

## Review

# BEDSIDE LUNG ULTRASOUND IN INTENSIVE CARE UNITS

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### Abstract

**Background:** With the recent increase in the number of patients admitted to Intensive Care Units with respiratory failure and the need for fast, reliable, repeatable, non-invasive, little or no radiation examinations, lung ultrasound has emerged as an attractive alternative to chest radiography.

**Summary:** Despite the relatively short learning curve for the physician, the possibility of using ultrasound examination on any patient, no matter the age or medical history, there are some patient-related limitations to be considered (mechanically ventilated patients, non-compliant patients). With the progression of literature on this topic, new protocols have emerged, aiming to minimize the intra- and inter-observer variability. Bedside Lung Ultrasound in Emergency Protocol proposes a guided, step-by-step approach, helpful for diagnosing or ruling out life-threatening lung pathologies.

**Keywords:** bedside lung ultrasound, pneumonia, pneumothorax, pleural effusion, alveolar interstitial syndrome, chest radiography, computed tomography, BLUE protocol

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### Introduction

Sepsis and septic shock are major healthcare problems, affecting millions of patients all around the world. A study performed in USA showed that acute organ dysfunction that accompanies severe sepsis is a leading cause of death and the most common cause of death among critically ill patients in non-coronary intensive care units (ICU) [1]. In addition, epidemiological studies showed that respiratory tract

infections, particularly pneumonia, are the most common site of infection, as well as associated with the highest mortality [2]. However, diagnosing acute pneumonia is often difficult, since clinical, biological and imaging signs are not specific [3]. International accepted guidelines recommend using chest x-rays as first line examination, despite having low sensitivity and specificity [4]. Computed tomography (CT) scans are the gold standard imaging technique for thoracic evaluation, but transportation of patients