



Clinical Update

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New Guidelines for Management of Spontaneous Pneumothorax: Part Two

In the last issue of *Clinical Update* (June 2001), we provided you with the first of a two-part summary of new consensus recommendations for the management of primary spontaneous pneumothorax. (If you need a copy of that issue, please contact your Atrium representative, or call 1-800-528-7486, extension 5209.)

In that issue, we covered spontaneous pneumothorax in patients without pre-existing lung disease. This time, we will review the guidelines for patients with COPD.

The recommendations were developed by a group of physicians assembled by the American College of Chest Physicians and published in the journal *Chest*.

Terms and Definitions

For the purpose of guideline development, the following definitions were used:

- Spontaneous pneumothorax: no traumatic or iatrogenic cause for pneumothorax [such as central line placement]
- Primary spontaneous pneumothorax: no clinically apparent underlying lung disease or conditions that would predispose to pneumothorax
- Secondary pneumothorax: clinically apparent underlying lung disease, typically COPD
- Small pneumothorax: < 3 cm apex-to-cupola distance (cupola is the dome-shaped parietal surface of the pleura at the superior chest wall) on an upright chest radiograph
- Large pneumothorax: \geq 3 cm apex-to-cupola distance (as above)

Consensus among the expert panel for practice recommendations is ranked on the following scale: no consensus, some consensus, good consensus, very good consensus, and perfect consensus. Statistical definitions of each of these terms are described in the document.

Recommendations for Secondary Spontaneous Pneumothorax

Clinically stable patients with small pneumothoraces and COPD should be hospitalized. The panel specifically states that patients should not be managed in the ED with observation or simple aspiration without hospitalization. Depending on the patient's symptoms and the course of the pneumothorax, the patient may be observed or treated with a chest tube. Some panel members pointed out that deaths have been reported with observation alone, but that report was published in 1989 before non-invasive monitoring techniques such as pulse oximetry and capnography were widely available as they are today.

Clinically stable patients with large pneumothoraces should have a chest tube placed to re-expand the lung and be hospitalized for management and observation.

Clinically unstable patients with any size pneumothorax should have a chest tube placed and be hospitalized. If the patients are so unstable that they require mechanical ventilation, and thus are at risk for large pleural air leaks, they should be managed with a 24F to 28F sized tube.

Stable patients who are not at risk for large air leaks may have tubes 16F to 22F in size, although some panelists suggest a small-bore catheter (\leq 14F) may be acceptable in certain circumstances in which the pneumothorax is small.

The panel agreed that the chest tube should be attached to a water seal device, had some consensus for using suction and good consensus for *not* using suction immediately on most patients. There is good consensus that suction should be applied if the lung fails to expand with the water seal alone. Similarly, there is good consensus that a water seal is preferable to a Heimlich device.

Preventing Pneumothorax Recurrence

Eighty-one percent of panel members recommend an intervention to prevent recurrence because of reports that a second pneumothorax can be lethal in this patient population. The panel recommends surgical intervention with very good consensus because recurrence rates are lower after surgery compared with instillation of a sclerosing agent through the chest tube.

Medical or surgical thoracoscopy is preferred with very good consensus; standard thoracotomy through a lateral approach or median sternotomy is not recommended. However, sclerosis may be an acceptable treatment if the patient is not a candidate for surgery or has a poor prognosis from underlying disease. Seventy-seven percent of panelists would use results from previous spirometry testing to help determine which patients should have which interventions.

Persistent Air Leaks

The panel recommends that patients with persistent air leaks be observed for a median of 5 days before being encouraged to have a surgical procedure. Delays may reduce the success of the thoracoscopy and will increase the cost of care. If the patient is not a surgical candidate and has a persistent air leak, the consensus panel suggests doxycycline and talc as preferred sclerosing agents.

Chest Tube Removal

Patients who have not had a procedure to prevent recurrence are treated the same way as patients with primary spontaneous pneumothorax (see June 2001 issue or refer to guidelines). Forty-one percent of panelists would never clamp a chest tube to detect the presence of an air leak once the lung has reexpanded; the remaining panel members would clamp between five and twelve hours after the last evidence of an air leak to evaluate the patient's response before tube removal. Sixty-three percent of members would repeat a chest radiograph between 13 and 23 hours after the last evidence of an air leak before tube removal.

Check Your Knowledge...

- Q.** You're caring for a patient breathing spontaneously after a thoracotomy for a segmental lung resection. While you are assessing the water seal chamber, the patient coughs. You see bubbling in the water seal only when the patient coughs. What does this mean, and what nursing actions are required?

Answer on other side

In The Literature

Managing Multiple Rib Fractures

The current issue of the *American Journal of Critical Care* features an article in which a synthesis of the literature is used to develop a protocol for managing pain, providing appropriate respiratory care, and enhancing mobility in patients with multiple rib fractures. There is a significant correlation between mortality and the number of ribs fractured. This is thought to be due to the increased risk of underlying injury as more ribs are fractured. The more ribs fractured, the more force was applied to the chest, and the higher the Injury Severity Score. One-third of patients with multiple rib fractures will also have a hemothorax and/or pneumothorax.

The author, Anna Easter, has developed a progressive protocol that directs interventions for pain management, respiratory care and activity/mobility based on a rib fracture score derived from the number of ribs fractured, whether injury is unilateral or bilateral, and the patient's age. She suggests testing the protocol in various adult age groups to establish reliability and validity, and clinical trials to assess its effectiveness.

Source: Easter A: Management of patients with multiple rib fractures. *American Journal of Critical Care* 2001;10(5):320-327.

Determining the Cost of Nursing Interventions

No nurse manager should miss this article in the summer issue of *Nursing Economic\$*. The members of the Iowa Intervention Project used the Nursing Interventions Classification (NIC) as the basis for describing the actions nurses perform in their practice. Nurse experts then evaluated each intervention to assign the time required to complete or perform each task and the minimum level of education required for a healthcare worker to properly complete the task. This is the first major step toward establishing a fee schedule for nursing interventions.

The article is packed with information; tables include lists of interventions by educational preparation required (for example, chest tube care was determined to require basic RN preparation versus hemodialysis, which requires post-basic RN education) and by time required. Now that the interventions have been classified, it will be far easier to take the next step and establish a cost-basis for nursing care.

Source: Iowa Intervention Project: Determining cost of nursing interventions: a beginning. *Nursing Economic\$* 2001;19(4):146-160.

Does Your Service Understand Patient Expectations?

There are many definitions of customer service, but perhaps the most basic is meeting the customer's expectations. As healthcare workers, we need to remember that our patients are customers. In many communities, they have choices about where they receive care. An article in the current issue of *Nursing Management* lists patients' top ten concerns. A table shows a comparison between how nurses and patients ranked the same items. In only one case did a nurse rank an item higher than the patients did — nurses ranked "The nurse is competent" at number one; patients, number five. Patients ranked getting their medications on time as fourth most important to them, while nurses ranked this item 42nd!

This article is a great reminder to help us all remember the view is very different from the other side of the bed.

Source: Perucca R: Consumers with options. *Nursing Management* 2001;32(9):20-25.

On the
World Wide
Web...



Editor's Note: As we were going to press, an unspeakable tragedy struck our country. Therefore, we are dedicating this space to charitable and related sites.

American Liberty Partnership www.libertyunites.org

This web site, set up by six leading Internet companies, has compiled links to more than thirty charitable organizations relating to the September 11 crisis. From this one site, you can learn about how each charity uses donations, and how and why the organization was established (for those set up in response to the events of September 11). The partners of the American Liberty Partnership will cover all of the transaction fees associated with online donations, including any service charges to credit card companies. Therefore, every penny of your donation will go to the charity you choose. Organizations have said that financial donations are critical to support their long-term work to help the victims of this disaster.

Comstock Images

<http://www.comstock.com/Go/USFlags/>

This company, which usually sells pictures for commercial use, has set up a page of flag photos that anyone can use for free. Each photo is set up so you can print it or download it for use on your computer or Web site.

Flag Screen Saver

<http://www.port-gifts.com/SS/default.htm>

This web site has designed a free screen saver that depicts flags displayed around a typical New England town in early autumn.

References: New Guidelines for Management of Spontaneous Pneumothorax: Part Two

- 1.) The Web site for the consensus statement is:
<http://www.chestnet.org/publications/18098/index.html>
- 2.) Baumann MH, Strange C, Hefner JE et al: Management of spontaneous pneumothorax: an American College of Chest Physicians Delphi consensus statement. *Chest* 2001;119(2):590-602.

Check Your Knowledge...

A It is common to see bubbling in the water seal when a patient coughs because of the increased intrathoracic pressure associated with coughing. No special nursing actions are required apart from routine patient monitoring.

Atrium would like to express our deepest sympathy to those affected by the recent tragedy. Our hearts and prayers go out to everyone in America, especially the victims and their families.