



## Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

**FOCUSED, ABBREVIATED TRAINING IN THE PERFORMANCE AND INTERPRETATION OF TRANSTHORACIC ECHOCARDIOGRAPHY SHOWS PROMISE IN RURAL UGANDA**

Poster Contributions

Poster Area, South Hall A1

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Authors: *Catherine Bennet, Fardous Charles Abeya, Ari Hoffman, Joselyn Rwebembera, Malissa Wood, Michael Picard, Samson Okello, Mbarara University of Science and Technology, Mbarara, Uganda, Massachusetts General Hospital, Boston, MA, USA*

**Background:** Transthoracic echocardiography (TTE) is increasingly available in resource-limited settings but formal TTE training is limited by cost and lack of sub-specialists. We sought to compare the TTE interpretations of clinicians with abbreviated TTE training in Mbarara, Uganda with those of a board-certified echocardiographer to assess the necessity of formal TTE training in resource-limited settings.

**Methods:** Two internists with focused TTE training - brief in-person session on image capture and interpretation, a textbook, and online resources - performed and interpreted TTEs at Mbarara Regional Referral Hospital (MRRH) over 13 months using an echo machine with full imaging and Doppler capabilities. They interpreted EF, mitral regurgitation (MR), mitral stenosis (MS), aortic regurgitation (AR), aortic stenosis (AS), and tricuspid regurgitation (TR). 328 raw TTE studies were transferred to Massachusetts General Hospital (MGH) where an echocardiographer who was blinded to the MRRH interpretations reread the images. Cohen's kappa statistics determined inter-reader variability of categorized EF (<35%, 35-55%, >55%) and grade of valve function.

**Results:** After excluding studies for patients < 18 years old, 303 TTE studies were reread at MGH. We found moderate inter-reader agreement for categorized EF (kappa 0.539, [SE 0.042, p<0.0001]), MS (kappa 0.561, [SE 0.040, p<0.0001]), and AS (kappa 0.540, [SE 0.039, p<0.0001]). We found fair agreement for MR (kappa 0.274, [SE 0.034, p<0.0001]), AR (kappa 0.247, [SE 0.038, p<0.0001]), and TR (kappa 0.238, [SE 0.034, p<0.0001]).

**Conclusions:** In rural Uganda, the interpretation of TTEs by providers with focused training showed fair to moderate agreement with that of experts. Agreement was better for EF and valvular stenosis than for regurgitation. Our results suggest that focused sub-specialty training can fill critical gaps in the availability of TTE in developing countries where more than three fourths of the world's cardiovascular deaths occur but where the obstacles of traditional cardiology fellowships are often insurmountable. Novel training approaches are needed to insure a high quality response to the global burden of heart disease.