



# Emergency and Critical Care Ultrasound Essentials

This course was designed to provide healthcare professionals with the skills and knowledge needed to perform point-of-care ultrasound (POCUS) in emergency and critical care settings. The course is structured around practical concepts, striking illustrations, high-quality ultrasound images, clinical examples, and live scanning demonstrations, making it easy for learners to understand and apply their knowledge in real-life situations. By the end of the course, learners will have the ability to diagnose the most common and life-threatening conditions encountered in emergency settings. The course covers a wide range of topics, including shock/hypotension, resuscitation, acute coronary syndromes, aortic dissection/rupture, heart failure, pericardial effusion/tamponade, pneumothorax, pulmonary embolism, pleural effusion, DVT, trauma, abdominal pain, bleeding, and much more. Overall, this course is an excellent resource for healthcare professionals seeking to gain valuable skills and knowledge in POCUS ultrasound and critical care medicine. It is ideal for emergency physicians, intensivists, and anesthesiologists, but also for students and any other healthcare professionals working or preparing to work in critical care settings.

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CME credits

8

Chapters

25

Lectures

7

Quizzes

## Chapter 1 | CME

### Free lectures

In this free lecture series, you will learn why the heart is so important and which scary situations you will be able to diagnose with an ultrasound of the heart. Also, you will learn about why you should do a lung ultrasound and how it works.

#### Lectures & Quizzes:

- Free lecture 1
- Free lecture 2

## Chapter 2 | CME

### Introduction

Find out why POCUS ultrasound is so important in critical care scenarios, which approach you should use and which instrumentation you should use. In this chapter we will also show you how to apply POCUS ultrasound in cardiac arrest and cardiopulmonary resuscitation (CPR).

#### Lectures & Quizzes:

- Introduction - Ultrasound to the ICU
- EmCC - Introduction

- Echo in advanced life support

### Chapter 3 | CME

## Heart

We will introduce you to the basic echocardiographic views used in emergency sonography and teach you the essentials around LVF and RVF, acute coronary syndrome, pericardial effusion, cardiac tamponade, and valvular heart disease.

### Lectures & Quizzes:

- Imaging the heart - in the ED
- Left & right ventricular function - where is the problem?
- Chest pain - Differential diagnosis
- Chest pain - Imaging approach
- Pericardial effusion
- Valvular problems – a story of regurgitation & stenosis
- EmCC - Heart

### Chapter 4 | CME

## Lung

Learn how to approach lung ultrasound for detecting and differentiating consolidations, pleural effusion, and pulmonary edema and how to diagnose pneumothorax with ultrasound.

### Lectures & Quizzes:

- Sonoanatomy, LUS in Covid-19 & visual scoring
- Pleural effusion, pulmonary edema & consolidations
- How to rule out a pneumothorax
- EmCC - Lung

### Chapter 5 | CME

## Aorta

Master the topic of aortic pathologies, learn to quickly recognize aneurysms and dissections and make sure you don't miss the diagnosis of aortic rupture. Many ultrasound image examples and live demos will guide you through this topic.

### Lectures & Quizzes:

- Aortic aneurysm & dissection - Basics
- Imaging the Aorta
- Aortic aneurysm & dissection - Case examples
- EmCC - Aorta

### Chapter 6 | CME

# Pulmonary Embolism - DVT

Did you know that there are direct and indirect signs of pulmonary embolisms that you can find in lung ultrasound? We teach you how to link them to your clinical findings. We also demonstrate how to diagnose or rule out a deep vein thrombosis of the lower extremity.

## Lectures & Quizzes:

- Pulmonary embolism – What does the thrombus do?
- Detecting DVT with compression sonography
- EmCC - DVT/Pulmonary embolism

## Chapter 7 | CME

# Clinical eFAST in abdominal pain

Learn how to use the eFAST protocol in trauma settings and in a clinically oriented ultrasound of the heart, lungs, and abdomen in patients with acute abdominal pain, chest pain, or dyspnea.

## Lectures & Quizzes:

- The right upper quadrant & the right lateral thorax
- The left upper quadrant, the left lateral & the anterior thorax
- The heart, the bladder & the great vessels
- EmCC - eFAST

## Chapter 8 | CME

# Hypotension, shock and syncope

Find out why echo is essential in hypotension, syncope, and different kinds of shock! We teach you a simple approach to this broad topic and put everything into context with many case examples.

## Lectures & Quizzes:

- Overview / Basics
- Imaging and specific findings
- Hemodynamic assessment
- Case studies
- EmCC - Hypotension / Shock / Syncope