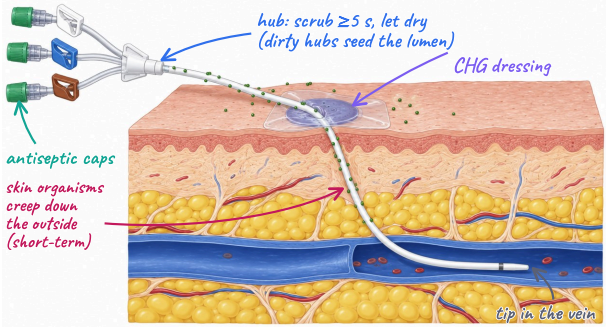
ER BASICS · ONE-PAGER

Preventing ICU Infections

CLABSI, CAUTI, VAE, C. difficile and MDRO bundles, isolation by organism, hand hygiene and quality measures

38 sources + more detail
erbasics.com/sheets/infection-prevention.html
checked Nov 2026

CLABSI How lines get infected, and the bundle



1 CLABSI: insertion and line care

- Checklist; anyone may stop insertion for a sterility break
- Ultrasound; subclavian preferred in ICUs (SHEA 2022), femoral avoided (CDC 2011)
- Maximal barrier: cap, mask, sterile gown and gloves, full-body drape
- Prep: 2% chlorhexidine (CHG) in alcohol, dried before puncture
- Daily CHG bath (ICU, age >2 months)
- Scrub the hub ≥5 s (CHG-alcohol or 70% alcohol), let dry; or antiseptic caps
- CHG dressing: transparent every 7 days, gauze every 2, sooner if damp, loose or soiled
- Tubing: continuous sets 96 h to 7 days; blood or lipids within 24 h; propofol 12 h (label)
- Daily need review; no routine line changes

2 CAUTI: fewer catheter days

CDC 2009 also lists prolonged immobilization.

INDICATED (SHEA 2022)	NOT INDICATED
Acute urinary retention (scanned)	Incontinence, convenience
Hourly output that changes therapy	ICU status alone
Selected surgery; end-of-life comfort	Routine postoperative use
Open pressure injury or graft, incontinent	Urine sample if able to void

- Alternatives: external catheter (male or female), intermittent catheterization, bladder scan
- Sterile insertion, smallest bore; closed system, bag below bladder and off floor, no kinks
- Meatal hygiene without antiseptic; culture from the port, never the bag
- Daily review, nurse-driven removal; after surgery ideally within 24 h (CDC 2009)
- Avoid: scheduled catheter or bag changes, routine irrigation, testing or treating asymptomatic bacteriuria

3 VAP and ventilator-associated events

- Avoid intubation: HFNC or NIV when safe
- Daily paired SAT and SBT; light, benzodiazepine-sparing sedation
- Early mobility; early enteral, not parenteral, nutrition
- Head of bed 30–45°; daily toothbrushing, no chlorhexidine oral care
- Circuit changed only if soiled or malfunctioning
- Subglottic suction tube if ventilated >48–72 h

Adults ventilated ≥4 days; PEEP 0–5 counts as 5.

TIER	NHSN 2026 SURVEILLANCE CRITERIA
VAC	After ≥2 stable days, minimum PEEP up ≥3 or FiO_2 up ≥0.20 for ≥2 days
IVAC	VAC + T >38 or <36 °C or WBC ≥12,000 or ≤4,000 + new antibiotic ≥4 days
PVAP	IVAC + quantitative culture, or purulent secretions plus an organism

4 C. difficile and resistant organisms

- Test only ≥3 new unformed stools in 24 h, no laxative in 48 h; no test of cure
- Contact precautions once diarrhea starts; private room and toilet
- Continue ≥48 h after diarrhea resolves (IDSA/SHEA 2017)
- Soap and water after care; dedicated equipment; sporicidal cleaning (EPA List K, e.g., bleach)
- Stewardship: limit fluoroquinolones, clindamycin, 3rd/4th-generation cephalosporins, carbapenems
- Universal ICU decolonization: daily CHG bath plus 5 days of nasal mupirocin (REDUCE MRSA)
- C. auris: EPA List P disinfectant; alcohol rub works

⚠ SAFETY Alcohol does not kill C. diff spores, and quaternary ammonium alone does not kill C. auris.

5 Isolation by organism

**Also contact. COVID-19 (any care) and influenza AGPs (intubation, bronchoscopy, open suction, CPR): N95, gown, gloves, eye protection (CDC).*

TYPE	ORGANISMS	PPE AND ROOM
Airborne	TB, measles, varicella*, disseminated zoster*	Fit-tested N95; AIIR, door closed
Droplet	Influenza, meningococcus, pertussis, mumps	Surgical mask on entry
Contact	MRSA, VRE, CRE, C. auris, RSV, scabies	Gown and gloves on entry; own equipment
Contact (enteric)	C. difficile, norovirus	Contact PPE, soap-and-water hands, sporicidal cleaning

Ends: meningococcus 24 h and pertussis 5 days into therapy; norovirus 48 h after symptoms.

6 Hand hygiene and SSI

- WHO 5 moments: before patient contact, before an aseptic task, after body fluid risk, after patient contact, after touching surroundings
- Alcohol rub (≥60%) unless soiled or after C. diff or norovirus; gloves never replace it
- Prophylaxis ≤60 min before incision (120 for vancomycin, fluoroquinolones); redose long cases
- Stop at closure (SHEA 2022, CDC 2017); cardiac surgery up to 48 h (STS 2006)
- Clip, don't shave; CHG-alcohol prep; decolonize S. aureus before cardiac and orthopedic surgery
- Keep above 35.5 °C; postop glucose 110–150 (SHEA 2022; STS cardiac under 180)

7 Quality measures exams test

MEASURE	HOW IT WORKS
Device-associated rate	Infections ÷ device days × 1,000
SIR (NHSN)	Observed ÷ predicted infections; below 1.0 is better
CMS HAC Reduction Program	CLABSI, CAUTI, SSI, MRSA bacteremia, C. diff, PSI 90; worst 25% lose 1%

- NHSN CLABSI: line >2 days plus a pathogen, or a commensal twice with fever, chills or hypotension
- NHSN CAUTI: Foley >2 days, ≥10^5 CFU/mL, plus fever >38.0 °C or suprapubic or CVA tenderness

EXAM TIP Removing the device is the best prevention. Rising rate: audit the bundle, test a fix (PDSA). CLABSI and CAUTI are nurse-sensitive indicators.

MORE How ICU infections start

On any given day about 1 in 31 US inpatients has a healthcare-associated infection (3.2% in CDC's 2015 survey, Magill 2018), most often pneumonia, C. difficile or surgical site infection. NHSN (2026) estimates about 18,100 CLABSIs a year in US ICUs and wards, and hospitals reported more than 17,000 CAUTIs in 2023.

With short-term central lines, skin organisms migrate from the insertion site along the outer surface (CDC 2011); with longer dwell, contaminated hubs and connectors seed the lumen (CDC 2002), and about half of hubs are colonized under standard practice (SHEA 2022). Biofilm then shields bacteria from antibiotics, which is why infected short-term lines usually come out.

Urinary organisms climb the outside of the catheter from the perineum or enter the lumen through a broken closed system. Bacteriuria accrues at 3–7% per catheter day, so duration is the main risk factor (SHEA 2022).

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