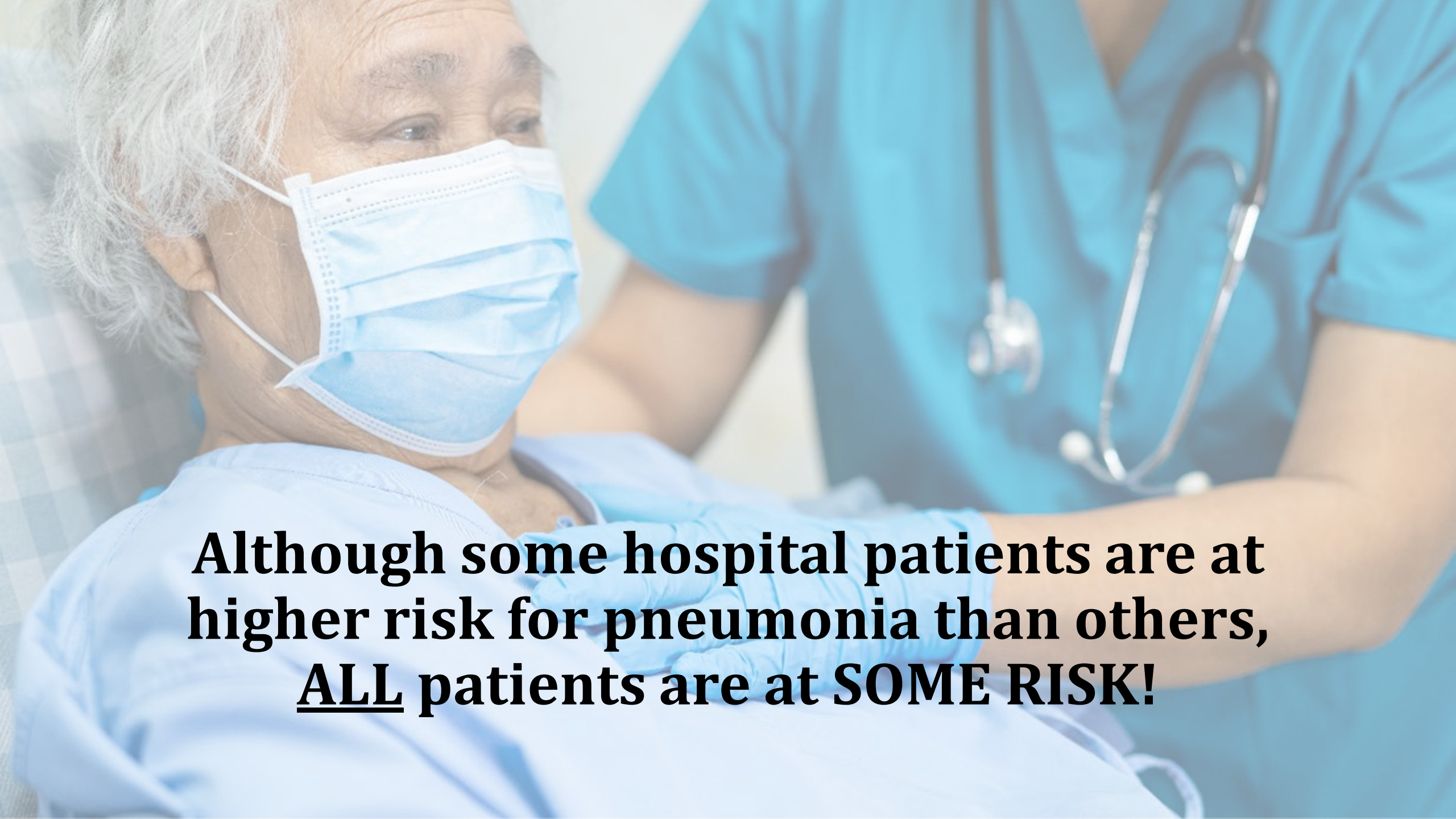


"Identify the most modifiable risk factors and develop prevention programs to address them."
(Tablan, et al. 2004. Guidelines for preventing HCAP, 2003)

Who is at risk for HAP?



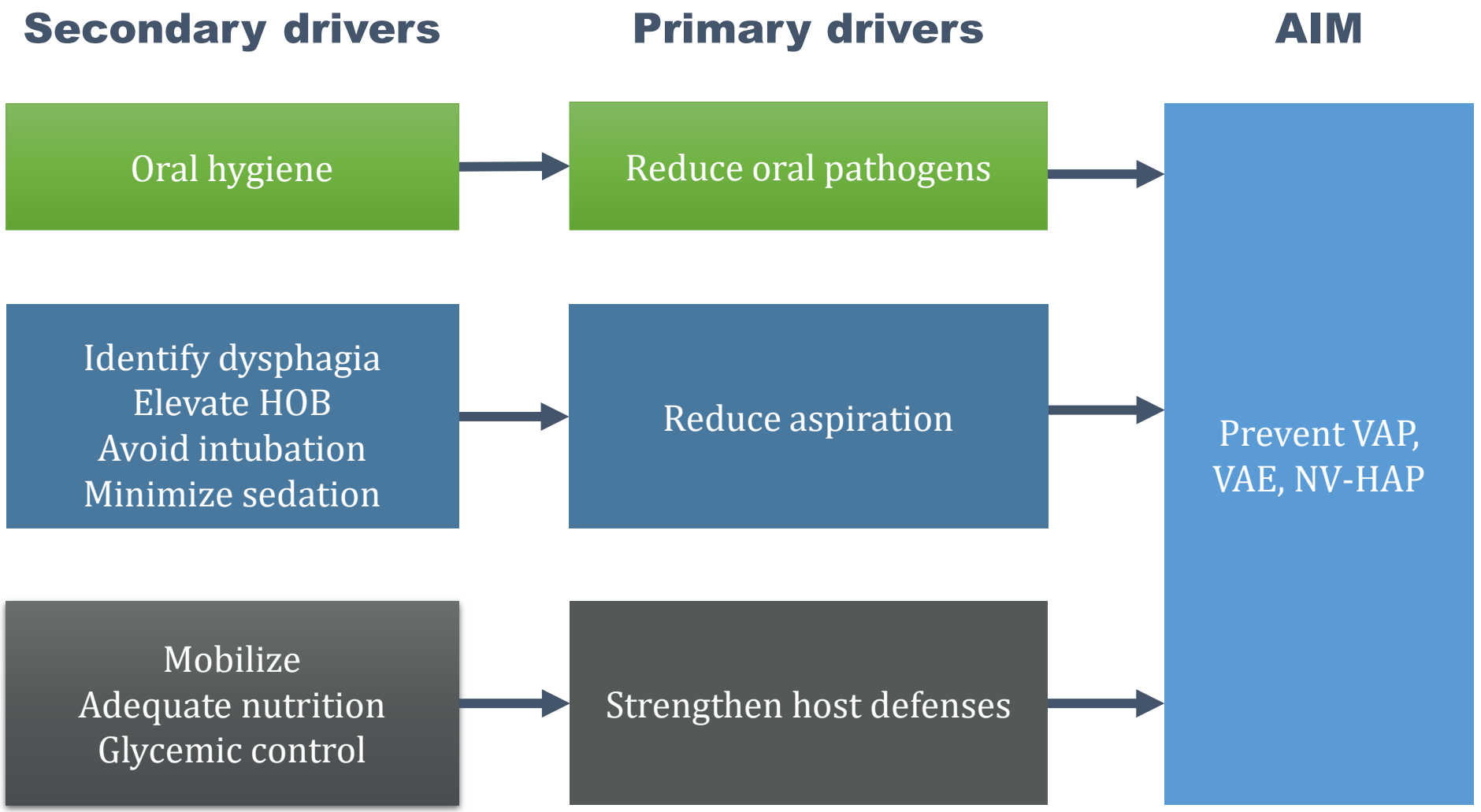
Baker, D., Giuliano, K.K., Thakkar-Samtani, M. et al. (2022). The association between accessing dental services and nonventilator hospital-acquired pneumonia among 2019 Medicaid beneficiaries. ICHE, 1-3.doi:10.1017/ice.2022.163



Although some hospital patients are at higher risk for pneumonia than others, <u>ALL</u> patients are at SOME RISK!

Pneumonia prevention strategies

HAP prevention driver diagram



Adapted from Quinn, B., Giuliano, K.K., & Baker, D. (2020). Non-ventilator health care-associated pneumonia (NV-HAP): Best practices for prevention of NV-HAP. AJIC, 48, A23-A27.

Driver #1 to reduce oral pathogens: Mechanical oral hygiene

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

SHEA

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, RRT[3], Kelly Cawcutt MD, MS[4], Matthew Crist MD[5], Eric C. Eichenwald MD[6,7], Linda R. Greene RN, MPS, CIC[8], Grace Lee MD[9], Lisa L. Maragakis MD, MPH[10], Krista Powell MD, MPH[5], Gregory P. Priebe MD[11], Kathleen Speck MPH[12], Deborah S. Yokoe MD, MPH[13] and Sean M. Berenholtz MD, MHS[12,14,15]

- Only intervention to address source control [1]
- Most evidence [2]
- Most effective compared to other interventions [2,3]
- Recommended by experts
- Low risk, low-tech, low-cost
- Added as ESSENTIAL PRACTICE in the 2022 Updated SHEA Guidelines [4] Low-risk

1. Scannapieco, F.A. (1999). Role of oral bacteria in respiratory infection, J Periodontal. John Wiley and Sons. **2.** Lyons, P.G., & Kollef, M.H. (2018). Prevention of hospital-acquired pneumonia. Current Opinion, 24(00), 1-9. **3.** Passaro, L., Harbarth, S., & Landelle, C. (2016). Prevention of hospital-acquired pneumonia in non-ventilated adult patients: A narrative review. Antimicrobial Resistance and Infection Control. 5, 43. **4.** Klompas, M., Branson, R., Cawcutt, K., et al. (2022). Strategies to prevent VAP, ventilator-associated events, and NV-HAP in acute-care hospitals: 2022 update. ICHE, 43, 687-713.

All oral care is not created equal

Evidence-based oral care equipment

- Small, soft-bristled toothbrush
- Therapeutic toothpaste that removes plaque
  - Fluoride and/or sodium bicarbonate
- OTC alcohol-free, antiseptic mouth rinse
  - Hydrogen peroxide or Cetylpiridium chloride (CPC)
  - Chlorhexidine for basic oral care not recommended
- Petroleum-free mouth and lip moisturizer
- Suction toothbrush, as needed
- Denture care supplies

Mouth Healthy. American Dental Association. Retrieved 11.22.23 from https://www.mouthhealthy.org

Use with caution

(1)

(2)

(3, 4, 5)

1. Pearson LS, Hutton JL. A controlled trial to compare the ability of foam swabs and toothbrushes to remove dental plaque. J Adv Nurs. 2002;39(5):480-489. **2.** Coleman, P. Improving oral health care for the frail elderly: A review of widespread problems and best practices. 2002. 23(4), 189-198. **3.** Klompas, M., Branson, R., Cawcutt, K., et al. (2022). Strategies to prevent VAP, ventilator-associated events, and NV-HAP in acute-care hospitals: 2022 update. ICHE, 43, 687-713. **4.** Dale, C.M., Rose, L., Carbone, S., et al. (2021). Effect of oral chlorhexidine de-adoption and implementation of an oral care bundle on mortality for mechanically ventilated patients in the intensive care unit (CHORAL): A multi-center stepped wedge cluster-randomized controlled trial. Intensive Care Medicine, 47, 1295-1302. **5.** Wei, J., He, L., Weng, F., et al. (2021). Effectiveness of chlorhexidine in preventing infections among patients undergoing cardiac surgeries: A meta-analysis and systematic review. Antimicrobial Resistance & Infection Control 10, 140.

Driver #2: Reduce aspiration

1. **Identify and treat dysphagia**
2. Elevate the head of bed
3. **Avoid intubation**
4. **Minimize sedation**

1. Jiang, J.L., Fu, S.Y., Wang, W.H., & Ma, Y.C. (2016). Validity and reliability of swallowing screening tools used by nurses for dysphagia: A systematic review. Tzu Chi Medical Journal. 28, 41-48.

Driver #2: Reduce aspiration

1. **Identify and treat dysphagia**
2. Elevate the head of bed

3. **Avoid intubation**
4. **Minimize sedation**

1. Blot SI, Poelaert J, Kollef M. How to avoid microaspiration? A key element for prevention of ventilator-associated pneumonia in intubated ICU patients. BMJ Infect Dis.2014;14:119. doi:10.1186/1471-2334-14-119 **2.** Klompas, et al. (2022)

Driver #2: Reduce aspiration

1. **Identify and treat dysphagia**
2. Elevate the head of bed
3. **Avoid intubation (1-3)**
4. **Minimize sedation**

1. Klompas, M., Branson, R., Cawcutt, K., et al. (2022). Strategies to prevent VAP, ventilator-associated events, and NV-HAP in acute-care hospitals: 2022 update. ICHE, 43, 687-713. **2.** Rochwerg B, Granton D, Wang DX, et al. High flow nasal cannula compared with conventional oxygen therapy for acute hypoxemic respiratory failure: a systematic review and meta-analysis. Intensive care medicine. 2019;45:563–572. **3.** Granton D, Chaudhuri D, Wang D, et al. High-flow nasal cannula compared with conventional oxygen therapy or noninvasive ventilation immediately postextubation: a systematic review and meta-analysis. Crit Care Med 2020;48:e1129–11e36

Driver #2: Reduce aspiration

1. **Identify and treat dysphagia**
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1. Klompas, M., Branson, R., Cawcutt, K., et al. (2022). Strategies to prevent VAP, ventilator-associated events, and NV-HAP in acute-care hospitals: 2022 update. ICHE, 43, 687-713. **2.** Fraser GL, Devlin JW, Worby CP, et al. Benzodiazepine versus nonbenzodiazepine-based sedation for mechanically ventilated, critically ill adults: a systematic review and meta-analysis of randomized trials. Crit Care Med 2013;41:S30–S38.

Driver #3: Strengthen host defenses

Mobilize

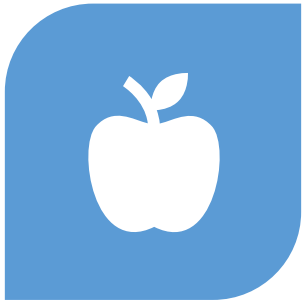
Provide adequate nutrition

Manage glucose levels

1. Fazio, S., Stocking, J., Kuhn, B., Doroy, A., Blackmon, E., Young, H.M., & Adams, J.Y. (2019). How much do hospitalized adults move? A systematic review and meta-analysis. Applied Nursing Research. 51, 151189. doi: 10.1016/j.apnr.2019.151189.
2. Zhang L, Hu W, Cai Z, et al. Early mobilization of critically ill patients in the intensive care unit: a systematic review and meta-analysis. PLoS One 2019;14:e0223185.

Driver #3: Strengthen host defenses

Mobilize



Provide adequate nutrition

Manage glucose levels

- Enteral Feeding
- Nutritional Goals
  - Reduce holds & GRVs
  - Consider volume-based feeding (VBF)

Stress ulcer prophylaxis (SUP) stewardship

1. McClave, et. al., (2016). Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill pt: SCCM & ASPEN **2.** Huang et. al (2018) Stress ulcer prophy in ICU pts receiving EN: Systematic review & meta-analysis. Critical Care 22(20), 1-9. **3.** Herzig et. al (2014) Acid suppressive med use in acute stroke and HAP. Ann Neurol. 76(5): 712-718.

Driver #3: Strengthen host defenses

Mobilize

Provide adequate nutrition

Manage glucose levels

Jeon, C.Y., Furuya, E.Y., Smaldone, A., & Larson, E.L. (2012). Post-admission glucose levels are associated with healthcare-associated bloodstream infections and pneumonia in hospitalized patients with diabetes. Journal of Diabetes and its Complications. 26(6), 517-521.)

Prevention works!

Infection Control & Hospital Epidemiology (2020), 1–6
doi:10.1017/ice.2019.368

Original Article

A successful program preventing nonventilator hospital-acquired pneumonia in a large hospital system

Cristine C. Lacerna RN, MPH, CIC[1], Donna Patey MN, RN, CNS, CPHRM, WOCN[1], Lawrence Block MPH, MPA[2], Sejal Naik RN, MHA, CIC[1], Yulia Kevorkova BS[2], Jessica Galin MPH[2], Melanie Parker MD[1], Robin Betts MBA-HM, RN, CPHQ[1], Stephen Parodi MD[3] and David Witt MD, FIDSA, CIC[1]

[1]Kaiser Permanente Northern California, Risk and Patient Safety, Oakland, California, [2]Kaiser Permanente Northern California, Quality and Operations Support, Oakland, California and [3]The Permanente Medical Group, Executive Offices, Oakland, California

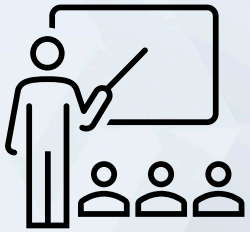
- **Implementation of seven (7) interventions for all hospitalized patients in a 21-hospital system over six (6) years**
  - Mobilization, upright feeding, swallow eval, sedation restrictions, elevated head of bed, tube care, and oral care.
- **Statistical reduction in pneumonia rates, mortality, and antibiotic use.**

Lacerna, C.C., Patey, D., Block, L., et al. (2020). A successful program preventing nonventilator hospital-acquired pneumonia in a large hospital system. ICHE, 1-6.

From knowing to doing

Implementation science

Stock photo Microsoft 365



Implementation science is a deliberate process for successful change

1 Pre-implementation

+

2 Project management

3 Change management

Adapted from Hiatt & Creasy, 2012. Change Management: The People Side of Change. Ch 2 Change Concepts, 37-39.

Pre-implementation

5 domains of successful pre-implementation

1. Identify a solid evidence-based intervention
2. Assess external factors
3. Assess internal factors
4. Assess individual factors
5. Choose an implementation science framework to manage the change

Clanton, D. & Roussel, L. (2020). Chapter 3 Implementation Science & Team Science: The Value for Projects. In Harris, J.L, Roussel, L., Dearman, C., & Thomas, P.L. (eds.), Project Planning and Management: A Guide for Nurses and Interprofessional Teams (pp. 39-54). Jones & Bartlett Learning. Driving Directions, Traffic Reports & Carpool Rideshares by Waze

Identify evidence-based intervention

1

Identify a solid evidence-based intervention

- Moderate to high level of evidence
- Perceived as a good solution to a problem
- Can be adapted to a local setting
- Can start small and scale up
- Simple to complex intervention
- Consider cost

Clanton, D. & Roussel, L. (2020). Chapter 3 Implementation Science & Team Science: The Value for Projects. In Harris, J.L, Roussel, L., Dearman, C., & Thomas, P.L. (eds.), Project Planning and Management: A Guide for Nurses and Interprofessional Teams (pp. 39-54). Jones & Bartlett Learning.

1

2

Assess external factors

- **Patient need, priority**
- **Pressure to improve**
- **Mandate**

2

3

Joint Commission Standards Related to Healthcare-Associated Infections

- **IC.01.02.01** Hospital leaders allocate needed resources for the infection prevention and control program.
- **IC.01.03.01** The hospital identifies risks for acquiring and transmitting infections.
- **IC.01.05.01** The hospital has an infection prevention and control plan.
- **IC.02.01.01** The hospital implements its infection prevention and control plan.
- **IC.03.01.01** The hospital evaluates the effectiveness of its infection prevention and control plan.

1. Clanton, D. & Roussel, L. (2020). Chapter 3 Implementation Science & Team Science: The Value for Projects. In Harris, J.L, Roussel, L., Dearman, C., & Thomas, P.L. (eds.), Project Planning and Management: A Guide for Nurses and Interprofessional Teams (pp. 39-54). Jones & Bartlett Learning. **2.** The Joint Commission. (2021). Quick Safety: Preventing non-ventilator hospital-acquired pneumonia, Issue 61. https://www.jointcommission.org/-/media/tjc/newsletters/quick-safety-61-nvha-pneumonia-final-9-3-21.pdf
3. Pillow, M. (March 2022). NVHAP: Strategies for surveillance and prevention. The Source. TJC.

3

Assess internal factors

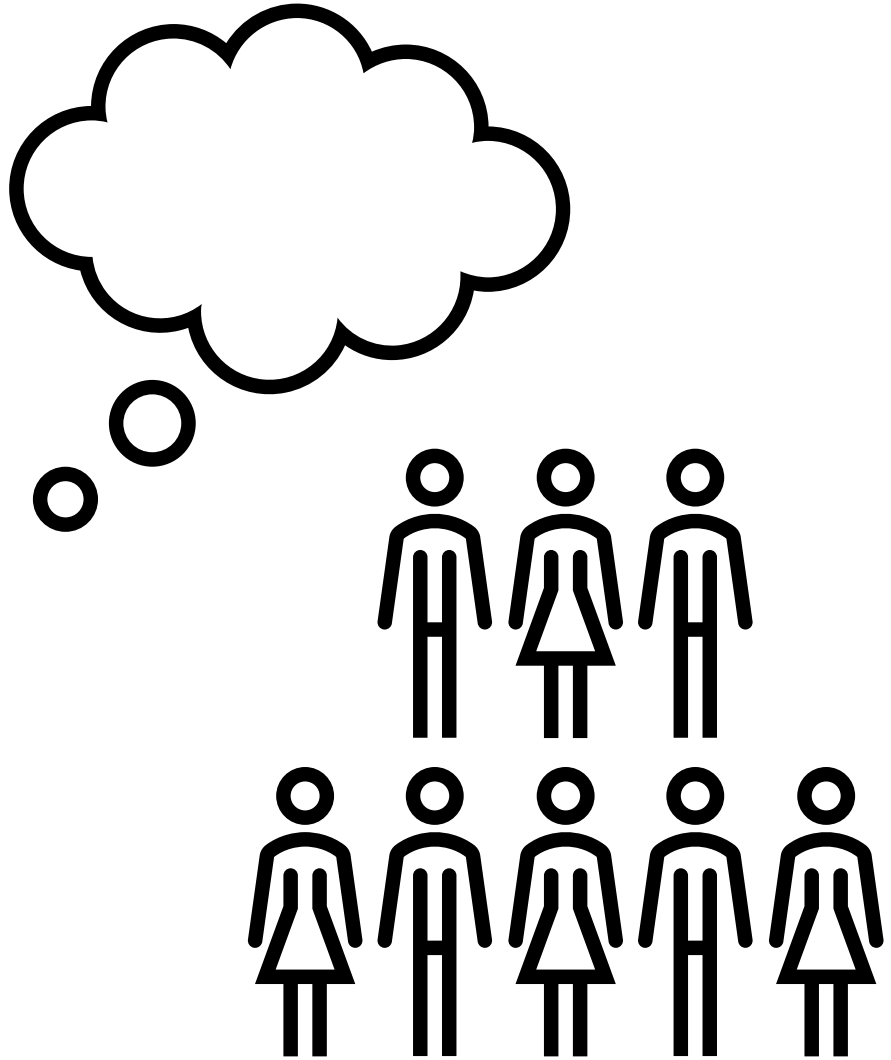
- **Leadership engagement**
- **Communication structure**
- **Implementation climate**

Clanton, D. & Roussel, L. (2020). Chapter 3 Implementation Science & Team Science: The Value for Projects. In Harris, J.L, Roussel, L., Dearman, C., & Thomas, P.L. (eds.), Project Planning and Management: A Guide for Nurses and Interprofessional Teams (pp. 39-54). Jones & Bartlett Learning.

4

Assess individual factors

- **Knowledge and attitude**
- **Commitment to the organization or team**



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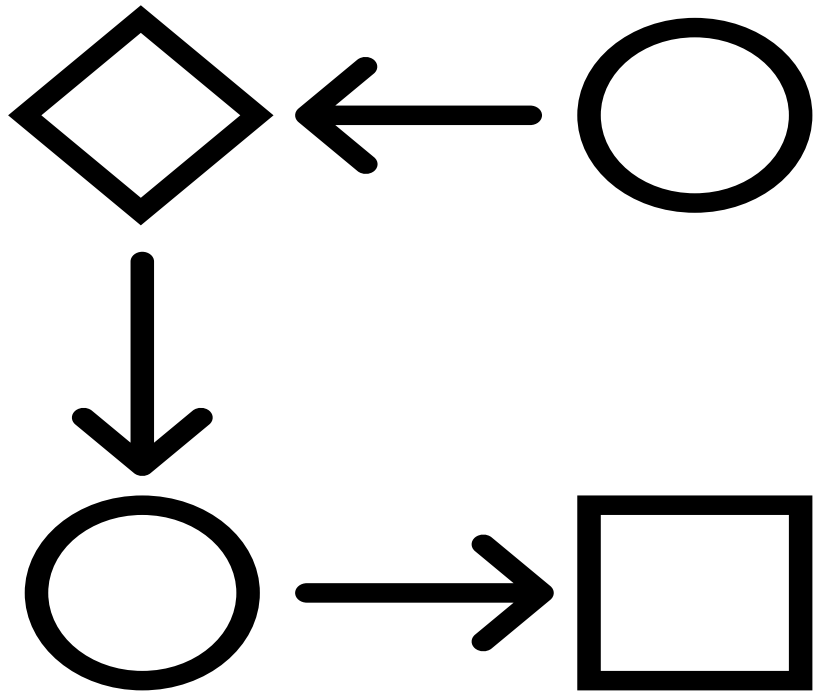
Choose a framework to manage change

5

Choose an implementation science framework to manage the change



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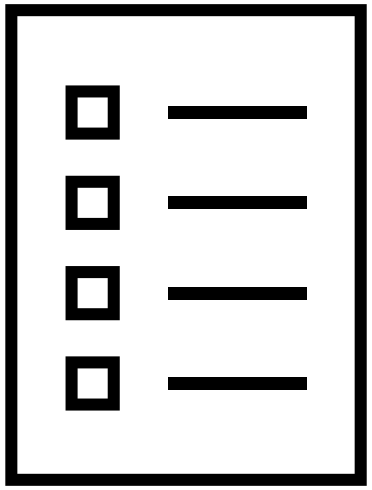
Project management

2. Project management



Microsoft 365

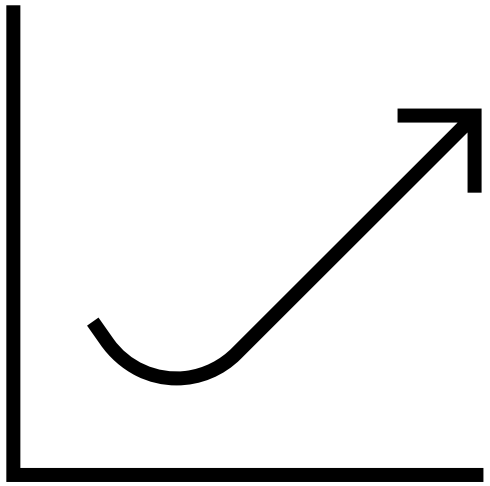
Adobe Stock

- **Defines goals and outcomes**
- **Has a beginning and an end**
- **Provides structure needed to keep the project moving to completion (timelines, milestones)**
- **Considers stakeholders/customers**

Harris, J.L., Roussel, L., Dearman, C., & Thomas, P.L., Editors. (2020). Project Planning and Management, 3rd Ed. Jones & Bartlett Learning. Burlington, MA.

Change management

3. Change management

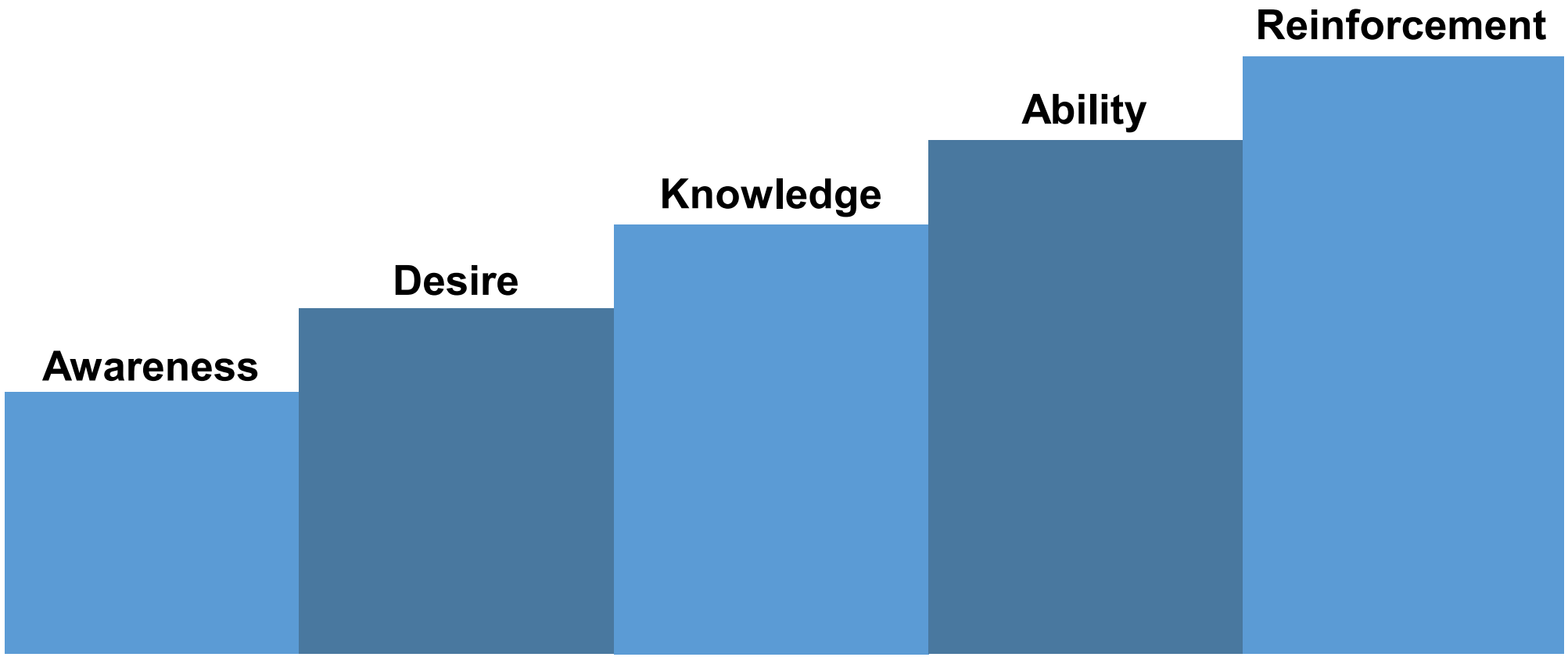


Microsoft 365

- **The people side of change**
- **Enables individuals to adopt a change**
- **Bridge between solutions and results**

Hiatt, J.M. & Creasey, T.J. (2012). Change Management: The People Side of Change. Prosci Learning Center Publications. Loveland, CO.

ADKAR Model: 5 change elements



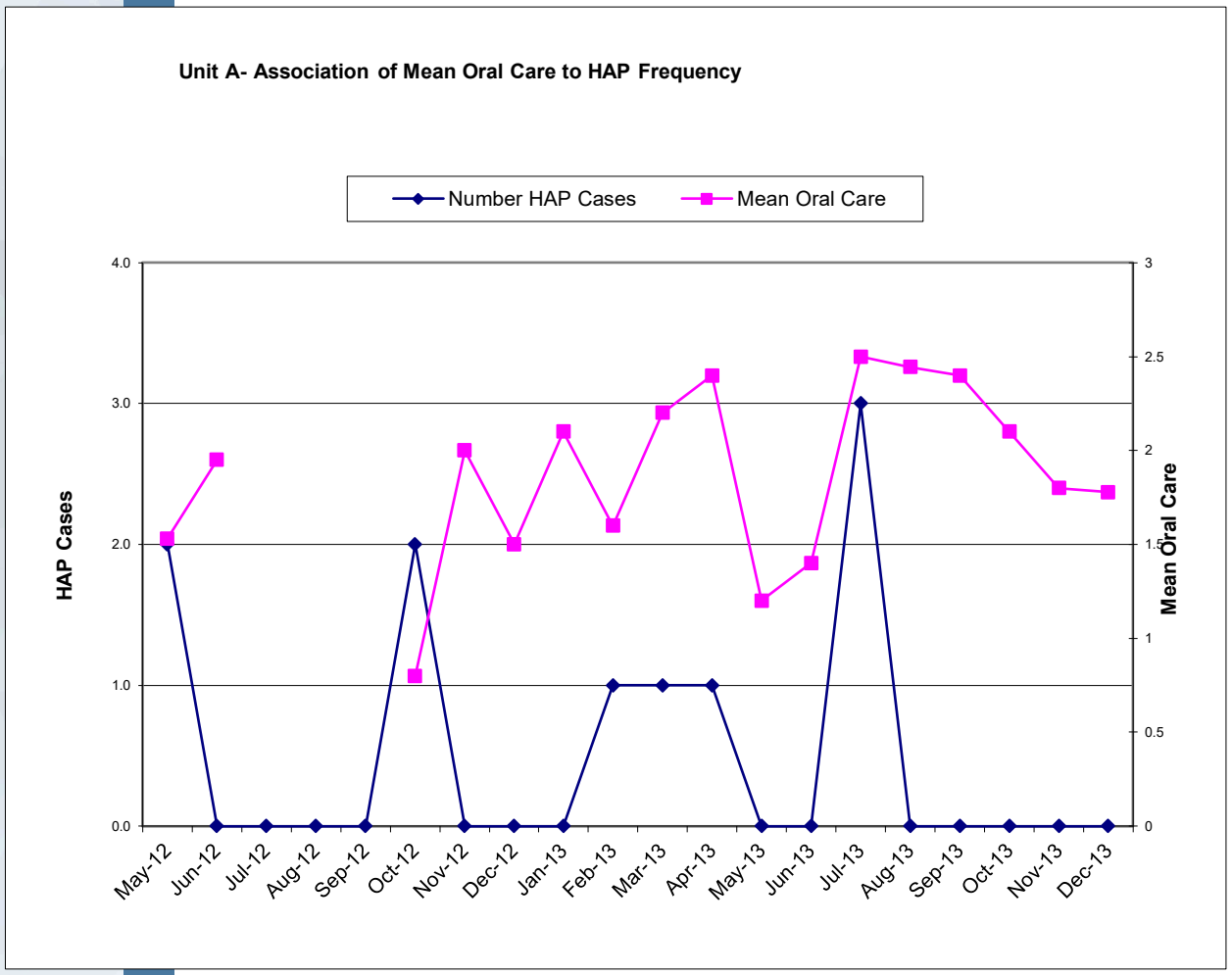
Hiatt, J.M., & Creasey, T.J. (2012). Change Management: The People Side of Change. Prosci Learning Center Publications.

Influencer model

	Motivation (why)	Ability (how)
Personal	Make the undesirable desirable. “Why do I want to change?” Unit data, case studies	Surpass your limits. “I want to be a better ____” Step-by-step procedures Oral care protocol, inclusive policy
Social	Harness peer pressure. Why do we want to change? Enlisted unit practice council to decide where oral care supplies should be located	Find strength in numbers. Engaged non-licensed staff Self-audits
Structural	Design rewards and design accountability. Bulletin board dashboard Celebration cake	Change the environment. Linked oral care with existing routine (food trays) Documentation on MAR

1. Patterson, K., Grenny, J., Maxfield, D., McMillan, R., & Switzler, A. (2008). Influencer: The Power To Change Anything. McGraw-Hill, New York. **2.** Quinn, B., Baker, D.L., Cohen, S., Stewart, J.L., Lima, C.A., & Parise, C. (2014). Basic nursing care to prevent nonventilator hospital-acquired pneumonia. Journal of Nursing Scholarship, 46(1), 11-19.

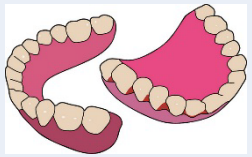
Example: Personal motivation



Unit case study:

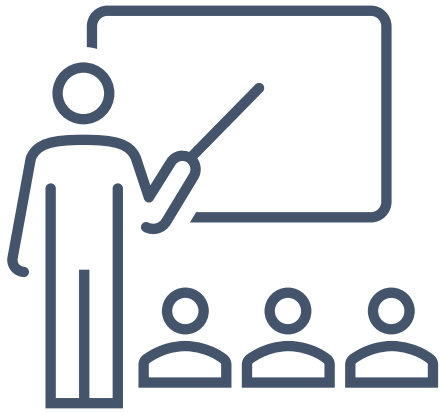
- 64 y.o. male admitted for esophagectomy d/t cancer, s/p chemo. No other medical history.
- POD 8 pt developed leukocytosis, productive cough, increased work of breathing and O2 demand.
- CXR “hazy opacity w/small pleural effusion”.
- DC home POD 11 on PO abx for NVHAP.

Example: Personal ability

Patient Type	Tools	Procedure	Frequency
Self Care/assist	Brush, paste, rinse, moisturizer	Provide tools Brush 1-2 minutes Rinse	4x/day
Dependent/ aspiration risk/ non-vent	Suction toothbrush kit (4)	Brush 1-2 minutes, suctioning as needed. Apply moisturizer.	4x/day
Dependent/vent	ICU Suction toothbrush kit (6) CHG	Brush/swab 1-2 minutes, suctioning as needed. Apply moisturizer.	6x/day CHG 2x/day
Dentures 	Tools + Cleanser Adhesive	Brush dentures with warm water after each meal. Brush/swab gums, mouth. Remove dentures and soak at night.	4x/day *Approved by ADA Board of Trustees, July 2017

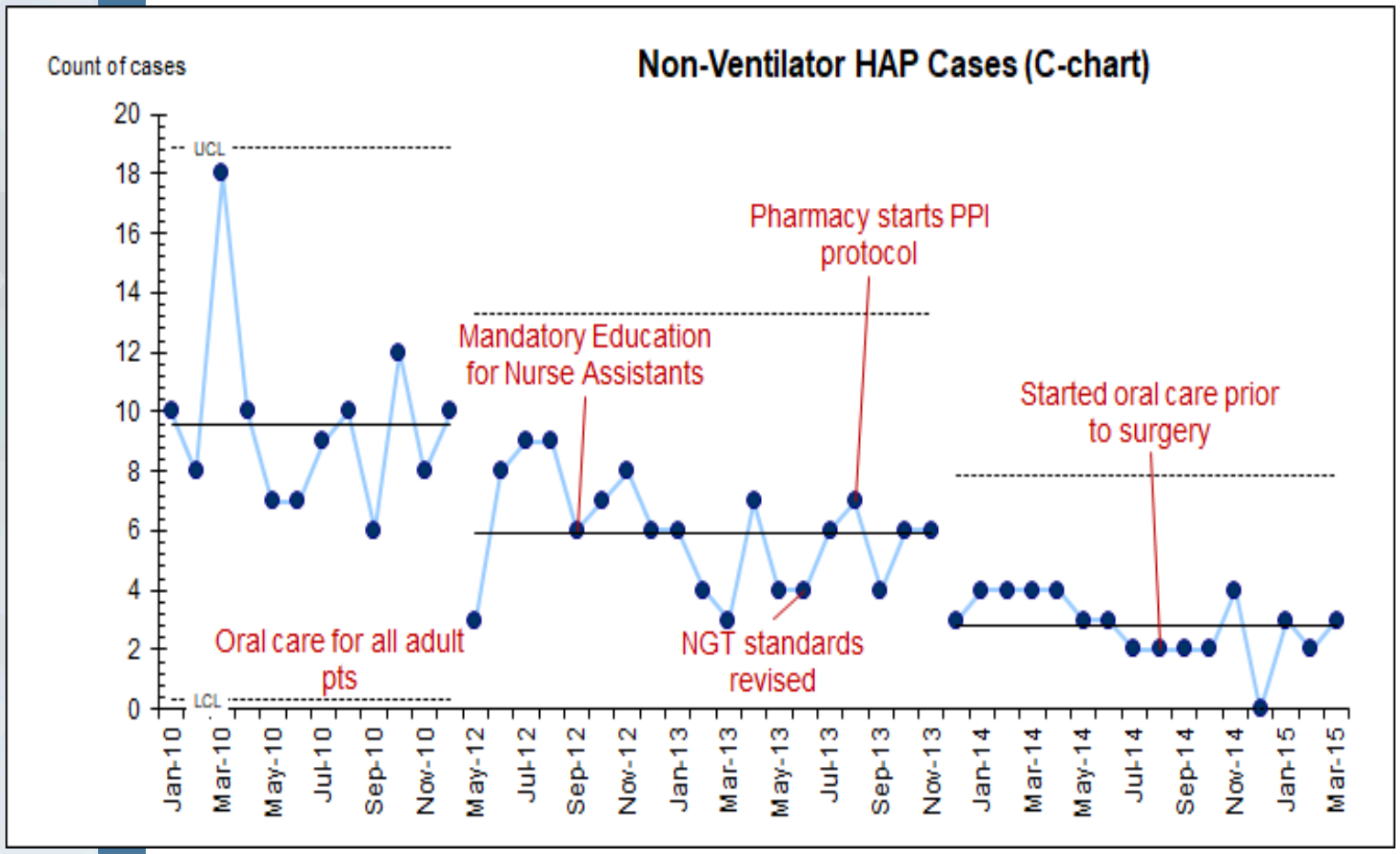
Quinn, B., Baker, D.L., Cohen, S., Stewart, J.L., Lima, C.A., & Parise, C. (2014). Basic nursing care to prevent nonventilator hospital-acquired pneumonia. Journal of Nursing Scholarship, 46(1), 11-19.

Example: Social motivation and ability



- Classes for unlicensed staff
- Team member
- Value added for patient outcomes
- Self-audits

Example: Structural motivation



Baker, D, & Quinn, B. (2018). Hospital-acquired pneumonia prevention initiative-2: Incidence of nonventilator hospital-acquired pneumonia in the United States, AJIC, 46, 2-7.

Example: Structural ability

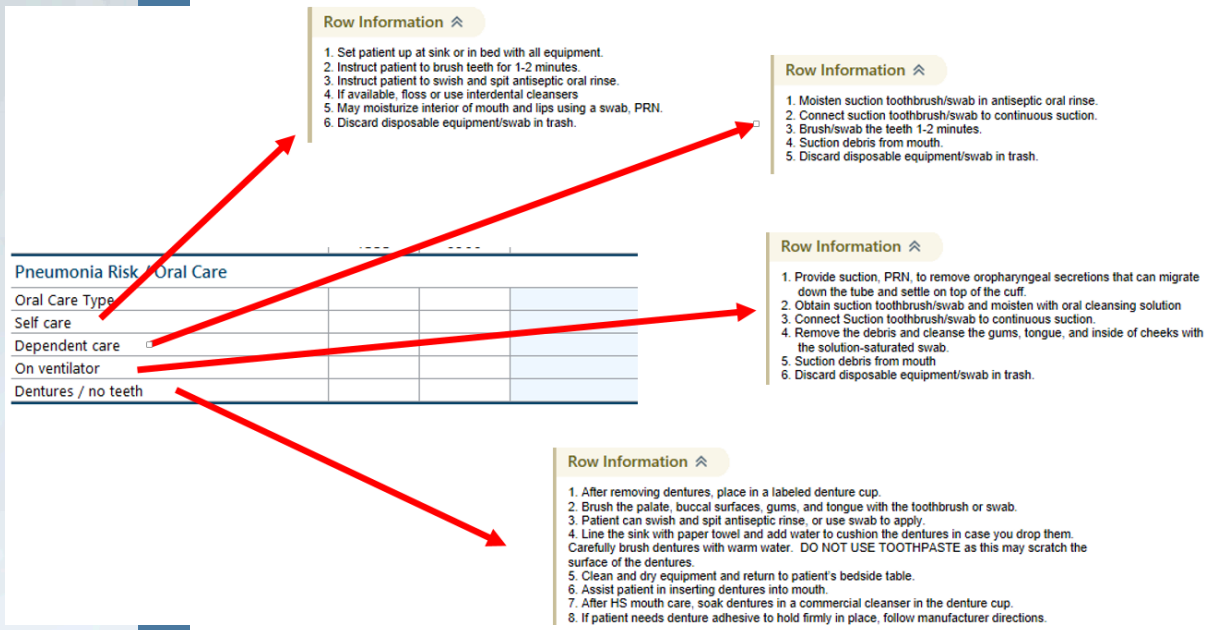
Pneumonia Risk / Oral Care

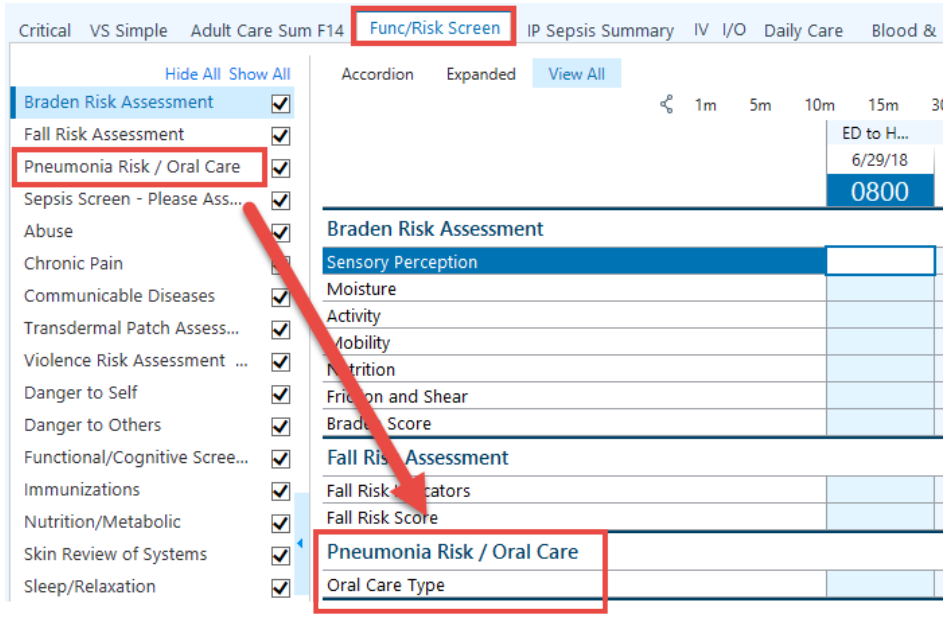
Oral Care Type

Self care | Dependent care / aspiration risk | On ventilator | Dentures or no teeth

Prior to providing oral care, a Nursing Swallow Screen* should be completed for any patient at risk for aspiration, such as:

- Displaying any new signs and symptoms of stroke.
- For any chronic or acute neurological/neuromuscular disorder.
- Following new cervical spine surgery.
- Upon admission to the critical care setting.
- Following extubation when intubated ≥ 48 hours.
- For any changes in level of responsiveness.
- Pulmonary condition and/or with oxygen >5L/min.





“All success is a lagging indicator. Nothing comes from nowhere…Of years and years of working, trying, and failing, of enduring. Of whether or not you keep going when most would give up. So, keep going.”

Ryan Holiday

Summary

1. HAP is the most significant and deadly harm our patients are experiencing when under our care.
2. Patients are at risk in the hospital because of ubiquitous healthcare pathogens, inevitable aspiration, and a weakened host defense system. All patients are at some risk.
3. Pneumonia prevention strategies focus on source control, aspiration reduction and strengthening host defenses.
4. For successful change and moving evidence from knowing to doing, include the three (3) parts of implementation science: Pre-implementation assessment, Project Management, and Change Management for the people side of change.

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