BACKGROUND: As bedside ultrasound use grows across medical specialties, it has become an indispensable tool for aspiring physicians and is increasingly integrated into undergraduate medical education. West Virginia University School of Medicine offers intensive two- and four-week ultrasound electives for 4th year students. A review of available literature showed a handful of Emergency Medicine programs describing their 4th year Ultrasound elective. Some have also evaluated their performance using pre- and post-test results and post-elective surveys. In addition to describing our curriculum, we did a more comprehensive analysis reviewing students’ performance, overall experience, and the number and types of scans they completed. Brief demographics of the patients were also evaluated.

METHODS: Students in the PoCUS (Point of Care Ultrasound) elective were required to work 28 hours a week conducting scans with ultrasound experts in the emergency department, log the types of scans, and complete four online lectures, assessment quizzes, pre- and post-rotation tests, and a post-rotation evaluation. They attended a weekly image review conference, a procedural session, and received supplemental materials for self-study. Coursework from July 2011 to June 2015 was retrospectively analyzed for the following: 1) Pre- and post-test scores; 2) Student post-rotation evaluations; and 3) Scan logs.

RESULTS: Fifty-one students (2-week: 39; 4-week: 12) have participated in our curriculum, with enrollment quadrupling in 2015. A total of 3,033 scans were logged, with students averaging 77 scans (64 patients) in two weeks and 135 in four weeks (116 patients). 47% of the patients were males; only 5% were below the age of 18 years. Ultrasound images were classified as either Echo, FAST, Deep Vein Thrombosis (DVT), Lung, Limited Abdomen, Renal, Right Upper Quadrant (RUQ) or Gallbladder (GB), Transabdominal/Transvaginal/Pelvic, Aorta, Medical Shock or Rapid Ultrasound in Shock and Hypotension (RUSH), Ultrasound-guided Procedure, Ocular, Musculoskeletal (MSK), Soft tissue/Abcess, and Testicular. Echo, FAST, and Renal were the most common scans performed, and Testicular the least. The average pre-test score was 71% and post-test was 97% (p<0.05). Post-rotation surveys revealed that the elective was perceived favorably. All students agreed or strongly agreed that they accomplished the objectives for the rotation, believed they were able to perform ultrasound on a variety of organ systems, gained valuable experience, and were better prepared for residency.

CONCLUSION: Our novel ultrasound elective is well perceived by medical students, effectively teaches PoCUS, and has grown in popularity over the years. Early
training and exposure of medical students to PoCUS will help enhance and reinforce important clinical concepts and improve patient care and safety.