

restricts the normal expansion of the lung and creates septa, causing loculation and entrapment. During this phase, the pleural fluid, pH, and glucose levels fall. During the third phase, called the organizing phase, the fibrous peel thickens and contracts, further restricting the movement and expansion of the lung.

Approximately 50 percent of cases of pleural empyema are secondary to bacterial pneumonia.<sup>2-4</sup> Another 25 percent are due to postoperative complications. Pleural contamination associated with percutaneous catheter drainage of intra-abdominal abscess has become recognized as a cause of empyema, as reported by Samelson and Ferguson in this issue of *Chest* (see page 1613).

Successful management of acute empyema requires prompt treatment with appropriate antibiotics and drainage to prevent chronicity. Early recognition and aggressive treatment of acute empyema should be adopted by all physicians. Patients with bacterial pneumonia should be monitored for the development of parapneumonic effusion. All patients who develop parapneumonic effusion should undergo prompt needle thoracentesis.<sup>5</sup> The majority will have a small uncomplicated effusion that can be managed conservatively with continued antibiotics and observation. Patients with complicated pleural effusion or frank pus on thoracentesis should undergo immediate insertion of a dependent, closed-chest drainage catheter.<sup>5</sup> If the effusion has not yet loculated, full lung expansion with obliteration of the pleural space will usually be achieved following chest tube insertion. Repeated needle thoracentesis for drainage of complicated parapneumonic effusion is inadequate and should be discouraged. Patients with loculated parapneumonic effusion, and particularly those patients in whom the lung fails to expand, should be considered for early surgical intervention.

Rib resection for open pleural drainage as originally described by Eloesser<sup>6</sup> in 1935, has been employed with success.<sup>7</sup> Although successful, open drainage is associated with a prolonged hospital stay and the need for long-term care. Open pleural drainage should be reserved for the rare very elderly and severely debilitated patient with multiple medical problems who cannot withstand more definitive treatment.

Patients with loculated acute empyema should undergo thoracoscopy under general anesthesia. Thoracoscopy for acute empyema does not require fancy or expensive equipment. The mediastinoscope, which is found in all thoracic operating rooms, serves well as a thoracoscope in this situation. Loculations can be broken down, and complete drainage of all pleural fluid can be accomplished. Precise chest-tube placement is facilitated by direct vision with the thoracoscope. Inspection of the underlying lung reveals the degree of pleural contamination and the likelihood of

success with closed drainage. If at the time of thoracoscopy the patient is found to have a very thick pleural peel with a large amount of debris and entrapment of the lung, the thoracoscopy incision can be enlarged to allow for decortication. Decortication for acute empyema does not require a full thoracolateral incision and can usually be accomplished in the acute phase (<14 days) through a limited incision placed over the empyema cavity. Samelson and Ferguson confirm that decortication in patients with acute empyema is followed by a shorter hospital stay and less long-term disability than either open drainage or prolonged closed drainage.<sup>8-10</sup>

Failure to institute early aggressive treatment of acute empyema leads to chronicity. Treatment of chronic empyema is much more difficult and time consuming. Chronic empyema leads to prolonged hospital stays and excessive morbidity. Patients languishing in the hospital with chronic empyema overstay the time allotment for their diagnosis-related group designation and consume valuable health-care dollars. Early recognition and aggressive treatment of acute empyema are both medically and fiscally wise.

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## Smoke-Free Hospitals A Time for Universal Action

**A**s of January 1, 1992, the Joint Commission on Accreditation of Healthcare Organizations is re-

quiring that hospitals provide for "dissemination and enforcement of a hospitalwide smoking policy that prohibits the use of smoking materials throughout the hospital building(s). . . ." This accreditation standard presents a significant challenge to hospitals, but also provides an opportunity to improve the health of both patients and hospital staff.

Cigarette smoking is the leading cause of preventable morbidity and mortality in the United States. It accounts for 87 percent of all deaths due to lung cancer and 82 percent of deaths resulting from chronic obstructive pulmonary disease (COPD), as well as 21 percent of coronary heart disease deaths, in all, a total of some 434,000 premature deaths each year.<sup>2</sup> But the health risks of tobacco smoke are not restricted to those who choose to smoke. Environmental tobacco smoke (ETS), composed of exhaled mainstream smoke and side-stream smoke (smoke produced by smoldering tobacco between puffs), also exerts its effects on all exposed to it. A number of government agencies have conducted extensive reviews of the effects of ETS, the most recent concluding that nonsmokers exposed to ETS have a 30 percent to 50 percent greater risk of developing lung cancer than nonsmokers who are not exposed to ETS.<sup>3</sup> Furthermore, ETS has been implicated as a cause of heart disease and other disorders.<sup>4</sup>

The article by Offord and colleagues in this issue of *Chest* (see page 1526) provides important information about the implementation, evaluation, and benefits of a smoke-free hospital policy. Drawing on over 10,000 respondents and three years of experience with the process of making a hospital smoke-free, the authors present several observations that will be useful to other hospitals in the process of implementing smoke-free policies.

First, such policies have a positive impact on the smoking behavior of employees in several ways. In the Mayo sample of Offord et al, the policy was associated with a smoking cessation rate among employees (22.5 percent) significantly higher than that of the general population. Even among those smokers who did not quit, many were motivated to make serious attempts to quit or to reduce their smoking, suggesting that smoke-free policies may have a general effect of encouraging smokers to reevaluate their behavior.

Second, the Mayo sample suggests that institutional reaction to such policies is quite favorable (60 percent of Mayo respondents rating it "positive" or "very positive"), although this experience may not be universal.<sup>5</sup> In addition to the global evaluation, the Mayo sample is certainly experiencing the positive effects of

decreased ETS exposure. Offord and colleagues did not attempt to quantify these effects. As hospitals across the country come into compliance with JCAHO standards, it may be possible to elucidate the benefits of these changes.

Third, establishing a smoke-free policy may increase markedly the number of patients who use their hospitalization as an opportunity to quit smoking. Hospitalized patients are an ideal population for smoking cessation interventions. Previous studies have demonstrated that patients hospitalized with an acute smoking-related illness, such as a myocardial infarction, achieve some of the highest rates of sustained abstinence.<sup>6</sup> By providing smoking cessation consultation services for their patients who smoke, hospitals can transform the institution of a smoke-free policy from an act of regulatory compliance to an opportunity to promote a preventive health measure.

Instituting smoke-free policies in the nation's hospitals will improve the health of both patients and staff by decreasing exposure to hazardous ETS. Moreover, the Mayo experience confirms that a smoke-free hospital directly benefits staff and possibly patient health in a second way—by lowering smoking rates. The implementation of a hospital smoke-free policy will send a powerful and unequivocal societal message: we really are in this business to promote health.

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