

## Letter to the Editor: Resuscitative ultrasound – underappreciated need for the clarity in terminology

Dear Editor,

With pleasure, we read the manuscript of Dr. Becket<sup>1</sup> that reports SHoC-ED2 data analysis and suggests that absence of cardiac activity on point-of-care ultrasound (POCUS) better predicts negative outcomes in cardiac arrest (CA) than electrocardiogram (ECG) alone. Agreeing that this report solidifies the evidence for POCUS use in resuscitative medicine, we notice the need for additional clarification surrounding the terminology of resuscitative ultrasound.

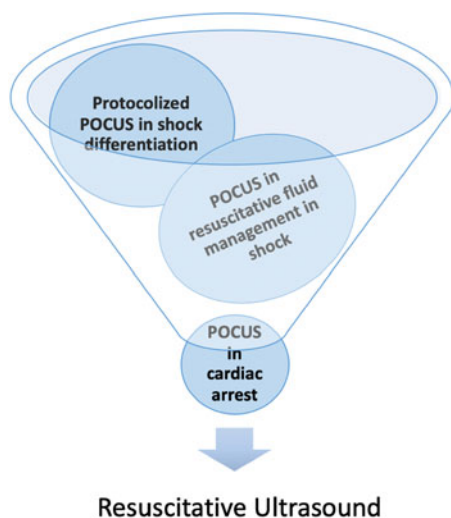
The term, resuscitative ultrasound, has been used in published literature in reference to three different concepts: 1) POCUS in CA<sup>1</sup>; 2) protocolized diagnostic POCUS in a hemodynamically

unstable patient<sup>2</sup>; and 3) POCUS in fluid resuscitation management in shock.<sup>3</sup> International Federation for Emergency Medicine recognized this problem and offered a position statement on sonography in hypotension and cardiac arrest (SHoC) that divides resuscitative POCUS into protocolized SHoC-hypotension and SHoC-CA.<sup>4</sup> Although attempting to add clarity, by joining POCUS in CA together with the much larger field of POCUS in hemodynamically unstable patients, it actually limits the ability of resuscitative POCUS in CA to grow as a field in bedside ultrasonography.

Protocolized POCUS in hemodynamically unstable patients has been widely used, and mnemonics such as “RUSH” (rapid ultrasound

in shock) help avoid unnecessary diagnostic procedures or interventions in early management. The interest for the use of POCUS in fluid resuscitation in shock grew, along with recognition of the detrimental effect of fluid over-resuscitation. Dynamic POCUS parameters offer guidance in fluid management and include cardiac output (CO) and left ventricular (LV) outflow tract Velocity Time Integral,<sup>5</sup> corrected flow time variability, or inferior vena cava distensibility,<sup>3</sup> allowing for more precise quantitative hemodynamic assessment and trending. In contrast, POCUS in cardiopulmonary arrest has been less systematically studied, although it has great potential as an additional comprehensive tool in advanced cardiovascular life support (ACLS). It can discriminate etiologies of the CA, identify reversible processes, aide with chest compressions, detect return of spontaneous circulation, and improve survival.

Appreciating the diversity and broad applicability of POCUS in hypotensive patients, we feel using the term “resuscitative ultrasound” as an umbrella term for all these concepts may not be appropriate. In its narrow sense, this term refers to the use of POCUS in CA, and we propose using the term primarily in reference to POCUS in CA that may offer clarity in terminology



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and allow this field to expand, as it deserves.

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