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## From the Desk of the Editor

# Choosing between Age Old Stethoscope and Newly Crowned Point of Care Ultrasound (POCUS): Critical Care Physicians Need to Embrace Both

Umme Kulsum Chy

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For more than two centuries, the stethoscope has remained the universal symbol of medicine and one of the most trusted instruments in bedside clinical practice. Since René Laennec introduced the stethoscope in 1816, generations of physicians have relied on auscultation to diagnose and monitor cardiovascular, respiratory, and gastrointestinal diseases[1]. Today, however, the rapid expansion of point-of-care ultrasound (POCUS) has transformed bedside diagnostics, particularly in critical care medicine. Often referred to as the "visual stethoscope," POCUS enables clinicians to directly visualize anatomy and physiology, providing immediate information that was previously unavailable without formal imaging[2,3]. This remarkable technological advancement has inevitably raised an important question: Has the stethoscope become obsolete? Rather than replacing the stethoscope in clinical practice, POCUS has in reality reaffirmed its role.

Modern day bed side patient care demands the thoughtful integration of both technologies, recognizing that each possesses unique strengths and limitations while treating critically ill. The future of bedside medicine lies not in choosing one over the other but in combining both to provide safer, faster, and more accurate patient care.

In critically ill patients, rapid diagnosis often determines clinical outcomes. Lung ultrasound can accurately detect pneumothorax, pleural effusion, pulmonary edema, atelectasis, and consolidation with greater sensitivity than chest auscultation and even conventional chest radiography in many situations[2]. Cardiac ultrasound allows immediate assessment of ventricular function, pericardial effusion, valvular abnormalities, and hemodynamic status, significantly improving diagnostic confidence during shock, cardiac arrest, and acute cardiovascular emergencies. POCUS surpasses stethoscope in diagnosing and managing trauma through FAST( Focused Assessment with Sonography in Trauma) and/or e-FAST and raised intracerebral pressure through optic nerve sheath diameter[3,4]. Furthermore, ultrasound guidance has revolutionized bedside procedures, increasing the safety and success of vascular access, pleural drainage, and numerous invasive interventions even in pediatric population[4].

These advantages have led some to predict the gradual disappearance of the traditional stethoscope. With the advent of X- ray, ECG, CT scan, MRI and echocardiography, clinicians have been prompted to depend less on physical examination and even lesser on traditional stethoscope. Yet the stethoscope has survived every technological revolution because it fulfills a clinical role that imaging alone cannot replace.

The greatest strength of the stethoscope is its immediacy of application. It is inexpensive, portable, requires no electricity support and obviously does not require calibration. During emergencies a physician can rapidly assess bilateral air entry after endotracheal intubation, identify wheezing in acute bronchospasm, detect stridor indicating upper airway obstruction, evaluate heart sounds during resuscitation, or monitor bowel sounds when indicated—all within seconds.

Equally important, the stethoscope allows continuous bedside reassessment. Critical illness is a dynamic state and patients often require repeated examinations over minutes or hours. Frequent auscultation remains invaluable during patient transport, cardiopulmonary resuscitation, mechanical ventilation, and postoperative monitoring[5].

In many low-resource settings where advanced imaging is unavailable or limited, the stethoscope continues to serve as the primary diagnostic instrument, highlighting its enduring global relevance.

Nevertheless, the limitations of auscultation by stethoscope should not be overlooked. Interpretation is subjective and depends heavily on clinical experience. Environmental noise, obesity, chest wall deformities, and mechanical ventilation can reduce diagnostic accuracy. Inter-observer variability remains considerable, and many pathological findings are subtle or absent during the early stages of disease. Importantly, auscultation cannot directly visualize anatomical structures or quantify physiological abnormalities[2]. These shortcomings are precisely where POCUS excels.

Ultrasound transforms many diagnostic uncertainties into visual confirmation. Instead of merely suspecting pleural effusion based on reduced breath sounds, clinicians can directly visualize fluid collections, estimate their volume, and guide thoracentesis safely. Similarly, cardiac ultrasound can rapidly differentiate hypovolemic, cardiogenic, obstructive, and distributive shock, facilitating timely, targeted therapy[2,4]. Such capabilities have fundamentally changed bedside decision-making in emergency departments and intensive care units.

However, POCUS is not without limitations. Image acquisition and interpretation require structured training, supervised practice. Otherwise, findings may be misleading. Poor acoustic windows in obesity, subcutaneous emphysema,

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dressings, or mechanical ventilation may limit image quality. Hand held ultrasound devices, while increasingly portable and affordable[2], do not replace comprehensive echocardiography when detailed structural or functional assessment is required.

Perhaps an unintended consequence of the widespread adoption of POCUS has been the gradual decline in bedside examination skills. As clinical workloads intensify, obtaining an ultrasound examination often appears faster and more definitive than refining auscultation skills.

The future of bedside diagnosis should therefore focus on integration rather than replacement. The competent physician should know when rapid auscultation is sufficient, when focused ultrasound adds value, and when comprehensive imaging is necessary[5].

Ultimately, the debate should no longer center on whether the stethoscope alone or POCUS alone is superior at bed side. They answer different clinical questions through different mechanisms. Together they provide a more complete understanding of the critically ill patient than either tool alone.

More than 200 years after its invention, the stethoscope remains far more than an iconic symbol hanging around a physician's neck[5]. Critical care physicians need to understand and embrace time-tested value of auscultation using stethoscope and at the same time the extraordinary diagnostic power of bedside point of care ultrasound.



Dr Umme Kulsum Chy
Consultant
Department of Critical Care Medicine,
Unico Hospitals PLC. Dhaka.
E mail: mouri.im1@gmail.com

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