CENTRAL VENOUS CATHETERS · ICU

CLABSI Prevention Bundle

A central line–associated bloodstream infection is largely preventable. This bundle consolidates the insertion and maintenance practices that drive CLABSI rates toward zero in critically ill patients, drawn from SHEA/IDSA/APIC 2022 guidance.

CORE PRINCIPLES

- **Insert only when indicated** — remove promptly once no longer needed.
- **Full sterile barrier precautions** during every insertion.
- **Prefer the subclavian site** over femoral when feasible.
- **Hand hygiene** before and after insertion or manipulation, with an alcohol-based rub.
- **Disinfect skin** with ≥2% alcoholic chlorhexidine; let it dry before puncture.
- **Maintain aseptically** — CHG dressings, hub disinfection, regular assessment.
- **Daily chlorhexidine bathing, staff education, and checklist adherence** further reduce CLABSI.

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PHASE ONE

Before line insertion

- **Assess the indication.** Place a central line only for a clear clinical need — vasoactive infusion, hemodynamic monitoring, or poor peripheral access — and reassess daily.
- **Educate and credential staff.** Require competency validation and periodic retraining in sterile technique and CLABSI prevention.
- **Daily chlorhexidine bathing.** Bathe ICU patients ≥ 2 months of age with 2% chlorhexidine.
- **Prepare equipment.** Use an all-inclusive catheter kit so sterile supplies and antiseptics are standardized at the bedside.

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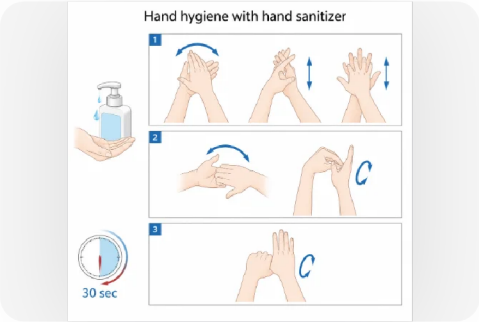
PHASE TWO

During insertion

- **Hand hygiene first.** Perform an alcohol-rub hand hygiene immediately before donning gloves.
- **Maximal sterile barriers.** Cap, mask, sterile gown, sterile gloves, and a full-body drape over the patient.
- **Skin antisepsis.** Clean with ≥ 2% chlorhexidine in alcohol and allow it to dry completely before puncture.
- **Optimize site selection.** Prefer the subclavian vein (lowest infection rate), avoid femoral access in adults, and use ultrasound guidance to minimize punctures and mechanical complications.
- **Checklist monitoring.** Use an observer checklist and empower any team member to halt insertion if a breach occurs.



Hygienic hand rub — antiseptic hand rub technique.

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PHASE THREE

After insertion · maintenance bundle

- **Dressings.** Use a chlorhexidine-impregnated transparent dressing; change every 7 days or sooner if loose, damp, or soiled. Use sterile gauze when bleeding or drainage persists.
- **Hub and port asepsis.** Scrub connectors for ≥ 5 s with alcohol or alcoholic chlorhexidine before each access; consider antiseptic cap protectors.
- **Don't replace lines routinely.** Remove emergently placed or malfunctioning catheters within 48 h using sterile technique.
- **No systemic antibiotic prophylaxis.** It is not effective for CLABSI prevention.

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PHASE FOUR

Daily maintenance and assessment

- **Review the need daily.** Evaluate continued CVC use on multidisciplinary ICU rounds and remove nonessential lines.
- **Protect staffing ratios.** Ensure adequate nurse-to-patient ratios and minimize float nursing to sustain bundle adherence.
- **Keep systems closed.** Maintain closed, sterile fluid systems and replace administration sets within 7 days unless used for blood, blood products, or lipid emulsions.

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PHASE FIVE

Institutional and additional practices

- **Monitor and feed back.** Track CLABSI per 1,000 catheter-days, review every case, and share unit data routinely.
- **Escalate for persistent high rates.** Add antimicrobial-impregnated catheters (chlorhexidine/silver sulfadiazine or minocycline/rifampin), antimicrobial lock therapy for high-risk long-term catheters (e.g. hemodialysis, limited access), and a dedicated infusion/vascular-access team.

WHEN THE EVIDENCE DISAGREES

Some sources favour the **subclavian site** for its lowest infection risk, while others highlight a higher rate of **mechanical complications** such as pneumothorax. Individualize the choice with a patient-specific risk–benefit assessment.

BEDSIDE POSTER · PRINT & POST AT THE UNIT

CENTRAL LINE SAFETY · ICU

CLABSI prevention bundle

Largely preventable. Run the bundle on every line, every shift.

At insertion THE FIVE-POINT BUNDLE

1. **Hand hygiene**
   Alcohol-based rub before and after insertion or manipulation.
2. **Maximal sterile barriers**
   Cap, mask, sterile gown, gloves, and a full-body drape.
3. **Chlorhexidine skin prep**
   ≥2% CHG in alcohol — let it dry fully before puncture.
4. **Optimal site**
   Prefer subclavian, avoid femoral, use ultrasound guidance.
5. **Daily review — remove early**
   Insert only when clinically indicated. Reassess the need on every round and pull the line the moment it is no longer required.

Maintain EVERY DAY THE LINE STAYS IN

CHG dressing
Change every 7 days, or sooner if loose, damp, or soiled.

Scrub the hub
≥5 s with alcohol or alcoholic CHG before every access.

Daily CHG bath
2% chlorhexidine bathing for patients ≥2 mo.

DON'T

No routine line swaps. Remove emergent or malfunctioning catheters within 48 h.

No systemic antibiotic prophylaxis — it does not prevent CLABSI.

Empower anyone to halt insertion if sterile technique is breached. Track CLABSI per 1,000 catheter-days.
Educational use only — not a substitute for clinical judgement. Source: SHEA/IDSA/APIC 2022.

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