Method Adult patients with a clinical diagnosis of ischaemic cardiomyopathy (ICM), known multi-vessel coronary disease and a left ventricular ejection fraction (LVEF) ≤40% who had undergone both cardiac MRI with late gadolinium enhancement (CMR) and TTE were identified from a local database. TTE and MRI images were analysed by experts blinded to clinical and alternative modality information. End systolic wall thickness (ESWT) and end diastolic wall thickness (EDWT) were measured for each LV segment using the AHA 17-segment model. Viability was adjudicated by the standard late gadolinium enhancement transmurality threshold (<50% viable, 50% non-viable). Receiver operating characteristic curve analysis was performed to determine the accuracy of ESWT and EDWT in predicting CMR-determined viability. See Figure 1.

Results 237 patient records were screened, 44 met inclusion criteria. Nine of these patients were excluded due to poor image quality (7 TTE, 2 CMR). 35 patients were included for final analysis (72 ± 8 years, 91% male). LVEF was 27.8% ± 6.4. A total of 595 myocardial segments were available for analysis. 585 (98%) segments were analysed, 447 (75%) were assessed as viable and 138 (23%) as non-viable.

Both EDWT and ESWT were significantly greater in viable compared to non-viable segments (7.6 ± 2.6mm vs. 6.3 ± 2.2mm, p<0.001 and 6.9 ± 2.8mm vs. 9.3 ± 3.2mm, p<0.001 respectively). The area under the curve (AUC) for EDWT was 0.646, with an optimal cut point of 6.5mm. ESWT was more accurate (AUC 0.715, optimal cut point 7.5mm). An ESWT >10.5mm had a specificity of 91% for viability; only 14% of segments were above this threshold. See Figure 2.

Conclusion ESWT and EDWT have limited accuracy in predicting segmental viability and the majority of segments would remain within the grey-zone. These data do not support the use of TTE as a filter for proceeding to advanced imaging for viability testing.

Conflict of Interest None