

HOSPITAL-ACQUIRED PNEUMONIA

Prevention at the Bedside

Audience: RN | **Contact hrs:** 1.5 hrs | **Pharmacology hrs:** 0.0 hr

Expected revision: October 1, 2028

No pharmacology contact-hour allocation is designated for this activity.

Prevention starts before the first crackle

Hospital-acquired pneumonia is rarely prevented by one dramatic intervention. More often, prevention is the result of ordinary actions being done reliably: cleaning the mouth, recognizing dysphagia, getting a patient upright and moving, limiting unnecessary invasive ventilation, performing hand hygiene, and noticing when a prevention step has quietly fallen out of the care plan. These actions matter because pneumonia that begins during hospitalization is associated with substantial morbidity, prolonged hospitalization, and mortality. A 2026 systematic review of adult nonventilator hospital-acquired pneumonia found that the reported magnitude of harm varied widely across studies, but the direction of association with death and additional length of stay was consistent enough to reinforce prevention as a patient-safety priority (Chalker et al., 2026).

The evidence is not equally strong for every prevention practice. Ventilator-associated pneumonia prevention has a mature evidence base and a well-defined set of low-risk essential practices. For nonventilator hospital-acquired pneumonia, the literature is newer and less certain. An AHRQ rapid review published in 2025 found only 18 eligible primary studies across oral care, dysphagia strategies, and multicomponent bundles; the bundle evidence favored prevention, but the overall strength of evidence remained low or insufficient for many individual interventions (Han et al., 2025). The practical lesson is to combine low-risk, guideline-supported actions without pretending that every component has the same level of proof.

Purpose and learning focus

This article updates prevention strategies for adult acute-care nursing practice. It emphasizes bedside actions that nurses can assess, perform, coordinate, document, and escalate while distinguishing them from

diagnostic or prescribing decisions that require authorized clinicians and local protocols.

- Differentiate nonventilator hospital-acquired pneumonia (NV-HAP) from ventilator-associated pneumonia (VAP) and explain the major pathways that allow lower-airway infection to develop.
- Identify modifiable risks related to oral microbial burden, aspiration and dysphagia, immobility, respiratory-virus exposure, and invasive ventilation.
- Apply safe oral-care and aspiration-reduction techniques to patients who are independent, dependent, or unable to safely expectorate.
- Integrate current essential VAP-prevention practices into nursing assessment, communication, and daily care.
- Distinguish routine preventive practices from interventions with uncertain benefit, selective indications, or evidence against routine use.
- Use documentation, handoffs, and process measures to detect missed prevention steps and support quality improvement.

Use the terminology carefully

The 2016 ATS/IDSA adult guideline defines hospital-acquired pneumonia as pneumonia that was not incubating at admission and develops at least 48 hours after hospital admission; in that guideline, HAP specifically excludes pneumonia associated with mechanical ventilation. VAP is pneumonia that develops more than 48 hours after endotracheal intubation (Kalil et al., 2016). Prevention literature often uses the term NV-HAP to make the nonventilated population explicit. This article uses HAP as the broad topic and uses NV-HAP or VAP when the distinction changes prevention decisions.

No definition is a substitute for bedside assessment. The same ATS/IDSA guideline notes that there is no gold standard for diagnosing HAP or VAP. Prevention therefore should not turn into an attempt to “rule out

pneumonia” from a checklist. New fever, purulent respiratory secretions, increasing oxygen need, worsening respiratory examination, or a new infiltrate should trigger timely clinical evaluation according to the local

pneumonia or sepsis pathway; the RN role is to recognize change, gather relevant data, communicate clearly, and execute authorized orders safely (Kalil et al., 2016).

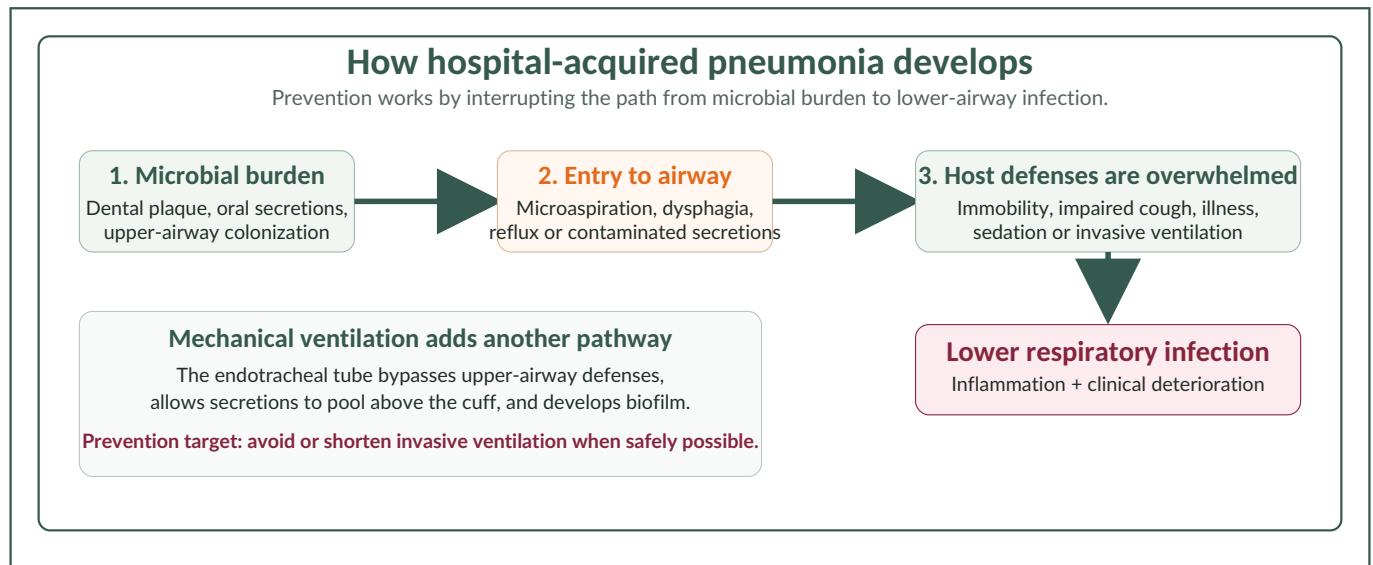


Figure 1. Pathways to hospital-acquired pneumonia. The common pathway is movement of microbial burden into the lower airway in a patient whose defenses cannot clear it. Invasive ventilation adds secretion pooling, biofilm, and bypass of upper-airway defenses.

Evidence basis: Kalil et al. (2016); Klompas et al. (2022); CDC (2024a).

Why prevention works: interrupt the pathway

Hospital-acquired pneumonia is not a single-organism disease and not a single-route event. Bacteria that cause HAP and VAP vary with the patient, prior antimicrobial exposure, unit ecology, and local resistance patterns. Gram-negative bacilli and *Staphylococcus aureus* are prominent in adult HAP/VAP treatment guidance, but prevention is more useful when framed around how organisms reach and persist in the lower airway rather than around memorizing a pathogen list (Kalil et al., 2016).

The mouth and oropharynx matter because dental plaque and oral secretions can become a reservoir for potentially pathogenic microorganisms. Small-volume aspiration occurs commonly, and risk rises when swallowing, cough, level of consciousness, mobility, or secretion clearance is impaired. Once lower-airway inoculation occurs, severe illness, frailty, neurologic disease, sedation, and respiratory devices can make normal clearance less effective. CDC therefore describes oral care as a modifiable factor that applies to virtually all hospitalized patients and explicitly links plaque, aspiration, and failure of host defenses (CDC, 2024a).

Mechanical ventilation changes the risk environment. The endotracheal tube bypasses upper-airway defenses, hinders glottic closure and cough, allows secretions to

pool above the cuff, and develops biofilm. For that reason, some of the most effective VAP-prevention strategies do not directly “kill germs”; they reduce time exposed to the tube by avoiding intubation when safely possible, minimizing sedation, and assessing daily for ventilator liberation (Klompas et al., 2022).

Think in modifiable layers

At the bedside, HAP risk is easier to act on when it is separated into layers. The first layer is microbial burden and transmission: oral biofilm, contaminated hands, respiratory equipment, and respiratory-virus exposure. The second is entry into the lower airway: dysphagia, impaired airway protection, positioning during oral intake, pooled secretions, and an endotracheal tube. The third is clearance and resilience: mobility, cough strength, depth of breathing, sedation, pain control, and overall illness. A patient may have risk in all three layers at once, which is why a bundle is often more realistic than a single intervention (Klompas et al., 2022; Livesey et al., 2024).

Table 1. A bedside map of modifiable HAP risk

Risk domain	What the RN looks for	Practical prevention response
Oral microbial burden	Missed brushing; dry mouth; plaque; dentures left in; dependence for oral care	Assist scheduled oral care; adapt supplies; clean dentures/appliances; document completion and barriers.

Table 1. A bedside map of modifiable HAP risk

Risk domain	What the RN looks for	Practical prevention response
Aspiration / dysphagia	New neurologic deficit; cough/wet voice with intake; secretion difficulty; reduced alertness	Follow the dysphagia pathway; protect from unsafe intake; use aspiration-safe oral care; escalate for swallowing evaluation.
Immobility / secretion retention	Bedbound status; pain limiting deep breathing; declining mobility; weak cough	Mobilize/reposition safely; coordinate analgesia and therapy; use ordered pulmonary-hygiene measures; balance fall risk.
Invasive ventilation	Deep sedation; missed liberation assessment; low head-of-bed angle; oral-care gaps; unnecessary circuit handling	Use sedation/liberation protocols, head elevation, toothbrushing, mobility, and correct circuit maintenance.
Transmission	Hand-hygiene lapses; shared equipment; respiratory symptoms; outbreak activity	Use Standard/indicated Transmission-Based Precautions; clean equipment; apply respiratory hygiene/source control.

Oral care is a prevention intervention, not a comfort extra

The prevention literature has moved away from treating mouth care as an optional hygiene task. The 2022

SHEA/IDSA/APIC practice recommendation identifies regular oral care as the most studied NV-HAP strategy and recommends at least daily toothbrushing despite uncertainty about the optimal protocol (Klompas et al., 2022). CDC operational guidance for nonventilated hospitalized patients goes further and recommends oral care at least twice daily for most patients, using a soft-bristle toothbrush, appropriate toothpaste, alcohol-free mouthwash when suitable, and moisturizing products as needed (CDC, 2024a). These recommendations are compatible: the evidence guideline establishes a minimum practice while the toolkit provides a practical hospital workflow.

A 2026 scoping review that synthesized 124 publications found four recurring oral-care components: assessment and triage, mouth cleaning that includes toothbrushing, oral moisturizing, and denture care. Toothbrushing was the most consistent element; chlorhexidine use was inconsistent. A companion implementation review found that written guidance, staff training, supplies, staffing, collaboration, patient factors, and audit systems all influence whether mouth care actually happens (Pojmonpiti et al., 2026a; Pojmonpiti et al., 2026b). The prevention problem is therefore not simply knowing that brushing matters; it is designing the care system so brushing is reliably performed for the patient who cannot do it independently.

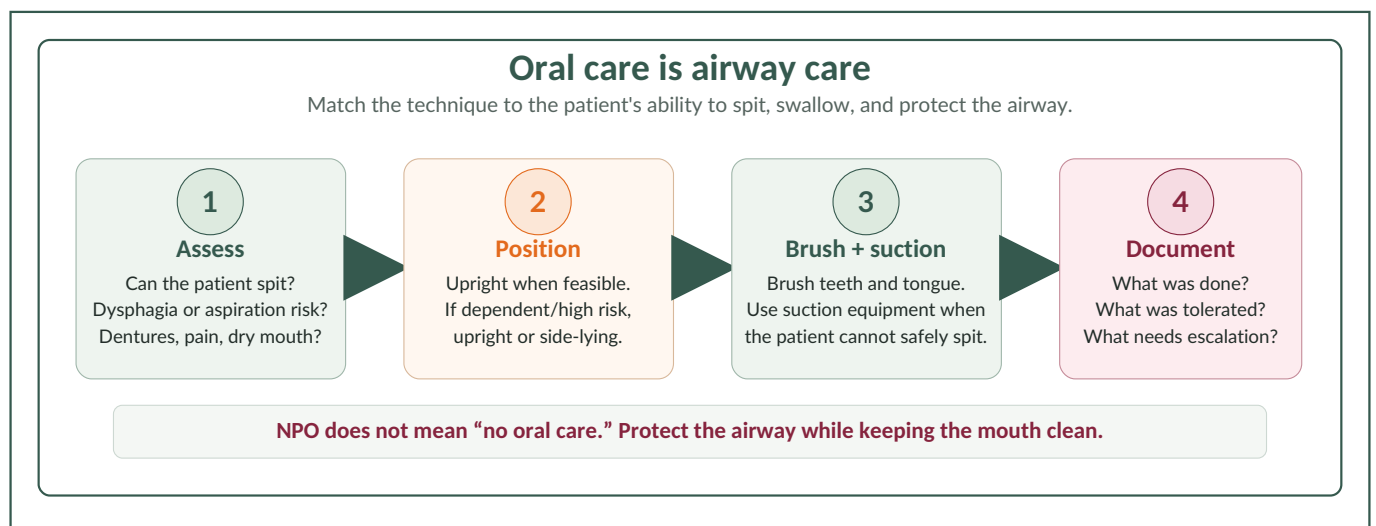


Figure 2. Oral care and aspiration safety. The technique changes when the patient cannot safely expectorate. A suction toothbrush and upright or side-lying position help control oral fluid and debris while preserving mechanical cleaning.

Evidence basis: CDC oral-health pneumonia toolkit (2024); Klompas et al. (2022); Pojmonpiti et al. (2026a).

For the patient who can spit and participate

Set up the patient to perform as much of the task as possible, because independence supports both oral health and mobility. Brush the teeth and tongue with a soft-bristle toothbrush; assist with interdental cleaning

and an appropriate alcohol-free rinse when feasible. Moisturize the lips and oral tissues when dry. Label personal supplies and store them clean and dry. Dentures and other removable appliances require separate

cleaning, removal at night when appropriate, and attention to sores or candidiasis (CDC, 2024a).

For the patient who cannot safely spit

A patient with known dysphagia, reduced alertness, weak secretion management, or inability to expectorate needs a different technique. CDC recommends upright or side-lying positioning, inspection and suctioning of excess secretions or loose debris, a suction toothbrush, and suction during and after brushing to remove saliva, toothpaste, and rinse (CDC, 2024a). Non-foaming toothpaste may be easier to manage in patients who are intubated or have swallowing difficulty. The goal is not to flood the mouth with liquid; it is to physically disrupt plaque while controlling the fluid that could enter the airway.

NPO is not a reason to omit oral care. A patient who is not taking food or fluids by mouth can still accumulate plaque, thick secretions, and dry oral debris. The prevention plan should instead change the technique so the mouth is cleaned without creating avoidable aspiration risk. If the patient resists care, has oral pain, bleeding, ulceration, or cannot open the mouth, document the barrier and adapt or escalate the plan rather than marking the task as “done” (CDC, 2024a).

Chlorhexidine: an important update

Older VAP bundles often included routine chlorhexidine oral care. The current 2022 practice recommendation does not support chlorhexidine as a routine VAP-prevention intervention in adults. The effect on VAP is unclear when higher-quality blinded trials are considered, and meta-analyses have raised concern about a possible mortality signal. Daily toothbrushing *without* chlorhexidine is listed as an essential practice (Klompas et al., 2022). This does not mean chlorhexidine can never be ordered for another legitimate oral indication; it means “VAP prevention” by itself is not a reason to default every ventilated adult to chlorhexidine.

FICTIONAL CASE 1 • GENERAL MEDICAL-SURGICAL UNIT

“She is NPO, so we skipped mouth care.”

Maria, 72, is admitted after an acute ischemic stroke. She is awake but has facial weakness, a wet voice after a sip attempted before transfer, and difficulty handling saliva. The admission order is NPO pending a formal swallowing evaluation. During evening handoff, the oncoming nurse learns that oral care was deferred because “nothing is going in her mouth.”

The priority is to separate *oral intake* from *oral hygiene*. Maria should remain protected from unapproved food, fluid, and oral medication while the dysphagia pathway proceeds, but her mouth still needs cleaning. Because she cannot reliably spit, the nurse positions her upright or side-lying as tolerated, uses suction-assisted oral care, limits free fluid in the mouth, and removes secretions and debris as the cleaning proceeds. The nurse also verifies that medication routes and meal trays remain consistent with the swallowing plan and communicates the wet voice and secretion difficulty to the appropriate team.

The teaching point is not that oral care prevents every stroke-associated pneumonia. Evidence for individual NV-HAP interventions remains limited. The point is that dysphagia risk and oral microbial burden occur together, and both need an active plan. “NPO” is a feeding status; it is not an oral-care prescription (Klompas et al., 2022; CDC, 2024a).

Dysphagia prevention is a team process

Early recognition and management of dysphagia may reduce NV-HAP, particularly in neurologically impaired and post-stroke patients. Potential approaches include nurse-administered risk tools, bedside swallowing evaluation, videofluoroscopic study, and fiberoptic endoscopic evaluation, depending on the patient and local pathway. Management can include changes in pill administration, food and liquid consistency, supervision with meals, and positioning while eating (Klompas et al., 2022). Nurses should not independently invent a diet consistency or medication-crushing plan; they should trigger the established pathway, protect the patient from unsafe intake, and coordinate with speech-language pathology, pharmacy, nutrition, and the prescribing team.

Aspiration risk is dynamic. A patient who passed a screen yesterday may become less alert after sedation, develop a new neurologic deficit, or fatigue during illness. Reassessment is warranted when function changes. Conversely, a feeding tube does not remove the need for oral care or secretion management. Prevention depends on the whole airway-protection picture, not on a single device or diet label (Livesey et al., 2024).

Mobility: protect the lungs without creating a fall

Immobility promotes shallow breathing, dependent atelectatic change, secretion retention, and loss of function. The 2022 practice recommendation supports early mobilization for ventilated adults and regards early mobilization as a reasonable low-risk NV-HAP strategy when fall risk is considered (Klompas et al., 2022). A 2025 retrospective study across 144 acute-care hospitals and 1.74 million hospitalizations found that persistent oral care for at least three days was associated with 16% less NV-HAP and persistent walking with 18% less NV-HAP. Because the study was observational, the association should not be presented as proof that walking itself caused the reduction; healthier patients may also be more able to walk. The result does, however, support making oral care and mobility visible daily care processes that deserve prospective study (Kluberg et al., 2025).

For nursing practice, “mobilize” must be individualized. Check hemodynamic and respiratory stability, level of assistance, lines and tubes, weight-bearing restrictions, orthostatic symptoms, and fall risk. A patient may progress from turning to dangling, chair transfer, standing, and walking. Coordinate analgesia, respiratory support, and therapy when needed. If mobility is unsafe, document the reason and use the safest feasible activity rather than treating an all-or-none mobility target as more important than patient safety.

Head-of-bed position depends on the clinical context

For ventilated adults, elevating the head of the bed to 30-45 degrees is an essential practice in the 2022 prevention guidance. The evidence quality for VAP reduction is low, but the intervention is simple, inexpensive, and generally low risk (Klompas et al., 2022). For nonventilated HAP, the evidence is much thinner and does not justify a universal claim that every hospitalized patient should remain semirecumbent solely to prevent pneumonia. Position should instead support safe feeding, secretion management, respiratory

mechanics, pressure-injury prevention, sleep, comfort, and the patient’s other clinical needs.

FICTIONAL CASE 2 • ORTHOPEDIC UNIT

The prevention plan has to fit the patient

James, 81, is postoperative day 1 after hip-fracture repair. He wears dentures, needs two-person assistance for transfer, and received an opioid shortly before lunch. His mouth is dry; the dentures have remained in place since admission. He says he is “too tired to get up,” but his oxygen saturation and blood pressure are stable.

A safe plan does not demand an unsupervised walk. The nurse first assesses sedation, pain, orthostatic risk, and ordered activity. James receives denture and oral care, is positioned upright for intake, and is assisted to the chair with the required level of help. The team schedules analgesia to support movement without excessive sedation and documents both the completed care and the barriers. If he becomes more somnolent, coughs with intake, or develops new respiratory change, the plan shifts from routine prevention to reassessment and escalation.

The key is reliability, not heroics. Oral care that is missed because “he has dentures,” and mobility that is missed because “he is old,” allow modifiable risks to accumulate. Mobility that ignores fall risk creates a different preventable harm.

Standard infection prevention still matters

HAP prevention is not a replacement for Standard Precautions. Hand hygiene, appropriate personal protective equipment, respiratory hygiene, safe handling of respiratory secretions, proper cleaning and disinfection of patient-care equipment, and environmental cleaning remain foundational practices in every care setting (CDC, 2024b). Alcohol-based hand sanitizer is generally preferred in healthcare when hands are not visibly soiled, because it is effective and accessible at the point of care; soap and water is required in situations defined by CDC and facility policy (CDC, 2024b).

Respiratory viruses also contribute to hospital-onset pneumonia. The 2022 HAP-prevention guidance describes viral pathogens as an important component of NV-HAP and recommends multimodal prevention rather than relying on one barrier (Klompas et al., 2022). CDC’s current healthcare guidance emphasizes early identification and separation of symptomatic people when feasible, respiratory hygiene, appropriate

source control and masks or respirators based on risk and facility policy, vaccination, hand hygiene, cleaning and disinfection, and attention to indoor air quality (CDC, 2025). These are system practices: the nurse participates, but isolation category, respirator use, and outbreak measures should follow the institution's current infection-prevention policy.

Respiratory equipment deserves deliberate handling

Any device that contacts the respiratory tract can become a transmission route if it is stored, handled, cleaned, disinfected, or replaced incorrectly. Do not

create extra device manipulation in the name of prevention. For ventilator circuits, current adult guidance recommends changing the circuit only when it is visibly soiled or malfunctioning, unless manufacturer instructions require otherwise; scheduled routine changes do not improve VAP outcomes and add cost (Klompas et al., 2022). Follow manufacturer instructions and facility policy for humidification systems, suction equipment, nebulizers, oxygen devices, and reusable respiratory-care equipment.

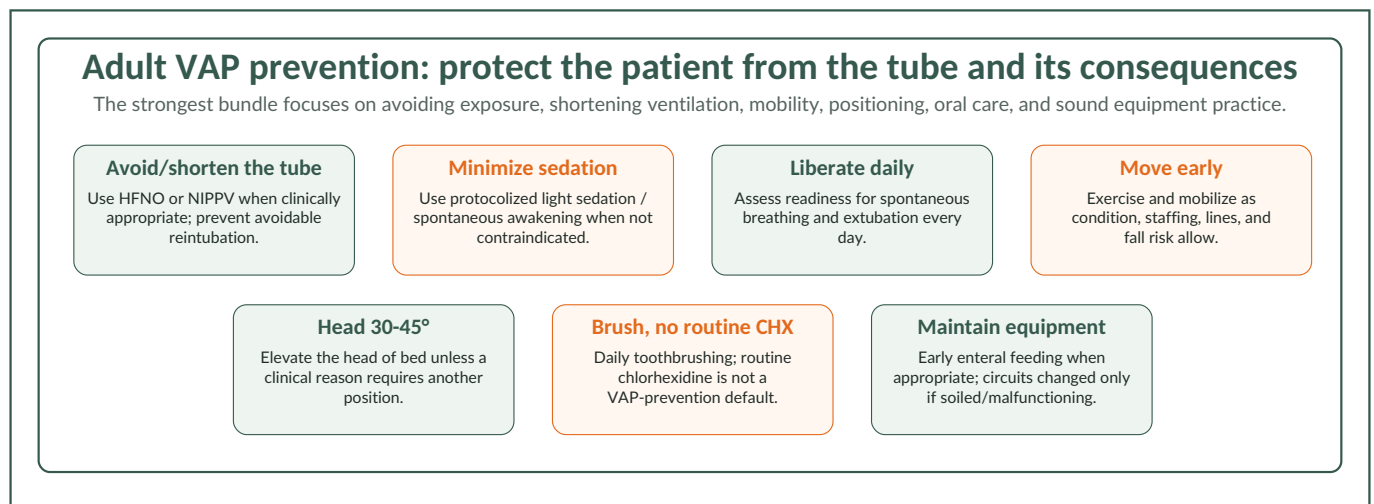


Figure 3. Essential adult VAP-prevention practices. The current prevention strategy centers on avoiding or shortening invasive ventilation and reducing complications during the time the tube is necessary.

Evidence basis: SHEA/IDSA/APIC practice recommendation, Klompas et al. (2022).

VAP prevention: reduce exposure to invasive ventilation

The most important conceptual update is that VAP prevention starts before and beyond mouth care. When clinically appropriate and safe, high-flow nasal oxygen or noninvasive positive-pressure ventilation can help avoid intubation or reintubation in selected patients. Once invasive ventilation is necessary, protocolized efforts to minimize sedation, conduct spontaneous awakening when appropriate, assess readiness for spontaneous breathing and extubation every day, and mobilize the patient can shorten exposure to mechanical ventilation (Klompas et al., 2022). The RN does not decide independently who should receive noninvasive support or be extubated; the nursing role is to apply the authorized protocol, identify contraindications, communicate readiness or instability, and ensure the daily assessment is not missed.

Minimize sedation without undertreating pain or agitation

Deep or unnecessary sedation can delay mobility and ventilator liberation. Current guidance recommends

minimizing sedation whenever possible and using a protocol, such as a nurse-driven targeted-sedation pathway or a spontaneous-awakening strategy, when there is no contraindication (Klompas et al., 2022). This is not a directive to abruptly stop sedatives or ignore pain, severe agitation, ventilator dyssynchrony, seizures, neuromuscular blockade, or another clinical indication. Nurses should know the ordered sedation target, perform the required assessment, document actual depth of sedation, and escalate when the patient is consistently deeper than intended or when the protocol cannot be safely applied.

Make ventilator liberation a daily question

A ventilator-liberation protocol with daily readiness assessment is an essential adult VAP-prevention practice. The logic is straightforward: every avoidable day of invasive ventilation is another day of exposure to an endotracheal tube and its associated complications. The daily question is not simply "Can we extubate now?" but "What barrier keeps this patient from the next liberation step, and can that barrier be safely addressed today?" (Klompas et al., 2022). Nursing observations

about mental status, secretions, cough, oxygen requirements, hemodynamics, mobility, and tolerance of spontaneous awakening or breathing trials are often central to that discussion.

Position, oral care, nutrition, and circuits

For ventilated adults, keep the head of the bed at 30-45 degrees unless another clinical need requires a different position. Provide daily oral care with toothbrushing and do not use routine chlorhexidine solely as a VAP-prevention default. When nutrition is needed and enteral feeding is clinically appropriate, early enteral nutrition is favored over early parenteral nutrition in the VAP-prevention guidance. Maintain ventilator circuits rather than changing them on a fixed schedule (Klompas et al., 2022). These steps appear simple, but they fail when responsibility is unclear: a head-of-bed angle may remain flat after a procedure, oral care may be documented as “deferred” repeatedly, or a liberation assessment may disappear during a busy handoff.

Subglottic secretion drainage is selective, not universal

Endotracheal tubes with subglottic secretion-drainage ports can reduce VAP rates and are reasonable to consider when more than 48-72 hours of intubation is anticipated. They are an *additional approach*, not a reason to extubate and immediately reintubate a patient who already has a conventional tube. Current guidance specifically advises against that exchange strategy because the risk of reintubation outweighs the prevention logic (Klompas et al., 2022). Selection is typically made during intubation planning or for patients in whom prolonged ventilation is reasonably anticipated.

FICTIONAL CASE 3 • ADULT ICU

“The bundle is checked, but the patient has been flat for hours.”

Andre, 58, is intubated for septic shock. He is now hemodynamically improving. The morning flow sheet shows “VAP bundle complete,” yet the bedside assessment finds the head of bed at 10 degrees following a line procedure, yesterday’s oral-care entry was “unable,” and his sedation score is deeper than the ordered target. No spontaneous-awakening or breathing-trial screening is visible for the day.

The RN does not fix this by checking more boxes. First, the nurse confirms whether any current contraindication requires the low head-of-bed angle or deeper sedation. If not, the bed is returned to the prescribed elevation, oral care is completed with an appropriate technique, and the sedation discrepancy is addressed within the protocol or escalated. The nurse then coordinates with respiratory therapy and the medical team so the day’s liberation-readiness assessment is completed rather than assumed.

The case illustrates why process measures must reflect actual care. A bundle should make omissions visible. When documentation says “complete” but individual components are missing, the quality signal becomes misleading and the patient loses the benefit of the very system intended to protect them (Klompas et al., 2022).

Choose the action - not the tradition

Do routinely when indicated

- Standard precautions + hand hygiene
- Regular toothbrushing / oral care
- Dysphagia recognition and management
- Early, safe mobility
- Ventilator liberation practices
- Head-of-bed elevation for ventilated adult

Consider selectively

- Subglottic-drainage ETT when prolonged intubation is anticipated
- Postpyloric feeding for selected patients with intolerance / high aspiration risk
- Unit-specific additional strategies after benefit, harm, resistance, and feasibility review

Do not make routine shortcuts

- Chlorhexidine oral care for adult VAP
- Systemic antibiotic prophylaxis for NV-HAP
- Scheduled ventilator-circuit changes
- Reintubation just to exchange to a subglottic-drainage tube
- Stopping indicated acid suppression solely to claim pneumonia prevention

Figure 4. Evidence-informed prevention choices. Routine practice should emphasize low-risk essential actions. Some interventions are selective, while several traditional shortcuts should not be built into a universal HAP or VAP bundle.

Evidence basis: Klompas et al. (2022); Cook et al. (2024); Han et al. (2025).

Know which traditions have changed

A prevention program can become unsafe when old bundle items persist after the evidence changes. Three examples deserve explicit attention: routine chlorhexidine oral care for ventilated adults, systemic antibiotic prophylaxis for NV-HAP, and scheduled ventilator-circuit changes. Current expert guidance does not recommend any of these as routine prevention practices (Klompas et al., 2022). A nurse who sees one of these interventions ordered for another legitimate indication should not stop it independently; the correct action is to understand the indication, compare it with current policy, and clarify when the rationale appears to be “pneumonia prevention” alone.

Prophylactic systemic antibiotics are not an NV-HAP bundle item

Trials of preventive systemic antibiotics in acute stroke have not shown a pneumonia, functional-outcome, or mortality benefit sufficient to support routine NV-HAP prophylaxis (Klompas et al., 2022). This is distinct from treating a patient who has a suspected or confirmed bacterial infection. Stewardship matters because unnecessary antibiotics expose patients to adverse drug effects, *Clostridioides difficile* infection, drug interactions, and antimicrobial selection pressure without establishing a prevention benefit.

Stress-ulcer prophylaxis is not a simple pneumonia lever

Older observational literature suggested that acid suppression might increase hospital-onset pneumonia, and the source article treated stress-ulcer prophylaxis largely as a pneumonia-risk question. Current evidence is more nuanced. In the 2024 REVISE randomized trial of 4,821 invasively ventilated adults, pantoprazole 40 mg IV daily reduced clinically important upper gastrointestinal bleeding compared with placebo, did not change 90-day mortality, and did not produce a meaningful difference in ventilator-associated pneumonia among prespecified secondary outcomes (Cook et al., 2024). Therefore, do not stop indicated stress-ulcer prophylaxis solely to claim HAP prevention. Instead, verify whether the patient meets the local indication, reassess the need as risk changes, and prevent unnecessary continuation after the indication has resolved.

MEDICATION-SAFETY BOUNDARY

This activity does not allocate pharmacology hours. Medication content is contextual: nurses should verify the clinical indication, prescribed route and schedule, monitor for effects and adverse events, and query unnecessary continuation. Initiation, selection, discontinuation, or dose changes require the appropriately authorized clinician and local protocol.

FICTIONAL CASE 4 • ADULT ICU

Do not create a new harm while trying to prevent pneumonia

Lena, 66, is mechanically ventilated after emergency abdominal surgery and is receiving stress-ulcer prophylaxis because the ICU team documented a high gastrointestinal-bleeding risk. During rounds, a team member says the proton-pump inhibitor should be stopped because “acid suppression causes VAP.”

The RN should not turn an association from older studies into an independent medication discontinuation. The safer response is to verify that the indication is still present and bring the question to the authorized prescriber or pharmacist. Current randomized evidence shows a gastrointestinal-bleeding benefit for pantoprazole in invasively ventilated critically ill adults without a demonstrated VAP penalty in that trial (Cook et al., 2024). If the indication later disappears, discontinuation may be appropriate for medication stewardship - but that is a different decision from removing an indicated therapy as a pneumonia-prevention ritual.

NV-HAP: be evidence-based without becoming inactive

The NV-HAP evidence base has an apparent tension. Expert guidance recommends low-risk practices such as oral care, dysphagia recognition, early mobilization, and multimodal viral prevention, while the 2025 AHRQ rapid review concluded that evidence for individual patient-safety practices is mostly limited and inconclusive (Klompas et al., 2022; Han et al., 2025). These statements can both be true. The absence of high-certainty randomized evidence does not mean that brushing teeth, managing dysphagia, or mobilizing safely lacks clinical value; it means the precise pneumonia-prevention effect, ideal protocol, and

relative contribution of each component remain uncertain.

Newer evidence reinforces the need for that measured interpretation. The 2025 multicenter retrospective study linked persistent oral care and walking with lower NV-HAP risk, but its observational design cannot establish causality (Kluberg et al., 2025). The 2026 scoping review found broad agreement on toothbrushing and interdisciplinary implementation but inconsistency in antiseptic choice (Pojmonpiti et al., 2026a). A strong nursing program therefore focuses on reliable, low-risk fundamentals and transparent measurement while avoiding claims that any one component “eliminates” NV-HAP.

What to do with bed positioning in nonventilated patients

Do not automatically copy the 30-45 degree ventilator recommendation to every nonventilated patient and call it evidence-based NV-HAP prevention. Current guidance states that data are insufficient to determine the impact of bed positioning on NV-HAP (Klompas et al., 2022). Position nonventilated patients according to swallowing safety, respiratory mechanics, hemodynamics, pressure-injury risk, procedures, comfort, and mobility goals. Upright positioning during meals or high-risk oral care is sensible when clinically tolerated, but the rationale should match the patient’s situation.

Vaccination supports respiratory health but is not a substitute for hospital prevention

Patients and healthcare personnel should receive recommended respiratory vaccines according to age, risk, jurisdiction, and current public-health guidance. Vaccination can reduce acquisition or severity of vaccine-preventable respiratory infections, but it does not replace hand hygiene, source control, isolation precautions, oral care, dysphagia management, or ventilator practices. During periods of increased respiratory-virus activity, facilities may intensify screening, source control, masking or respirator strategies, distancing, and

ventilation measures based on current risk assessment (CDC, 2025).

Prevention includes noticing when prevention may have failed

A prevention-focused nurse still needs to recognize a possible hospital-onset pneumonia. Look for a change from the patient’s baseline rather than waiting for a textbook cluster. New or worsening oxygen requirement, respiratory distress, new purulent sputum or endotracheal secretions, fever or hypothermia, leukocytosis or leukopenia, focal or diffuse chest findings, hemodynamic change, and a new or progressive infiltrate may contribute to clinical suspicion. None is specific enough alone to diagnose HAP or VAP (Kalil et al., 2016).

When concern develops, reassess the airway, breathing, oxygen delivery, vital signs, mental status, secretion burden, and recent aspiration events. Escalate according to the facility’s rapid-response, sepsis, and pneumonia pathways. If cultures or other specimens are ordered, collect them correctly and promptly; if the patient is unstable, diagnostic logistics should not delay emergency stabilization or time-critical authorized treatment. The prevention program should not create a culture in which a pneumonia diagnosis is seen as a “failure” to hide. Accurate recognition and reporting are part of patient safety.

Communicate the modifiable story

A useful handoff does more than say “high risk for pneumonia.” It names the risk that changes the next action: “He cannot safely spit, so oral care requires suction”; “She failed the swallowing screen and must remain on the approved intake plan”; “His sedation is deeper than target and today’s liberation screen has not been completed”; “The bed was left flat after transport and there is no current contraindication to returning it to the ordered angle.” Specific language makes the prevention plan executable.

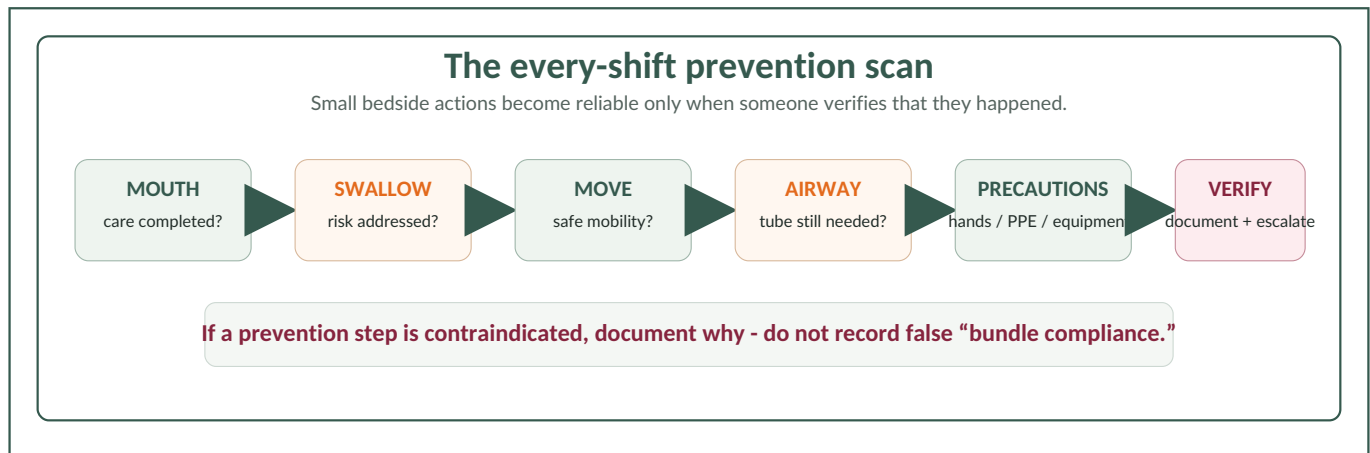


Figure 5. The every-shift prevention scan. A practical check of mouth care, swallowing risk, mobility, airway exposure, infection precautions, and documentation makes missed care visible without turning the bundle into a false all-or-none score. Evidence basis: Klompas et al. (2022); CDC (2024a, 2024b); Pojmonpiti et al. (2026b).

Make prevention measurable without gaming the measure

The 2022 practice recommendation emphasizes both outcome measures and process measures. Outcomes matter because the goal is fewer infections and better patient results. Process measures matter because they reveal where care delivery is breaking down. Examples include oral-care completion, documented dysphagia pathway adherence when indicated, mobility level, ventilator head-of-bed position, sedation-target documentation, spontaneous-awakening and spontaneous-breathing eligibility or completion, and circuit-change indications (Klompas et al., 2022).

A measure is useful only if its definition is clear. Specify the numerator, denominator, exclusions, data source, and frequency of audit. A ventilated patient with a temporary contraindication to head elevation should not be labeled “noncompliant” if the contraindication is valid and documented. Conversely, an unchecked box should not automatically become “contraindicated.” Periodic direct observation helps validate electronic documentation and distinguishes a documentation problem from a care-delivery problem (Klompas et al., 2022).

Build the system around real barriers

Recent implementation work on oral care identifies barriers at organizational, clinician, and patient levels. Lack of supplies, ambiguous ownership, insufficient training, competing priorities, patient refusal, cognitive impairment, pain, and inconsistent documentation can all undermine performance (Pojmonpiti et al., 2026b). Improvement therefore needs more than education. Ensure supplies are available where care occurs, define who is responsible, build the task into care plans and handoffs, teach aspiration-safe technique, and provide a

way to document why care could not be completed. Feedback should be specific enough to show units what to improve.

For NV-HAP, avoid overinterpreting small changes in a diagnosis rate when surveillance definitions, coding practices, or patient mix also changed. Pair outcome trends with process data and clinical review. For VAP and ventilator-associated events, use the surveillance definitions required by the organization for quality reporting, but do not use surveillance definitions as bedside diagnostic criteria. The prevention team and the treating team have related but different questions.

Bring the prevention plan back to the bedside

Maria’s risk was not solved by making her NPO; she needed aspiration-safe oral care and a swallowing plan. James did not need an unsafe walk; he needed supported mobility, denture care, positioning, and a plan that recognized sedation and fall risk. Andre’s “completed” ventilator bundle was not truly complete until the team verified the head-of-bed angle, oral care, sedation target, and liberation assessment. Lena did not need an indicated medication stopped on the strength of an old pneumonia theory; she needed the indication reassessed with current evidence.

These cases point to one durable nursing habit: identify what creates the lower-airway risk, match the prevention action to that risk, and verify that the action actually occurred. For nonventilated patients, the evidence is still evolving, so use low-risk fundamentals and be transparent about uncertainty. For ventilated adults, consistently apply current essential practices that reduce exposure to invasive ventilation and its complications. Across both groups, prevention succeeds when oral care, swallowing safety, mobility, infection prevention, respiratory support, and communication are

treated as connected parts of the same patient-safety system.

Hospital-acquired pneumonia cannot always be prevented. A credible prevention program does not promise

zero risk. It reduces avoidable risk, detects deterioration early, and prevents outdated habits from becoming automatic care.

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