



Clinical Update

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New Guidelines For Management Of Spontaneous Pneumothorax

A group of physicians representing the American College of Chest Physicians' Pneumothorax Consensus Group have published expert-based consensus recommendations for management of adults with primary and secondary spontaneous pneumothoraces in both emergency department and inpatient hospital settings. This is the first time that rigorously developed practice guidelines have been published on treatment of these patients. In the past, only observational studies provided recommendations, and historically there has been a significant variation in management strategies.

For details on the methods used to develop the guidelines (Delphi technique and literature review), please refer to the entire document. This summary focuses on the clinical applications for nurses caring for patients with pneumothorax.

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.

In this issue of *Clinical Update*, we'll review recommendations for patients with primary pneumothorax. In the next issue, we'll review recommendations for patients with secondary pneumothorax.

Recommendations For Primary Spontaneous Pneumothorax

Clinically stable patients with small pneumothoraces should be observed in the emergency department for 3 to 6 hours and discharged home if a repeat chest radiograph shows no increase in the size of the pneumothorax. Patients may be admitted for observation if they live far away from definitive medical care, or if follow-up care is unreliable. [For example, if the patient is unable to follow discharge instructions, has no reliable transportation for subsequent medical evaluation or other similar, related factors.] Patients should be re-examined in 12 hours to 2 days, depending on individual patient circumstances, with another chest radiograph to document resolution of the pneumothorax.

Clinically stable patients with large pneumothoraces should have a thoracic catheter placed to evacuate the pleural space and re-expand the

lung, followed by hospitalization. This may be accomplished by insertion of a small bore (\leq 14F) catheter, or a 16F to 22F chest tube (good consensus). The tube used for evacuation can be attached to a small, one-way valve such as a Heimlich device, or to a traditional chest drain. There is some consensus among the committee members that suction should be applied to all patients' chest drain devices.

There is good consensus that a select group of reliable patients may be discharged to home with a thoracic catheter and one-way valve device in place if the lung has re-expanded with tube thoracostomy. The patient should be examined for follow-up within 2 days.

There is very good consensus that *unstable patients with large pneumothoraces* should be hospitalized with insertion of a thoracic catheter to evacuate the pleural space. A 24F to 28F standard chest tube may be used if the patient is suspected of having a bronchopleural fistula with a large air leak or if the patient requires positive-pressure ventilation (good consensus). Suction should be applied if the lung fails to re-expand. [Editor's note: Suction will be needed if the patient requires positive pressure ventilation]

Chest Tube Removal

The practice guidelines provide good consensus for a three step process for chest tube removal:

- Chest radiograph showing complete resolution of the pneumothorax after there is no longer clinical evidence of a continuing air leak [no bubbling in the water seal chamber]
- Discontinue suction on the chest drain
- Remove the chest tube

The experts were split on whether the chest tube should be clamped to simulate removal and patient tolerance assessed before actually removing the tube. Forty-seven percent would clamp the tube approximately 4 hours after the last evidence of an air leak and before removing the tube.

Bronchopleural Fistula

The panel recommends observing patients with persistent air leaks for a median of 4 days to see if spontaneous closure occurs. There was very good consensus that after 4 days, the patients should be evaluated for surgery to close the leak and perform a pleurodesis to prevent recurrence of pneumothorax. There was also very good consensus that the patients should not have multiple chest tubes placed, nor should there be an attempt to seal the leak by bronchoscopy.

In the next issue, we'll summarize the expert panel's recommendations for management of patients with secondary spontaneous pneumothorax, that is, patients with underlying lung diseases.

Check Your Knowledge...

Q.

What is the difference between an open pneumothorax and a closed pneumothorax?

Answer on other side

In The Literature

Does Absenteeism Make You Sick?

The pinch of absenteeism is felt acutely in health care where there's already a nursing shortage and a patient's needs can't be postponed until more workers are present. A recent article in *Nursing Economic\$* discusses four strategies for nurse managers to reduce the costly and disruptive effects of absenteeism. The author, Tonya Harter, discusses four different organizational approaches to dealing with this problem.

A *structural* approach emphasizes defining clear expectations for workers and progressive discipline when these expectations are not met. A *human resources* framework suggests that employees' commitment to an organization will enhance job satisfaction and reduce absenteeism. A *political* model focuses on rewards for attendance and punishments for absenteeism, and a *symbolic* framework creates a culture in which absenteeism is unacceptable and relies on this culture of intolerance for reducing absenteeism. The article provides a more detailed explanation of each framework, which allows you to analyze your organization and decide which method of reducing absenteeism will work best in your organizational culture.

Source: Harter TW: Minimizing absenteeism in the workplace: strategies for nurse managers. *Nursing Economic\$* 2001;19(2):53-55.

It's the Newbie Time of Year

Early summer is a time of new beginnings in hospitals. We bring in new graduates from nursing school. For those of us who work in academic settings, we also have interns taking responsibility for patients for the first time since graduating from medical school, and there are usually new fellows and attendings as well. The current nursing shortage may result in more new nursing grads coming directly to specialty areas such as critical care, the ED and perioperative nursing this year than in the past. In the current issue of the *American Journal of Critical Care*, Patricia Benner (best known for her work on the novice-to-expert model of nurses' experiential learning) writes about "breathing new life into practice communities" in our critical care units.

Benner points out that the success of these summer newbies will depend largely on the patience and insightful coaching of the experienced nurses and physicians with whom they work. She suggests that the experienced, teaching clinician can make the effort to point out things that are obvious to the experienced eye but not to the novice. On the learning side, the learner must be open to having textbook explanations reshaped by the incredible variations that occur in actual clinical practice.

Benner advocates for the development of cohesive, collaborative, interdisciplinary practice communities to maximize our opportunities for innovation and improvement in patient care. She suggests that our best hope for continued development of skilled practitioners is developing a culture in which this ongoing support and nurturing of the new generations of the patient care family is second nature.

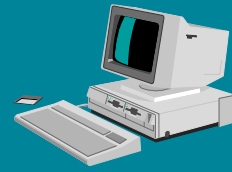
This article should be on the required reading list for anyone working with new nurses and physicians, especially at this time of year.

Source: Benner P: Breathing new life into practice communities. *American Journal of Critical Care* 2001;10(3):188-190.

Reference: New Guidelines For Management Of Spontaneous Pneumothorax

Baumann MH, Strange C, Heffner JE et al: Management of spontaneous pneumothorax: an American College of Chest Physicians Delphi consensus statement. *Chest* 2001;119(2):590-602.

On the World Wide Web...



<http://www.chestnet.org/publications/19098/index.html>

This web site provides additional information about the clinical practice guidelines described in our feature this issue. Here you will find the complete guidelines and the consensus tables for the questionnaire provided to the expert panel. There is also a summary of the guidelines and algorithms. You can get additional information from the American College of Chest Physicians at <http://www.chestnet.org>.

<http://www.guidelines.gov>

This web site, for the National Guidelines Clearinghouse, is a comprehensive database of evidence-based clinical practice guidelines and related documents. It is produced by the Agency for Healthcare Research and Quality (AHRQ) (formerly known as the Agency for Health Care Policy and Research [AHCPR]) in partnership with the American Medical Association and the American Association of Health Plans. You can search by keyword, or browse by disease/condition, treatment/intervention or the organization that promulgated guidelines included in the database. A great feature of this site is that you can do a side-by-side comparison of two guidelines on the same subject.

<http://www.updateusa.com/cochrane/cochrane-frame.html>

The Cochrane Library is an electronic publication that disseminates evidence-based practice information worldwide. Cost is \$200+ per year for an individual subscription to the full on-line library, but you can search or browse abstracts at no charge. The mission of the Cochrane Collaboration is to prepare, maintain and promote the accessibility of systematic reviews of the effects of healthcare interventions. Of particular interest is that CINAHL—the Cumulative Index of Nursing and Allied Health Literature—is included in their literature sources, so research published in nursing journals is considered in these reports. Explore the site and read the new and updated abstracts. If you find this collection of evidence-based data relevant to your practice, you may want to suggest that your hospital library subscribe to the full Cochrane Library.

Check Your Knowledge...

A. In an open pneumothorax, the chest wall is penetrated, and there is open communication between the pleural space and the atmosphere. This is typically seen with impalements, gunshots and stab wounds. A closed pneumothorax occurs when there is a hole in the lung, but the chest wall remains intact, such as the rupture of a bleb when a patient is on positive pressure ventilation, or puncture of the apex of the lung during an invasive procedure such as central line placement.

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