POCUS in Simulation: How to Incorporate and Publish Cases (Updated 8.10.25)

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Incorporation of POCUS

Ultrasound can be incorporated into simulation cases under the supporting documents/imaging section. Either still images or video clips can be utilized, but they require deidentification to ensure HIPAA compliance and that any DICOM metadata is removed. Images may be easily deidentified and cropped using the Core Ultrasound tool ClipDeidentifier.[1] Point of care ultrasound (POCUS) can be incorporated into many different case types including trauma (FAST), cardiac arrest/chest pain (TEE or TTE), respiratory failure (lung), ectopic pregnancy (pelvic), cholecystitis (biliary), etc. Often, simulation patients are too unstable to travel to computed tomography (CT); think of a patient with a ruptured abdominal aortic aneurysm or a crashing trauma patient. If a learner needs to be guided to reach for POCUS, they may be prompted by a consultant or nurse, or the CT scanner may be occupied with another critical patient.

When thinking about POCUS competency, there are three essential skills for learners: image acquision, image interpretation, and clinical integration. Image acquision is difficult to simulate; traditionally, participants may be asked to practice obtaining images on a mannequin using a real ultrasound or a simulated probe. Technology such as an RFID reader has been proposed to test image acquisition and could be trialed.[2] This can be difficult to see exactly where the learners are placing the probe while running the simulation case. Another option is to provide images to the learners if they ask for it, without testing acquisition skills. This is a less preferred method as it skips over the vital task of acquisition, but learners can be asked to describe what imaging planes and views they would obtain prior to providing the images. Participants should then be responsible for interpreting images within the clinical context of the case.

How to Recruit and Publish

The target audience for a simulation case is broad can include residents, medical students, attending physicians, advance practice providers (APPs), nursing, and emergency medical services (EMS). To recruit residents, consider offering hours they can use towards their didactic requirements or incorporate the case as part of a simulation rotation. To recruit medical students, cases may be offered as an optional educational experience during their EM rotation or away elective, or as part of an emergency medicine or simulation interest group. To expanded to nursing staff/APPs/EMS, consider incorporating simulation cases during an orientation or

training period. For a pilot/feasibility case, running a case through 10-20 participants should be sufficient for publication.

With simulation cases, image acquisition is difficult to study. Image interpretation and clinical integration are fundamental skills that can be studied. Outcomes can be measured through qualitative surveys or skills-based tests. The Objective Structured Clinical Examination (OSCE), a structured method to assess knowledge and clinical skills, may also be utilized. For instance, a simulation case may be run with and without POCUS, followed by administration of an OSCE for each group.

Case Templates

On the ACEP site, under the subcommittee section, you will find various simulation cases. These can be used as a template for making your case:
https://www.acep.org/emultrasound/subcommittees/simulation/simulation-cases [3]

For any questions about simulation cases, opportunities to publish cases, or additional ideas for cases, please contact Zachary Boivin (Zachary.boivin@yale.edu) or Edmund Hsu, (edhsu@hs.uci.edu).

Journals

There are various journals that accept simulation/ultrasound cases. Depending on the target audience of the simulation case, they range from educational journals, simulation journals, ultrasound journals, and multi-disciplinary journals. Some have an article processing charge (APC) while others are free, or free for non-open access publication.

Below is a table of journals that are PubMed indexed, have published simulation cases, and have a template available:

Journal	APC required	APC	Impact factor	Contact information	Published Simulation Case	Case Template
MedEdPORTAL (AAMC)	No	$0	NA	mededportal@aamc.org	SHOCK! Three Simulated Case Series for Medical Students	Mededportal.org, downloadable file
JETem (Jounral of Education & Teaching in Emergency Medicine)	Yes	$150	NA	JETemOnline@ gmail.com	https://jetem.org/ a_cold_case/	https://jetem.org/submit-to-jetem/simulation-submission-form/

Below is a table of journals that are PubMed indexed and accept simulation research:

Journal	APC required	APC	Impact Factor	Contact Information	Example of Published Simulation Research
Simulation in Healthcare	No	$0	1.7	admin@ssih.org	Where to Begin: Utilizing In Situ Simulation as a Tool for Rapid Assessment of Current Practices in Trauma Management
Advances in Simulation	Yes	$2790	2.9	Journalsubmissions @ springernature.com	Innovative approaches to pericardiocentesis training: a comparative study of 3D-printed and virtual reality simulation models
The Clinical Teacher	Yes	$3620	1.4	tct@wiley.com	Triaging in Mass Casualty Incidents: A Simulation-Based Scenario Training for Emergency Care Senior Residents
Clinical Simulation in Nursing	Yes	$3210	3.1	US Elsevier Health Support Center	Integration of Simulation to Prepare Adult-Gerontology Acute Care Nurse Practitioners
Medical Teacher	Yes	$5520	3.3	med@mededuc.com	High-fidelity simulation is superior to case-based discussion in teaching the management of shock
Journal of Graduate Medical Education (JGME)	No	$0	0.75	jgme@acgme.org	Just-in-Time Simulation Training to Augment Overnight ICU Resident Education
Western Journal of Emergency Medicine	Yes	$1250	3.98	editor@westjem.org	Simulation Improves Emergency Medicine Residents' Clinical Performance of Aorta Point-of-Care Ultrasound
Academic Emergency	No	$3300 Open access	3.01	cs-journals@wiley.com	Simulation Training and Skill

Medicine Education & Training					Assessment in Emergency Medicine
Annals of Emergency Medicine	No	$0	5.0	https://service.elsevier.com/app/contact/supporthub/sciencedirect	362 Effectiveness of a One-day, Case-based, Hands-on Simulation Course for Enhancing Emergency Medical Services Provider Knowledge in Emergency Airway Assessment and Management
Cureus	No	$0	1.2	support@cureus.com	Knowledge Retention From Emergency Medicine Simulation-Based Learning Curriculum for Pre-clinical Medical Students
BMC Medical Education	No	$2990 Open access	2.7	https://support.springernature.com /en/support/tickets /new?ticket_form=journal _contact_form	Effectiveness of simulation-based clinical research curriculum for undergraduate medical students - a pre-post intervention study with external control
International Journal of Healthcare Simulation	Yes	$1910	NA	editor@ijohs.com	Do virtual placements work in nurse education? A cohort study into strengths and limitations
Journal of Nursing Education	No	$0	1.6	Journal of Nursing Education	Incorporating Scenario-Based Simulation Into a Hospital Nursing Education Program

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References:

1. Clip Deidentifier. Accessed April 27, 2025. https://coreultrasound.com/clipdeidentifier/
2. Jaffa E. POCUSim – Everything Old is New Again. 2025. Accessed April 27, 2025. https://www.acep.org/emultrasound/newsroom/march-2025/pocusim--everything-old-is-new-again
3. Simulation Cases. Accessed April 27, 2025. https://www.acep.org/emultrasound/subcommittees/simulation/simulation-cases