

## POINT-OF-CARE ULTRASOUND NEEDS ASSESSMENT IN A PEDIATRIC ACUTE CARE SETTING IN MALAWI

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**Background:** Kamuzu Central Hospital (KCH), a referral hospital in the capital city of Lilongwe, Malawi, admits up to 300 children per day. One challenge to clinicians evaluating acutely ill children is inconsistent access to radiographic imaging and interpretation, lab studies, and specialty consultation. Identifying tools that can assist clinicians with timely diagnosis and management of pediatric patients is highly important and improves outcomes. Point-of-care ultrasound, or POCUS, is defined as focused ultrasonography performed by the treating clinician at a patient's bedside and interpreted in the context of his or her clinical examination. POCUS has been shown to be a valuable tool for clinicians across many resource-limited settings.

**Materials/Methods:** A retrospective, cross-sectional study was performed using a convenience sample of POCUS scans performed in the KCH Department of Pediatrics over one year. POCUS scans were performed by Pediatric Emergency Medicine physicians as part of routine clinical practice, and at the request of local clinicians. Images were saved along with the clinical indication and physician interpretation as per typical practice for quality review. Ultrasounds performed by Radiology and those scans that were technically limited, missing application or interpretation were excluded.

**Results:** In the 12-month period, 225 ultrasounds performed on 142 patients were included in the study. The most common scans performed were cardiac (41.8%), lung (15.1%), FAST (12.9%) and ultrasound guided procedural scans (9.8%), such as US-guided thoracentesis and paracentesis. Pathology was identified in 68.5% of non-procedural scans. Most common findings were described on limited cardiac exams, including: decreased cardiac function (12.8%), gross cardiac structural abnormality (11.8%), and pericardial effusion (10.3%). The most common clinical indications for which scans were completed were respiratory distress (23%), edema (11.7%), and shock/arrest (6.2%).

**Conclusions:** This needs assessment identified the most common POCUS exams performed, clinical indications driving ultrasound use, and positive findings in acutely ill children in a resource-limited setting. POCUS was used both for clinical decision making and procedural support. The majority of POCUS exams performed yielded positive findings. From these results, it is proposed that cardiopulmonary, FAST, and procedural scans are the most relevant applications in this setting and should be incorporated in any future POCUS curriculum.