

## POCUS - Point-of-Care Ultrasound: Advanced Physical Examination

### POCUS - *Point-of-Care Ultrasound: O Exame Físico Avançado*

**Keywords:** Echocardiography; Point-of-Care Testing; Ultrasonography

**Palavras-chave:** Ecocardiografia; Testes Imediatos; Ultrasonografia

Ultrasound is innocuous, accessible, affordable and easy to use, assisting in both diagnosis and treatment guidance. The equipment sophistication has evolved through the years, offering more portability, automation, reducing the margin of error and the inter and intra-observer variability, which has attracted the use of this technique in nontraditional clinical settings, and the expansion of the technology as pocket equipment, introducing the hand-held ultrasound (HHU).

According to the clinical situation, it can be used either in chronic or acute patients. Due to its portability, it can be used in different circumstances such as the emergency department, inpatient setting, medical office, transport of the patient or even at home visits.<sup>1</sup> In these scenarios, when facing a patient with abdominal pain, following clinical history and physical examination, the ability to perform differential diagnosis is significantly improved, for example in clinical scenarios such as renal colic, cholelithiasis, abdominal aortic aneurysm dissection, acute appendicitis or even an ectopic pregnancy. This is possible by having an ultrasound probe in the pocket, connecting it to the smartphone or tablet and proceed with the test. This is called point-of-care ultrasound (POCUS),<sup>2,3</sup> it has been subjected to many studies and publications, and has been integrated into the curriculum of various medical schools across the globe.<sup>4</sup> As a result, ultrasound as an integral part of the physical examination may become a reality for any clinician in the future.

In our point of view, widespread access to ultrasound will be highly beneficial, but education and training are essential. True positives are beneficial, but false ones can be

harmful. Theoretical training should be coupled with practical training where challenges to the use of ultrasound can arise, either by difficulties in image acquisition or interpretation on site, and while the interpretation can have remote live support, overcoming the challenges of the acquisition technique, it can be more troublesome in some patients. Currently, the training time for POCUS usage, depending on the anatomical area, can vary between two to 31 hours,<sup>2</sup> which might be easily accomplished.

The vision of implementing ultrasound in daily clinical practice in settings such as primary care, may be questioned by the limited consultation time available. However, POCUS should be considered as an easy, accessible, affordable and fast 'screening' test, and not as comprehensive or time consuming as a complete ultrasound examination. Following this first visual assessment the patient might have indication for a conventional ultrasound, in case of findings needing further clarification or follow-up, or other imaging modality might be indicated. In other situations, further testing might be avoided, and the patient guided to dedicated therapy or specialized assessment. The information captured by POCUS can be added to the patient clinical information and serve of great value at the time of further testing, streamlining the overall patient journey.

Several questions still remain, such as the cost-effectiveness in the clinical setting, the impact of POCUS on morbidity and mortality and a further definition of medical competence in POCUS. However, POCUS may become the 5<sup>th</sup> pillar of physical examination, called insonation, after inspection, palpation, percussion and auscultation,<sup>5</sup> and clinical practice should embrace the best that technology has to offer on behalf of the quality of care we can offer our patients.

#### CONFLICT OF INTERESTS

Alexandra Gonçalves is employed by Philips.

#### FUNDING SOURCES

This research received a pocket ultrasound as an investigation grant support from Philips.

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Jonathan DOS SANTOS<sup>1,2</sup>, Alexandra GONÇALVES<sup>2,3,4</sup>

- Unidade de Cuidados de Saúde Personalizados de Celorico de Basto. Agrupamento de Centros de Saúde do Baixo Tâmega. Amarante. Portugal.
- Centro de Investigação em Tecnologias e Serviços de Saúde (CINTESIS). Porto. Portugal.
- Faculdade de Medicina. Universidade do Porto. Porto. Portugal.
- Philips Portuguesa. Porto Salvo. Portugal.

Autor correspondente: Jonathan Dos Santos. jonathansantos@med.up.pt

Recebido: 07 de janeiro de 2020 - Aceite: 27 de fevereiro de 2020 | Copyright © Ordem dos Médicos 2020

<https://doi.org/10.20344/amp.13395>

