New Innovations in Chest Drainage — A Mobile Chest Drain

In 1967, the first disposable, one-piece, hard plastic chest drain was introduced. This design has been modified and features have been added through the years, but it wasn’t until late 2001 that a brand-new concept in chest drainage was introduced—the mobile drain.

Express™ 1500 Chest Drain Bag
The Atrium Express 1500 Chest Drain Bag is designed to allow for both air evacuation and fluid drainage in patients with chest tubes. It consists of a soft, disposable, latex-free, plastic bag that can hold up to 1500cc of drainage; a strap that can be put over the shoulder or around the waist to hold the bag in a gravity-dependent position; and an air vent that allows air to escape from the drainage system. The device also has an anti-reflux valve to prevent drainage or air from re-entering the chest. The device’s tubing attaches to a conventional chest tube with a standard connector.

Indications for Mobile Chest Drainage
Fast-track programs have become popular in both cardiac surgery and general thoracic (pulmonary) surgery. Two major factors contribute to these fast-track approaches: advances in surgical techniques and changes in how hospitals are reimbursed for the care provided.

Advances in Surgical Techniques
A key advance is less invasive chest surgery. Video-assisted thoracoscopic surgery allows the surgeon to view the surgical field on a video monitor by using a fiberoptic thoracoscope. The surgeon makes small incisions in the chest wall through which the scope and instruments are inserted. This approach has been used for small lung resections, lung biopsies and coronary artery bypass grafting.

Since the incisions are smaller and less tissue is disrupted with this approach compared with a traditional thoracotomy incision or median sternotomy, patients should be able to get up and walk around soon after surgery. The Express 1500 Chest Drain Bag can be used to step-down a patient from a traditional chest drain to a portable device that will allow the patient to get up and walk around any time without nursing assistance.

Patients have commented that after they were stepped down to the Express 1500, there was much less pulling on the tube, and less chest tube discomfort. Nurses are well aware of the complications of immobility and how early ambulation helps speed patients’ recovery. Now that patients can be switched to a portable chest drain that simply attaches to the same chest tube as soon as suction is no longer needed, ambulation can be even easier.

Reimbursement for Care
Once upon a time, all hospitals were paid on a fee-for-service basis. The hospital could simply bill for all the supplies, equipment, and services provided to the patient, and the hospital was paid. Today, most hospitals are reimbursed by prospective payment. That means the payer establishes a fixed sum of money for a given diagnosis. If the hospital is efficient and spends less money caring for the patient than it receives, the hospital makes a profit. If the hospital is inefficient and it costs more money to care for patients than the hospital receives in payment, the hospital loses money.

Since it costs about $1000 per day to keep a patient in the hospital, it is easy to see why so many hospitals target length-of-stay (LOS) as a significant way to reduce costs. Nursing research has shown that CABG patients who had the shortest ICU LOS began walking sooner than other patients. Stepping patients down from a traditional chest drain to an Express 1500 postoperatively can allow them to get up and walk around on their own much easier than if they remain attached to a traditional chest drain. No longer is the surgeon faced with the dilemma of removing the chest tube early; the tube can stay in, and the patient can still have full mobility.

Using the Express 1500 Chest Drain Bag
The Express 1500 is easy to use. To set it up, simply prime the anti-reflux valve by injecting about 20ml of sterile water, using the pre-packaged water provided with the device. Once the anti-reflux valve is primed, the Express 1500 can replace the traditional chest drain at the patient connector.

Take these nursing actions while the Express 1500 is in use:

• Check the connection between the chest tube and the device; you may tape it for added security.
• Assess fluid drainage. Monitor the rate and characteristics of the drainage: color, consistency and viscosity.
• Check to see that the patient is not uncomfortable with the weight of the bag hanging from the shoulder strap or around the waist. Replace the bag with a new one, or drain the fluid if the bag becomes too heavy.
• Keep the bag in an upright, gravity-dependent position.

To learn more about the Express 1500 Chest Drain Bag and see it in person, contact your local Atrium representative or call 1-800-5-ATRIUM (528-7486).

Check Your Knowledge...

Q. Should chest tubes be stripped routinely to clear clots and assure tube patency?

Answer on other side
In The Literature

Using Non-Credentialed Personnel Appropriately

Most nurses have seen an increase in the use of assistive personnel in the nursing department. While many authors use the term “unlicensed assistive personnel,” I prefer to use the term “non-credentialled assistive personnel” (NCAP) because we have colleagues who have a professional degree and a national credential, but may not have a state license. That said, a recent article by Valerie Kido in Nursing Management provides guidance on how to use assistive personnel properly and strive for high quality patient care. The key to proper use of NCAP is understanding that the registered nurse has the responsibility and accountability to delegate or not to delegate patient care activities. The nurse cannot delegate simply according to task; rather, the delegation must be individualized to the patient. Let’s say, for example, two men share a room. Both require feeding. Patient one needs to be fed because he burned his hands in an accident and is unable to use his hands to feed himself. Patient two needs to be fed because he had a stroke and has hemiparesis. Are these feedings equivalent? RNs should not delegate “all feedings,” but should individualize the delegation based on the complexity of the task, the potential for harm, the abilities of the worker, and the necessary problem-solving skills. This article provides a quick overview of the key aspects of using assistive personnel appropriately.


Ethical Issues and the Nursing Shortage

This article, written by Dr. Judith Erlen, a nurse who is also acting co-director of research at the Center for Bioethics and Health Law at the University of Pittsburgh, examines ethical issues many nurses are struggling with during the current nursing shortage. This thought-provoking article is worth a look to understand the ethical dilemmas that nurses at the bedside may not be able to articulate, but that result in a constant level of stress in their work environment. After identifying the problems, Dr. Erlen provides a number of strategies that a nursing career can be as varied as the people who are nurses.

Dr. Erlen focuses on two aspects of nursing that present pressing ethical issues for practicing nurses: a lack of control over their practice and the potential of harming patients. The lack of control stems from an administrative shift resulting in a structure in which decisions that were once nursing decisions about self-determination are now made for us — without our input in many cases. In addition, nurses are not being treated with respect as the professionals we are. The potential for harm comes from unreasonable nurse:patient ratios, inappropriate use of assistive personnel, and the feeling that the nurse just can’t keep up and may miss a key patient assessment due to overwork.

After identifying the problems, Dr. Erlen provides a number of strategies nurses may wish to try to help resolve ethical issues presented by the current nursing shortage. This thought-provoking article is worth a look to understand the ethical dilemmas that nurses at the bedside may not even be able to articulate, but that result in a constant level of stress in nursing practice today.


References: New Innovations In Chest Drainage - A Mobile Chest Drain


Check Your Knowledge...

A. Chest tube stripping should not be performed routinely. Nursing research has demonstrated that stripping can generate intrapleural pressures as high as -400cmH2O (the amount of vacuum typically set on the drain is -20cmH2O). In addition, nursing research that compared stripping to straight gravity drainage found no advantage to chest tube stripping.

References: Chest Tube Stripping


