

# Chest drainage to go

Learn how to set up and maintain this portable drainage system so your patient can become more independent.

BY KRISTIN ANDRS, RN, ACNP, MSN

**How does portable chest drainage work?** The system shown here is attached to a patient's chest tube and drains by gravity. Unlike traditional systems, it has only one chamber with a dry seal and doesn't contain water. The device automatically regulates a  $-20$  cm  $H_2O$  vacuum setting when connected to wall suction if suction is ordered. At certain intervals or when the collection chamber fills, empty the chamber or attach a new device to the chest tube.

## How to maintain drainage



**1. Make sure the connection** between your patient's chest tube and the drainage tube is secure. As shown above, use the straps provided to secure the collection chamber to his body below his chest tube. When he's in bed, keep the chamber upright and below chest level by hanging it on the bed frame with the hook provided (right).



**2. Check the system for air leaks** by tipping the chamber so drainage enters the small window (marked "A") in the upper corner. Watch the window and ask the patient to cough: The presence of bubbles in the window signals an air leak. (See *Troubleshooting the System* for what to do if insufficient drainage in the chamber prevents you from performing this step.)

## Who can use this system?

In the hospital, you might attach an ambulatory patient to a portable drainage system so he can move around more easily. Or a patient with long-term drainage may go home with the system. To manage it at home, he and a family member must learn how to empty the collection chamber, measure and record the drainage, care for his chest tube (including dressing changes), reconnect the drainage tube and chest tube if they come apart, and monitor for infection.

Anyone whose chest drainage exceeds 500 ml daily probably shouldn't use this system. And anyone who can't assume responsibility for maintaining his chest tube shouldn't go home with a mobile chest drain.

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Kristin Andrs is a nurse practitioner in the division of cardiothoracic surgery at the Virginia Commonwealth University Health System in Richmond.

The device shown is the Express Mini 500 system from Atrium.

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**3. Empty the collection chamber** when it contains 300 to 400 ml of fluid. (Don't let it fill completely because some drainage could spill out.) Put on clean gloves and get a luer-lock syringe; 60 ml generally works best. Keep the device upright and make sure the tubing is firmly attached to your patient's chest tube. Note the drainage amount and clean the syringe port with alcohol. As shown, screw the syringe into the port and pull the plunger to withdraw fluid. When the syringe is full, unscrew it and empty the drainage according to facility policy. Repeat as necessary to empty the chamber.

Check your patient's chest tube dressing to make sure it's clean, dry, and intact; notify the care provider if it isn't. Make sure that the tube connections are securely taped. Document the amount and characteristics of the drainage, along with the date and time.

## Troubleshooting the system

Here's how to check the portable chest drainage system for air leaks and what to do if clogs prevent emptying.

### Checking for air leaks

- A checkmark on the front of the collection chamber (marked "C") indicates negative pressure—a vacuum—in the drain. If you don't see the checkmark, the system may have an air leak.



- If the drainage in the collection chamber is insufficient to test for bubbles as described in step 2, clean the syringe port with alcohol, add 10 to 20 ml of sterile water through the port, then proceed as indicated.

### Coping with clogs

- If you have trouble emptying the collection chamber with a 60-ml syringe, flush the port with sterile water. If you still can't withdraw fluid, switching to a 10- or 20-ml syringe may get better results.
- If you still can't withdraw fluid, replace the system with a new one. ☹