



Peripherally inserted central catheter (PICC) dressing change, home care

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■ Introduction

Maintenance of peripherally inserted central catheters (PICCs) in the home care setting is necessary to provide timely and therapeutic infusions required by patients. PICCs are used in the home care setting to administer medications, blood products, chemotherapy, IV fluids, and parenteral nutrition.

A transparent semipermeable dressing over a PICC should be changed at least every 7 days; a gauze dressing or a transparent semipermeable dressing with gauze underneath should be changed at least every 2 days.^{[1][2]} Change the dressing immediately to assess, clean, and disinfect the site if signs and symptoms of infection are present or if the dressing becomes visibly soiled, loosened, or dislodged or if there's any moisture, drainage, blood, or compromised skin integrity beneath the dressing.^[2] Limited evidence suggests that transparent semipermeable dressings are advantageous because they allow site inspection and reduce the number of dressing changes, which results in fewer instances of dislodgement or accidental removal. If the catheter exit site has drainage, use a gauze dressing instead of a transparent dressing until the drainage resolves, unless a hemostatic agent is used.^{[1][2]} PICC dressing changes require sterile technique to reduce the risk of vascular catheter-associated infection.^[1]

■ Equipment

- Gloves
- Sterile gloves
- Mask
- Sterile drape
- Antiseptic agent (alcohol-based chlorhexidine preferred; if contraindicated, use an iodophor, such as povidone iodine, or 70% alcohol)^{[1][3]}
- Sterile transparent semipermeable dressing (may be chlorhexidine-impregnated)
- Integrated securement device, subcutaneous anchor securement system, tissue adhesive, or adhesive securement device
- Label
- Written educational materials
- Optional: fluid-impermeable pad, sterile disposable tape measure, chlorhexidine-impregnated sponge dressing, sterile alcohol-free skin barrier product, sterile gauze, sterile tape, dressing formulated for fragile skin, gown, mask with face shield or mask and goggles

Many agencies stock a commercially prepared or agency-prepared sterile dressing change kit that contains the necessary supplies.

■ 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 agency.^[4]

■ Implementation

- Review referral information, the care plan, and prior visit documentation, if available.^[5]
- Verify the practitioner's order.^{[6][7][8][9]}
- Review the patient's medical record for allergies and sensitivities, including those to antiseptic agents and adhesives as well as the PICC insertion procedure notes *to determine the type of PICC and external length*.^[10]
- Gather and prepare the necessary equipment and supplies.
- Introduce yourself and state the purpose of your visit.
- Confirm the patient's identity using at least two patient identifiers.^[11]

- Ask the patient and family (if appropriate) about any recent changes in the patient's health status, including practitioner visits, tests, or changes in medications, diet, fluid intake, or activity level.^[5] Also ask about any pain, numbness, or tingling at the insertion site.^[2]
- 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.*^{[12] [13] [14] [15]}
- Perform hand hygiene.^{[1] [16] [17] [18] [19] [20] [21]}
- Organize the equipment and supplies on a clean surface. Place a fluid-impermeable pad between the environment and equipment, if needed.^{[16] [22]}
- Put on a mask.^[1]
- Perform hand hygiene.^{[1] [16] [17] [18] [19] [20] [21]}
- Open the supplies and prepare a sterile field using a sterile drape. Using sterile no-touch technique, place the supplies on the sterile field.
- Perform hand hygiene.^{[1] [16] [17] [18] [19] [20] [21]}
- Put on gloves and, as needed, other personal protective equipment *to comply with standard precautions.*^{[16] [23] [24] [25] [26]}
- Position the patient with the arm extended away from the body *to gain access to the insertion site.*
- Inspect the catheter-skin junction and surrounding area and palpate through the intact dressing for redness, tenderness, swelling, and drainage.^[2]
- Remove the existing dressing by beginning at the device hub and gently pulling the dressing perpendicular to the skin toward the insertion site *to prevent catheter dislodgement and tearing or stripping of fragile skin.* Also remove the chlorhexidine-impregnated sponge dressing, if present.^[27]
- Remove the securement device, if appropriate, according to the manufacturer's instructions. Note that certain securement devices are not removed with dressing changes. If staples or sutures are present, inspect their integrity.^{[2] [28]}
- Remove and discard your gloves.^[25]
- Perform hand hygiene.^{[1] [16] [17] [18] [19] [20] [21]}
- Put on sterile gloves.^[1]
- Inspect the integrity of the catheter and hub *to detect any defects, such as cracks, leaks, or other mechanical problems.*
- If you suspect catheter dislodgement, measure the external catheter length using a sterile tape measure or the incremental markings on the catheter. Then compare it to the external catheter length documented at insertion.^[2]
- Clean the catheter insertion site using an antiseptic agent (alcohol-based chlorhexidine preferred; if contraindicated, use an iodophor, such as povidone iodine, or 70% alcohol). Apply using a sterile single-use applicator. Allow the solution to dry completely without fanning, wiping, or blowing:^[3]
 - For alcohol-based chlorhexidine, apply with an applicator using a vigorous side-to-side motion for 30 seconds. Allow the area to dry completely.^{[3] [29]}
 - For povidone-iodine solution, apply using a swab. Begin at the insertion site and move outward in concentric circles. Allow the solution to dry completely (typically at least 2 minutes).^{[3] [30]}
- Apply a chlorhexidine-impregnated sponge dressing at the catheter base, as indicated. Position it with the catheter resting on or near the radial slit of the disk. The edges of the slit must touch *to maximize antimicrobial action.* Always follow the manufacturer's directions.^[2]
- Apply a sterile alcohol-free skin barrier product, as indicated, *to reduce the risk of medical adhesive-related skin injury.* Follow the manufacturer's directions for use.^[2]
- Secure the catheter with an integrated securement device, subcutaneous anchor securement system, tissue adhesive, or adhesive securement device, if available and appropriate. Guidelines recommend an additional securement method beyond the primary dressing *because these devices reduce vascular access device motion, which increases the risk of unintentional catheter dislodgement and complications requiring premature catheter removal.*^{[2] [28]}
- Place a sterile transparent semipermeable dressing over the insertion site and catheter hub *to prevent contamination of the insertion site.* Alternatively, apply a sterile gauze dressing secured with sterile tape.^[2] If the patient has fragile skin, use a dressing specifically formulated for fragile skin *to prevent skin tearing and stripping.*^[27]

- Measure upper-arm circumference when clinically indicated *to assess for edema and deep vein thrombosis*; take the measurement 10 cm (3.9") above the antecubital fossa and compare this measurement to the baseline.²
- Label the dressing with the current date or the date that the dressing is due to be changed as directed by your agency. Don't place the label over the insertion site.² ¹⁰
- Discard used supplies in appropriate receptacles.²⁴ ²⁵ ³¹ ³² ³³
- Remove and discard your gloves and other personal protective equipment.²⁵
- Perform hand hygiene.¹ ¹⁶ ¹⁷ ¹⁸ ¹⁹ ²⁰ ²¹
- Review progress toward the goals in the care plan with the patient and family, as appropriate.⁵ ³⁴
- Make arrangements for the next visit, as appropriate, and ensure that the patient and family have adequate supplies for self-care until then.
- Provide and review written educational materials, the visit schedule, and contact information in case concerns arise between visits.³⁵ ³⁶ ³⁷ ³⁸
- Report changes in the patient's condition and progress toward goals to the practitioner, as appropriate.³⁹ ⁴⁰ ⁴¹ ⁴²
- Document the procedure.⁴³ ⁴⁴ ⁴⁵ ⁴⁶ ⁴⁷

■ Special Considerations

- If you inadvertently withdraw the catheter a significant amount during a dressing change, measure from the exit site to the hub and reapply a sterile dressing. Then notify the practitioner *because an X-ray or other diagnostic test may be needed to determine the location of the PICC tip*.⁴⁸
- Never use scissors or pins or other sharps on or near the PICC *to avoid damaging the device*.²
- Don't use rolled bandages (with or without elastic) to secure the PICC *because they don't secure the device adequately and can obscure signs of complications, impair circulation, and impede the infusion*.² ²⁸

■ Patient Teaching

Instruct the patient or family on the proper technique for changing the PICC dressing using methods appropriate to the patient's and family's developmental and cognitive levels, health literacy, culture, and language preference.⁴⁹ Be sure to include when to change the dressing, the importance of using hand hygiene and sterile no-touch technique, activity limitations and device protection, the need to assess the site at least daily, and signs and symptoms of complications (such as redness, pain, swelling, or dislodgement) to report to the practitioner.² Allow time for return demonstrations of the procedure.⁴⁹

■ Complications

Complications associated with a PICC dressing change may include:

- infection
- thrombosis
- local skin irritation
- catheter migration
- dislodgement.⁵⁰ ⁵¹

■ Documentation

Documentation associated with a PICC dressing change includes:

- condition and length of the external catheter
- site's appearance
- date and the time of the dressing change
- site care
- dressing type
- stabilization device type
- any signs and symptoms of complications

- if you contacted the practitioner
 - name of the practitioner
 - date and time of contact
 - information conveyed
 - any orders received
- teaching provided to the patient and family (if applicable)
 - their understanding of that teaching
 - any need for follow-up teaching.

This procedure has been co-developed and reviewed by
the National Association for Home Care & Hospice.



■ Related Procedures

- [Midline catheter flushing and locking](#)
- [Peripherally inserted central catheter \(PICC\) blood sampling](#)
- [Peripherally inserted central catheter \(PICC\) blood sampling, pediatric](#)
- [Peripherally inserted central catheter \(PICC\) continuous infusion, home care](#)
- [Peripherally inserted central catheter \(PICC\) dressing change](#)
- [Peripherally inserted central catheter \(PICC\) dressing change, neonatal](#)
- [Peripherally inserted central catheter \(PICC\) dressing change, pediatric](#)
- [Peripherally inserted central catheter \(PICC\) drug administration](#)
- [Peripherally inserted central catheter \(PICC\) flushing and locking](#)
- [Peripherally inserted central catheter \(PICC\) flushing and locking, pediatric](#)

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

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

The following leveling system is from *Evidence-Based Practice in Nursing and Healthcare: A Guide to Best Practice* (2nd ed.) by Bernadette Mazurek Melnyk and Ellen Fineout-Overholt.

Level I: Evidence from a systematic review or meta-analysis of all relevant randomized controlled

trials (RCTs)

Level II: Evidence obtained from well-designed RCTs

Level III: Evidence obtained from well-designed controlled trials without randomization

Level IV: Evidence from well-designed case-control and cohort studies

Level V: Evidence from systematic reviews of descriptive and qualitative studies

Level VI: Evidence from single descriptive or qualitative studies

Level VII: Evidence from the opinion of authorities and/or reports of expert committees

Modified from Guyatt, G. & Rennie, D. (2002). Users' Guides to the Medical Literature. Chicago, IL: American Medical Association; Harris, R.P., Helfand, M., Woolf, S.H., Lohr, K.N., Mulrow, C.D., Teutsch, S.M., et al. (2001). Current Methods of the U.S. Preventive Services Task Force: A Review of the Process. American Journal of Preventive Medicine, 20, 21-35.

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