14-Hour Shift Schedule for Medical ICU Interns

To the Editor:

We report here on an alternate version of the 14-h shift model for ICU residents that was described by Afessa and colleagues (December 2005).[1] Shift schedules limit resident hours and shift duration; however, these undermine the intern's traditional role of knowing the patient and passing on the complete clinical picture to the team each day. This makes it difficult for on-duty physicians to have an accurate and complete understanding of each patient. By deemphasizing morning rounds, shift schedules also challenge formal teaching by attending physicians.

We recently implemented a novel shift schedule that requires a day and a night intern be present for the duration of morning rounds. This allows all physicians who will be involved in a patient's care for the next 24 h to participate in forming the care plan and eliminates the need for separate evening teaching rounds. Our interns rotate through a 7:00 AM to 9:00 PM ICU admitting shift, a 7:00 AM to 10:30 PM crosscover shift, and a day off; they then work the night shift from 10:00 PM to12:00 PM the following day for 4 days. We eliminated distinctions between weekend and nonweekend days to make it easier to schedule days off and to avoid staffing shortages on weekends. Our interns met the Accreditation Council for Graduate Medical Education requirements for rest periods and for weekly hours, averaging 72 h per week.

We found remarkable satisfaction among housestaff despite a 20% increase in ICU admissions. Interns reported "knowing the patients better," being "better rested," and having more efficient rounds. However, they found night shifts and frequent signouts to be difficult, and significant effort was needed to ensure adherence to rest periods. Although we did not assess patient outcomes, our interns' comments suggest the presence of a better knowledge of patients and thus potentially improved patient safety. We suggest that further studies examine the potential benefit of work schedules that maximize attendance at daily rounds.

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Reference

1 Afessa B, Kennedy C, Klarich K, et al. Introduction of a 14-hour work shift model for housestaff in the medical ICU. Chest 2005; 128:3910–3915

To the Editor:

We thank Vallabhaneni and colleagues for sharing their experience of a 14-h shift schedule of interns in a medical ICU. The shift model we described in our article (December 2005)[1] has the potential to adversely affect the continuity of patient care. The model described in the letter by Vallabhaneni and colleagues provides a partial solution to the discontinuity of care. Although the letter does not include any objective data, the interns' reporting of satisfaction and feeling of familiarity with the patients' conditions are promising. We may not be able to develop one model that will fit all teaching programs. The optimal resident staffing of an ICU depends on patient mix and availability of attending physicians and critical care fellows. Ideally, attending physicians should be available 24 h/d and 7 d/wk in the ICU.[2] The availability of attending physicians provides an opportunity to provide both good patient care and house-staff education, with more than once-a-day teaching rounds when needed. However, lack of resources and shortage of intensivists may not allow all teaching programs to have qualified intensivists in the ICU 24 h/d to guide both teaching and patient care. The model described by Vallabhaneni and colleagues provides an alternative approach. Since their model requires each intern to be on night duty only once every fourth day, its impact on sleep hygiene may be better tolerated than the model described in our study. However, when we introduce a new house-staff/patient care model in an ICU, we need to measure its impact on patient outcome, clinician satisfaction, sleep hygiene, and education. Such an approach may help educators and clinicians to identify the best model.

FIGURE 1. Requirements of the Accreditation Council for Graduate Medical Education for rest periods and weekly work hours for interns.

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Bronchopleural Fistula or Alveolopleural Fistula?

Not Just Semantics

To the Editor:

We read with interest the article by Feller-Kopman et al[1] (July 2006), who report the use of an ronchial valve for the treatment of persistent air leak. We congratulate the authors on the novel use of the device. However, two aspects of this report merit careful attention.

The first point is the terminology used to describe air leaks, *ie*, the differentiation between alveolar-pleural fistula (APF) and bronchopleural fistula (BPF). An APF is a communication between the pulmonary parenchyma distal to a segmental bronchus and the pleural space, while a BPF is a communication between a main stem, lobar, or segmental bronchus and the pleural space.[2] This distinction is not merely an academic one but is therapeutically important because the treatment for the two types of fistula is drastically different. BPFs have significant morbidity and almost always require reoperation or some type of surgical intervention. By contrast, an APF rarely, if ever, require reoperation. Most air leaks, even after elective pulmonary resection, are APFs and not BPFs, while air leaks resulting from parenchymal necrosis are invariably APFs.[3] Hence, it would have been more appropriate to use the term *APF* while describing the persistent air leak in this patient.

Secondly, the authors have not graded the air leak. Until very recently, there was no classification system. Presently, the air leaks are classified into four types.[4] The largest and most uncommon is a continuous air leak, which is present throughout the respiratory cycle. This is seen in the patients who are receiving mechanical ventilation or have bronchopleural fistula. The second largest type is an inspiratory air leak seen almost exclusively in the patient receiving mechanical ventilation or with a sizable APF or a small BPF. The third largest leak is called an expiratory air leak, which is present only during expiration. This type of leak is commonly seen after pulmonary surgery and is usually due to APF. Finally, if a leak is present only with coughing, it is referred to as *forced expiratory* leak. More than 98% of air leaks after elective pulmonary surgery in patients not using ventilators are expiratory or forced expiratory leaks.[2–4] The other feature of air leaks is the size of the air leak determined with the help of a commercially available air leak meter in which the leak is measured on a scale from 1 to 7. This system not only allows proper distinction of air leaks but also has therapeutic implications. Studies[5,6] have shown that water seal is superior to suction in small air leaks, but large leaks (greater than E4) require suction.

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To the Editor:

I thank Drs. Singh and Agarwal for their insightful comments regarding our report of placing a removable ronchial valve to facilitate closure of a bronchopleural fistula (BPF).[1] We are in full agreement that precise terminology should be used when describing the underlying pathophysiology of persistent air leaks. Unfortunately, the accompanying video was not originally published as an on-line supplement as intended. I urge Drs. Singh and Agarwal to view the video (now available on-line), as it will be clear that our case was in fact due to a BPF and not an alveolopleural fistula. It shows the a flexible bronchoscope being passed via a rigid bronchoscope to the posterior basal segment of the left lower lobe with visualization of a second bronchoscope that was passed through the Eloesser flap into the pleural space. This is clearly at the bronchial level and not the parenchymal level, and hence qualifies as a true BPF. Our patient had a continuous leak through her Eloesser flap despite surgical closure, application of fibrin glue, and use of a latissimus dorsi muscle flap to cover the stump. In patients with complex BPFs, the use of removable ronchial valves truly represents a novel approach to treatment. Their use may also be beneficial for persistent air leaks secondary to alveolopleural fistula refractory to other therapy.

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