exchangers are less frequently used in our survey compared to
the data (54% vs 90%, respectively) from a Spanish study.1
However, this type of humidification is not recommended in the
Centers for Disease Control and Prevention guidelines.4 A
semirecumbent body position was reported in 87% of patients,
which is a lower percentage compared to that reported in the
Spanish study.1 Noninvasive ventilation was used as a first-line
treatment in 75% of the ICUs in our study.
Antiseptic oral rinses were almost universally used. In our
survey, the results of which were similar to those of the Spanish
study,1 there was a 100% rate of administration of stress ulcer
prophylaxis, although in our study proton pump inhibitors were
the agents used most often, as opposed to antihistamine type 2
receptor blockers and sucralfate, which were the agents used
most often in the Spanish survey.1 There was a 25% rate of
reported clinical diagnosis of VAP, which is notoriously sensitive
but not specific and is mostly used in small-sized hospitals,
because bronchoscopic procedures were more available in large-
sized hospitals. Differently from the Spanish study,1 there was
a wide availability of quantitative cultures among the various
participating ICUs, and only one ICU reported the use of
quantitative cultures for the diagnosis of VAP.
Our data highlight that there are local differences in the
preventive and diagnostic strategies used for the management of
patients with VAP. There are enormous possibilities for improving
such strategies according to international guidelines. Regional
surveys are of the utmost importance in discussing the recom-
mendations from the published evidence and are especially
useful in a regional setting, where resources are primarily
allocated.

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Evaluation of Patients Prior to Air
Travel

To the Editor:

Martin et al1 used a hypoxia altitude simulation test to propose
a cut-off value of 85% oxygen saturation by pulse oximetry (SpO2)
in infants breathing 14% oxygen at sea level; 7 infants had SpO2
ranging from 79 to 84%, while 12 infants had SpO2 ≥ 95%. This
wide response was not predicted by baseline SpO2 percentage in
air, emphasizing the need for measurements reflecting the
continuum of underlying pathophysiology. Following British
Thoracic Society2 recommendations that arterial oxygen satu-
ration (SaO2) < 92% breathing air at sea level is an indication for
in-flight oxygen administration, we found some adults with lung
disease and SaO2 percentage above this cut-off who had profound
hypoxemia (SaO2 ≤ 82%) during airline equivalent hypoxia.3 This
is most likely to occur if the underlying pathophysiology is
predominantly due to reduced ventilation-perfusion ratio (V/Q)
rather than increased shunt.1 A simple modification to hypoxia
altitude simulation test, whereby SpO2 percentage is plotted vs
partial pressure of inspired oxygen (PTo2) during a stepwise
reduction in inspired oxygen produces a curve whose shape
reflects the dissociation curve but which is shifted to the right
along the PTo2 axis in proportion to reduced V/Q.1 This
rightward shift due to reduced V/Q has a more profound effect
than shunt on SpO2 percentage when PTo2 falls at altitude/in
flight. Since the shape of the SpO2/PTo2 curve is affected
differently by reduced V/Q and shunt, these entities can be
derived noninvasively from this curve. This approach can also
be used in infants.4 Hence, adapting hypoxia altitude simula-
tion test to derive V/Q and shunt presents a continuum of
physiologic impairment that may be of use when assessing fitness to fly.

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Diagnosis of Cardiogenic Pulmonary Edema by Sonography Limited to the Anterior Lung

To the Editor:

We read with interest the article in CHEST (July 2008) by Lichtenstein and Mezière on the diagnostic value of lung ultrasound in patients with acute respiratory failure. They examined 64 patients with pulmonary edema in the ICU and observed prevalent B-lines on each side of the anterior chest (the B profile) in 62 cases. Based on these findings, the proposed Bedside Lung Ultrasound in Emergency (BLUE) protocol rules out the diagnosis of cardiogenic pulmonary congestion when the anterior chest scans do not show the B profile.

Our previous two studies in patients who had been admitted to the emergency department seem to be in disagreement with this view. We performed lung ultrasound in 130 dyspneic patients with confirmed acute decompensated heart failure (ADHF). All had multiple anterolateral B lines, but a retrospective analysis of the distribution of distributions revealed that 20% of these patients (28.5% of 49 patients in the first study and 14.81% of 81 patients in the second study) did not show the B profile.

Considering that both teams used the same sonographic technique and definition of a positive scan finding, and that the diagnoses were all officially confirmed in the hospitalization report using standardized tests, we suggest two possible explanations to this discrepancy. (1) Lichtenstein and Mezière mainly studied patients with severe pulmonary edema in the ICU, and the transudate was probably extended to the whole lung despite gravity and vascularity. The milder forms of ADHF do not necessarily show anterior symmetric B lines, because congestion initially involves the inferior lobes. Moreover, comorbidity occurs frequently with a possible asymmetric distribution of edema due to morphologic changes in the lung parenchyma of COPD patients. (2) A different timing of the sonographic examinations could be confounding. It has been shown that B lines significantly clear after treatment in patients who have been admitted to the hospital for ADHF.

Despite this discrepancy, we strongly believe in the high clinical value of the BLUE protocol as validated in critically ill patients. At the same time, we remain convinced that in daily practice in the emergency department sonographic examinations of the lateral chest areas (requiring a few seconds more time) is mandatory to diagnose even asymmetric or mild pulmonary congestion and the conditions modified by initial treatment.

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Response

To the Editor:

We are pleased to see the interest of Volpicelli and colleagues in lung ultrasound and the BLUE protocol. Our observations (July 2008) stressed a correlation between pulmonary edema and the B profile. Volpicelli and colleagues pointed out cases of pulmonary edema without the B profile. In actual fact, we believe there is no discordance between their results and ours; rather, they are complementary. As Volpicelli and colleagues say, the severity of their patients’ illness was different (patients were able to keep the supine position, and most did not require instrumental therapy). The time at which these results were recorded, up to 48 h after hospital admission, is important since B lines vanish during therapy. Most of their patients had the B profile, however. Those patients with no B profile (14.8%, considering only patients examined at hospital admission) should indeed be referred to as having the mildest cases. This hypothesis