the pleural surface. The issue related to the attenuation of the beam is valid and depends in large measure on the transducer being used. Using a high-frequency linear transducer would obviously limit the depth of penetration to a far greater extent than the curvilinear transducers we use for liver imaging, which are designed to image at greater depths. B-lines represent an amplification of the ultrasound signal being received by the transducer, hence they are brighter than the surrounding structures regardless of depth; thus, to some degree, the ability to visualize them is independent of depth. The fact that we clearly could see the B-lines in our study speaks for itself.

The comments regarding mild degree of dependent atelectasis seen in the lung bases is certainly valid, and attempting to distinguish between normal variants and true lung disease is the entire point behind grading the quantity of B-lines visible on the images and the generation of the receiver-operating characteristic curves in our article. It is clear that a few scattered B-lines are probably a normal variant much of the time as opposed to the presence of so many B-lines that they become confluent, which really does seem to indicate the presence of true underlying pulmonary pathology. Although the presence of “dirty shadowing” that occurs when confluence of the B-lines develops is underreported in the literature, we see this all the time in postthoracentesis patients with re-expansion pulmonary edema.

Finally, I agree with the statement that ultrasound is probably more sensitive for the detection of airspace disease along the pleural surface than chest radiograph, and possibly, but less likely, more sensitive than CT scanning. Although an investigation into this phenomenon would be incredibly interesting, it is also very difficult to find large numbers of patients with a positive ultrasound for B-lines, a negative radiograph, and a CT scan of the thorax performed at the same time as the other examinations.

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Reference


Learning Through Teaching

To the Editor:

We would first like to applaud CHEST for the new Teaching, Education, and Career Hub. Ensuring that articles centered on medical education are featured quarterly in a respected journal is an important step toward elevating the importance of medical education scholarship and energizing a new generation of teachers.

We read with interest the first article in this section of the journal in the January issue of CHEST, by Ashton and colleagues, outlining principles for success in fellowship, in particular their discussion of self-directed learning. The authors highlight several strategies that trainees can use to build a foundation for a career of lifelong learning and self-improvement.

To this list, we would like to add and emphasize the importance of seeking out opportunities to teach. In our experience, there are few better ways to solidify knowledge, identify previously unrecognized gaps in one’s understanding of a topic, and reflect on areas of uncertainty than to assume the role of teacher. Teaching serves as a helpful counterweight to emotional fatigue and burnout as it allows fellows to experience well-worn clinical topics through the eyes of excited new learners. In addition, teaching can alleviate the tension that frequently develops as senior fellows’ desire for autonomy grates against the continued supervision provided by training programs. Whether it be in front of a medical school lecture hall or around a coffee table with a post-call team, fellows who embrace opportunities to teach are free to leverage their own voice, creativity, and personal experience to explain the topic at hand.

Opportunities to teach in fellowship are endless and can be tailored to a trainee’s institution and career plans. It is important that fellows not view the pursuit of teaching opportunities as unique to those pursuing careers in medical education. To be an effective pulmonary and critical care physician in any setting is in part to be an effective educator—whether it be in clearly explaining the implications of a new diagnosis to a patient or discussing the rationale for a change in a patient’s care plan with a multidisciplinary team.
Indeed, teaching patients, family, and members of an interdisciplinary team is included as one of the entrustable professional activities for fellowship training. One need look no further than the Latin origin of “physician”—docere, meaning to teach or to instruct—to appreciate that being a clinician and educator are one in the same.

While barriers to teaching during fellowship have been well described and require attention by fellowship programs, trainee motivation to capitalize on these opportunities is critically important. Training programs should cultivate not just self-directed learners but self-directed educators—clinicians who energetically pursue new knowledge and then create opportunities to share that information with those around them.

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References

Response

To the Editor:

We thank Drs Walter and Corbridge for their thoughtful comments on our recent article describing strategies for success in fellowship. We applaud the idea of cultivating self-directed educators, where the importance of teaching cannot be overstated. In addition to emphasizing trainee engagement in teaching, we highlight the role that we as educators play in ensuring that our fellows become better teachers during their training, regardless of their desired career paths.

Division and fellowship program efforts to improve fellows’ teaching skills support a culture of education through faculty development and educational activities. Exposure to best practices in teaching can help fellows form good educational habits. Teaching skills should be emphasized in both clinical and nonclinical settings. Effective feedback after presentations at clinical conferences or research seminars is a powerful tool for improvement. The PARTNER framework for fellows working with residents (Fig 1) supports the notion of self-directed educators by giving fellows autonomy and ownership in their teaching.

Developing as a teacher demands specific skills that benefit greatly from active mentorship. Every fellow aspiring to excellence in teaching should seek out such mentorship, with the opportunity of feedback and guidance specific to teaching skills. Personal teaching goals should be part of a fellow’s individual development plan.

Figure 1 – The PARTNER framework for fellows working with residents when teaching on consultative services. (Data from Miloslavsky and colleagues.)