

Drain removal, surgical



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■ Introduction

Surgical drains promote wound healing by providing an exit site for fluid that accumulates in or near a wound bed, making them an important adjunct to postoperative care.^[1] Drains commonly inserted during surgery include the Hemovac, Jackson-Pratt, and Penrose drains. Surgical drain removal should occur when the drain malfunctions or when drainage becomes minimal (less than 25 mL in the previous 24 hours), as ordered by the practitioner.^{[2][3][4]}

■ Equipment

- Antiseptic swab or facility-approved antiseptic solution
- Facility-approved pain assessment tool
- Gloves
- Labels
- Sterile 4" × 4" (10- × 10-cm) gauze pads
- Sterile gloves
- Tape (paper or silicone for fragile skin)^[5]
- Optional: dressings and tape specially formulated for fragile skin, graduated cylinder, laboratory biohazard transport bag, laboratory request form, light source, other personal protective equipment, prescribed pain medication, sterile scissors, sterile specimen collection containers, sterile specimen swab, suture removal kit

■ Preparation of Equipment

Inspect all equipment and supplies. If a product is expired, is defective, or has compromised integrity, remove it from patient use, label it as expired or defective, and report the expiration or defect as directed by your facility.

■ Implementation

- Verify the practitioner's order.
- Review the patient's medical record to determine the type and location of the drain to remove and the method used to secure it *to ensure proper removal*.
- Verify whether you should culture the surgical drain site, drain tip, or drainage upon drain removal.
- Gather and prepare the necessary equipment and supplies.
- Perform hand hygiene.^{[6][7][8][9][10][11]}
- Confirm the patient's identity using at least two patient identifiers.^[12]
- Provide privacy.^{[13][14][15][16]}
- Explain the procedure to the patient and family (if appropriate) according to their individual communication and learning needs *to increase their understanding, allay their fears, and*

enhance cooperation.^[17]

- Raise the bed to waist level before providing care *to prevent caregiver back strain.*^[18]
- Perform hand hygiene.^{[6] [7] [8] [9] [10] [11]}
- Screen for and assess the patient's pain using facility-defined criteria that are consistent with the patient's age, condition, and ability to understand.^[19]
- Treat the patient's pain, as needed and ordered, using nonpharmacologic, pharmacologic, or a combination of approaches. Base the treatment plan on evidence-based practices and the patient's clinical condition, past medical history, and pain management goals.^[19]
- Perform hand hygiene.^{[6] [7] [8] [9] [10] [11]}
- Put on gloves and, as needed, other personal protective equipment *to comply with standard precautions.*^{[20] [21] [22]}
- Position the patient comfortably and to allow access to the drain exit site.
- If the drain contains suction from its initial closure, release the suction from the drain.^{[3] [23] [24]}
- Empty any remaining drainage into a graduated cylinder; note the volume, color, consistency, and odor of any drainage within the drain.^[24]
- Remove the drain dressing *to gain access to the drain exit site.* Remove the dressing and tape carefully *to prevent skin stripping and tearing.* Discard them in an appropriate receptacle.^[21]
- Remove and discard your gloves.^[21]
- Perform hand hygiene.^{[6] [7] [8] [9] [10] [11]}
- Put on sterile gloves.^{[20] [21]}
- Using the suture removal kit, cut and remove any sutures present.^[24]
- Place a sterile gauze pad close to the drain exit site *to absorb remaining drainage that escapes while you're removing the drain.*
- Have the patient breathe deeply and smoothly. Grasp the drain close to the skin with a sterile-gloved hand.^[2]
- Withdraw the drain gently, using smooth, steady traction. If you meet resistance, stop the procedure and notify the practitioner.^[23]
- Maintain pressure over the drain site with the sterile gauze pad for a few minutes until drainage or bleeding is minimal.^[3]
- Check that you've removed the entire drain. Examine the drain tip for irregularities or other signs of breakage. The drain should have a clean-cut edge and not appear jagged or torn.^{[2] [24]}
- If you need to culture the drain tip:
 - Cut it with sterile scissors and place it in a sterile specimen collection container.
 - Label the specimen container in the presence of the patient *to prevent mislabeling.*^[12]
 - Place the specimen container in a laboratory biohazard transport bag and send it immediately to the laboratory with the appropriate laboratory request form (if necessary).^[21]
- Discard the drain in an appropriate receptacle.^[21]
- Assess the patient's skin integrity at the drain exit site for signs of infection, such as redness, swelling, a foul odor, and purulent drainage as well as signs of fluid accumulation.^[1] Be aware that skin alterations can appear more subtle in patients with dark skin tones. Use proper lighting, and always compare affected areas to nonaffected areas on the patient. Prepare to assess all patients accurately by familiarizing yourself with manifestations of common skin findings in patients of all skin tones.^[25]

- If you note purulent drainage and inflammation at the drain exit site:
 - Obtain a specimen using a sterile specimen swab if ordered.
 - Place the swab in its container and then label the container in the presence of the patient *to prevent mislabeling*.^[12]
 - Place the specimen container in a laboratory biohazard transport bag and send it immediately to the laboratory with the appropriate laboratory request form (if necessary).^[21]
- Remove and discard your gloves.^[21]
- Perform hand hygiene.^{[6] [7] [8] [9] [10] [11]}
- Put on gloves.^{[20] [21]}
- Clean the drain exit site using an antiseptic swab or a sterile gauze pad moistened with facility-approved antiseptic solution. Then allow the site to dry.^[3]
- Place a sterile gauze pad over the drain exit site and secure it with tape.^[24] If the patient has fragile skin, use dressings and tape specifically formulated for fragile skin *to prevent skin stripping or tearing*.^[5] Label the dressing as directed by your facility.
- Return the bed to the lowest position *to prevent falls and maintain patient safety*.^[26]
- Discard used supplies in appropriate receptacles.^[21]
- Remove and discard your gloves and, if worn, other personal protective equipment.^[21]
- Perform hand hygiene.^{[6] [7] [8] [9] [10] [11]}
- Reassess and respond to the patient's pain by evaluating the response to treatment and progress toward pain management goals. Assess for adverse reactions and risk factors for adverse events that may result from treatment.^[19]
- Perform hand hygiene.^{[6] [7] [8] [9] [10] [11]}
- Document the procedure.^{[27] [28] [29]}

■ Special Considerations

- Drainage from the drain exit site should be minimal and should cease within 24 hours of drain removal. If drainage continues, notify the practitioner *because fluid may be accumulating beneath the skin and require evacuation*.

■ Patient Teaching

Teach the patient and family (if appropriate) about the signs and symptoms of infection, such as fever, chills, nausea, and vomiting as well as redness, swelling, purulent drainage, or odor from the drain site. Tell the patient to notify the practitioner if any of these signs or symptoms develop or if a sudden increase in pain at the drain site occurs. Also tell the patient to notify the practitioner if drainage from the drain exit site continues beyond 24 hours.

■ Complications

Complications associated with surgical drain removal may include:

- continued drainage, with accumulation of fluid underneath the skin
- drain breakage with retained drain fragment
- infection
- pain during drain removal that persists afterward
- poor wound healing
- tissue injury.

■ Documentation

Documentation associated with surgical drain removal includes:

- date and time of drain removal
- type of drain removed
- appearance of the drain exit site
- volume and characteristics of the drainage present
- type of dressing applied
- pain assessment findings
 - interventions taken
 - response to those interventions
- specimens collected and sent for microbiologic examination
- tolerance of the procedure
- teaching provided to the patient and family (if applicable)
 - understanding of that teaching
 - follow-up teaching needed.

This procedure has been reviewed by the Academy of Medical-Surgical Nurses.



■ Related Procedures

- [Chest drainage \(Heimlich\) valve removal \(Advanced practice\)](#)

■ References

[\(Rating System for the Hierarchy of Evidence for Intervention/Treatment Questions\)](#)

1. American Association of Critical-Care Nurses (AACN). (2024). *AACN procedure manual for progressive and critical care* (K. L. Johnson, Ed.; 8th ed.). Elsevier.
2. Walker, J. (2007). Patient preparation for safe removal of surgical drains. *Nursing Standard*, 21(49), 39–41.
[Abstract](#) | [Complete Reference](#)
3. Moola, S. (2022). Vacuum drain (surgical): Removal. *The JBI EBP Database*. AN: JBI-ES-3553-2.
4. Vincent, P. (2025). *Surgical drains*. Retrieved February 2026 from <https://patient.info/doctor/surgical-drains-indications-management-and-removal>
5. LeBlanc, K., et al. (2013). International skin tear advisory panel: A tool kit to aid in the prevention, assessment, and treatment of skin tears using a simplified classification system. *Advances in Skin & Wound Care*, 26(10), 459–476. Retrieved February 2026 from <https://doi.org/10.1097/01.ASW.0000434056.04071.68> (Level IV)
[Abstract](#) | [Complete Reference](#)
6. Centers for Disease Control and Prevention. (2002). Guideline for hand hygiene in health-care settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *MMWR Recommendations and Reports*, 51(RR-16), 1–45. Retrieved February 2026 from <https://www.cdc.gov/mmwr/pdf/rr/rr5116.pdf> (Level VII)
7. Joint Commission. (2026). Standard NPG.05.03.01. *Comprehensive accreditation manual for hospitals*. (Level VII)

8. World Health Organization (WHO). (2009). *WHO guidelines on hand hygiene in health care: First global patient safety challenge, clean care is safer care*. Retrieved February 2026 from https://iris.who.int/bitstream/handle/10665/44102/9789241597906_eng.pdf (Level VII)
9. Centers for Medicare and Medicaid Services. (2024). Condition of participation: Infection prevention and control and antibiotic stewardship programs. 42 C.F.R. § 482.42.
10. Accreditation Commission for Health Care. (2025). Standard 07.04.05. *Accreditation requirements for acute care hospitals*. (Level VII)
11. DNV Healthcare USA, Inc. (2025). IC.1.SR.3f. *NIAHO® accreditation requirements, interpretive guidelines and surveyor guidance – revision 25-1*. (Level VII)
12. Joint Commission. (2026). Standard NPG.01.01.01. *Comprehensive accreditation manual for hospitals*. (Level VII)
13. Centers for Medicare and Medicaid Services. (2024). Condition of participation: Patient's rights. 42 C.F.R. § 482.13(c)(1).
14. Accreditation Commission for Health Care. (2025). Standard 15.01.07. *Accreditation requirements for acute care hospitals*. (Level VII)
15. Joint Commission. (2026). Standard RI.11.01.01. *Comprehensive accreditation manual for hospitals*. (Level VII)
16. DNV Healthcare USA, Inc. (2025). PR.2.SR.5. *NIAHO® accreditation requirements, interpretive guidelines and surveyor guidance – revision 25-1*. (Level VII)
17. Joint Commission. (2026). Standard PC.12.02.01. *Comprehensive accreditation manual for hospitals*. (Level VII)
18. Waters, T. R., et al. (2009). *Safe patient handling training for schools of nursing*. Retrieved February 2026 from <https://www.cdc.gov/niosh/docs/2009-127/pdfs/2009-127.pdf> (Level VII)
19. Joint Commission. (2026). Standard NPG.06.02.01. *Comprehensive accreditation manual for hospitals*. (Level VII)
20. Siegel, J. D., et al. (2007, revised 2024). *2007 guideline for isolation precautions: Preventing transmission of infectious agents in healthcare settings*. Retrieved February 2026 from <https://www.cdc.gov/infection-control/media/pdfs/Guideline-Isolation-H.pdf> (Level VII)
21. Occupational Safety and Health Administration. (2019). *Bloodborne pathogens, standard number 1910.1030*. Retrieved February 2026 from <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030> (Level VII)
22. Accreditation Commission for Health Care. (2025). Standard 07.02.04. *Accreditation requirements for acute care hospitals*. (Level VII)
23. Durai, R., & Ng, P. C. H. (2010). Surgical vacuum drains: Types, uses, and complications. *AORN Journal*, 91(2), 266–274. Retrieved February 2026 from <https://doi.org/10.1016/j.aorn.2009.09.024>
[Abstract](#) | [Complete Reference](#)
24. Knowlton, M. C. (2015). Nurse's guide to surgical drain removal. *Nursing*, 45(9), 59–61. Retrieved February 2026 from <https://doi.org/10.1097/01.nurse.0000470418.02063.ca>
[Abstract](#) | [Complete Reference](#)
25. Pusey-Reid, E., et al. (2023). Skin assessment in patients with dark skin tone. *American Journal of Nursing*, 123(3), 36–43. Retrieved February 2026 from <https://doi.org/10.1097/01.NAJ.0000921800.61980.7e> (Level VII)
26. Ganz, D. A., et al. (2013). *Preventing falls in hospitals: A toolkit for improving quality of care* (AHRQ Publication No. 13-0015-EF). Agency for Healthcare Research and Quality. Retrieved February 2026 from <https://www.ahrq.gov/sites/default/files/publications/files/fallpxtoolkit.pdf> (Level VII)
27. Joint Commission. (2026). Standard RC.12.01.01. *Comprehensive accreditation manual for hospitals*. (Level VII)

28. Centers for Medicare and Medicaid Services. (2024). Condition of participation: Medical record services. 42 C.F.R. § 482.24(b).

29. Accreditation Commission for Health Care. (2025). Standard 10.00.03. *Accreditation requirements for acute care hospitals*. (Level VII)

■ **Additional References**

• Baranoski, S., & Ayello, E. A. (2020). *Wound care essentials: Practice principles* (5th ed.). Wolters Kluwer.

Rating System for the Hierarchy of Evidence for Intervention/Treatment Questions

The following leveling system is adapted from *Evidence-Based practice in nursing & healthcare: A guide to best practice*, Fifth edition, by Bernadette Mazurek Melnyk and Ellen Fineout-Overholt (2023).

Level I	Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs)
Level II	Evidence from well-designed single RCTs (experimental)
Level III	Evidence from well-designed nonrandomized controlled trials (quasi-experimental), systematic reviews of a complete body of evidence, and intervention studies using mixed methods
Level IV	Evidence from well-designed case-control and cohort studies (observational)
Level V	Evidence from systematic reviews of qualitative and descriptive studies
Level VI	Evidence from single descriptive and qualitative studies, evidence-based practice implementation, and quality improvement projects
Level VII	Evidence from expert opinion, expert committee reports, and literature reviews

Data from Gyatt, G., & Rennie D. (2002). Users' guides to the medical literature. American Medical Association; Harris, R. P., et al. (2001). Current methods of the U.S. Preventative Services Task Force: A review of the process. American Journal of Preventative Medicine, 20, 21-35.