

# 84 Innovating Ultrasound Education: Implementation of a Longitudinal, Progressive, Modular Ultrasound Curriculum Combining Didactics Using an Audience Response System with Hands-on Scanning

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**Background:** The Accreditation Council of Graduate Medical Education mandates competency for all Emergency Medicine residents in emergency ultrasound (EUS) and the American College of Emergency Physicians (ACEP) has put forth specific guidelines for residency-based ultrasound education. The ACEP guidelines state that in addition to introductory training, longitudinal didactic and hands-on instruction should be provided.

**Objectives:** We sought to supplement our introductory ultrasound course with a longitudinal curriculum that meets ACEP recommendations. Goals included integrating EUS into our modular curriculum during normal conference hours, providing opportunities for progressive learning, incorporating image review and direct feedback by use of an audience response system (ARS) and providing hands-on scanning.

**Curricular Design:** We designed eleven two-hour sessions applying the ACEP core ultrasound applications to our modular curriculum that repeats every two years (Table 1). Each session is divided into junior (PGY 1-2) and senior (PGY 3-4) learners allowing for a more directed small-group setting and differentiated learning experiences. Each group alternates between one hour of interactive lecture using an ARS and one hour of hands-on scanning using simulated patients or models. The ARS provides an interactive educational experience that allows for image review, feedback and evaluation.

**Effectiveness:** Our curriculum has shown to be a successful way to implement the recommendations set by ACEP. Resident surveys show that our curriculum is well received. Average overall evaluations: Poor (Bottom 5%) 1%, Fair 6%, Neutral 34%, Good 45%, Excellent (Top 5%) 10%. ARS scores have tracked individual learners and shown better senior learner performance up to 20% above junior learners. Limitations to implementation primarily include development of ARS sessions and funding for unique resources: ARS devices, core ultrasound faculty instructors, and standardized patients/models.

**Table 1.**

	<b>Module System/s</b>	<b>Ultrasound Application/s</b>
1	EMS	EFAST
2	Ophtho/ENT/Derm	Ocular, PTA
3	Tox/Env	Potpourri
4	Resus/Anesthesia	IVC, ETT, IV Access
5	Pulmonary	Thoracic
6	Cardiology	ECHO
7	GI	Biliary, Bowel
8	Renal	Renal, Bladder
9	OB/gyne	OB/gyne
10	Ortho	Musculoskel, procedural
11	Gen/Vasc Surgery	AAA, DVT