myocardial T1 mapping was performed prior to and every 2.5 min for 30 min after contrast infusion (Figure 1). Quantitative manganese uptake analysis was performed by measuring T1 relaxation times in a region of interest within the interventricular septum and compared to the left ventricular blood pool. The rate of myocardial manganese uptake was determined by Patlak modelling [1].

Results: Participants with type 1 and type 2 diabetes mellitus were older (50±13 and 55±15.3 years) than the healthy volunteers (32±10 years). All participants had preserved left ventricular ejection fraction (type 1 diabetes mellitus, 67.7±6.1%; type 2 diabetes mellitus, 66.8±3.2%; healthy volunteers, 65±3.5%). Mean myocardial manganese uptake was reduced in participants with both type 1 (6.4±0.6 mL/100 g of tissue/min) and type 2 diabetes mellitus compared with healthy volunteers (8.3±0.5 mL/100 g of tissue/min; p<0.0001 for both, Figure 2). There were no differences in myocardial manganese uptake between those with type 1 or type 2 diabetes mellitus (p=0.22). There was no statistically significant correlation between myocardial manganese uptake and age in the study population (r=-0.28, p=0.07).

Conclusion Using MEMRI, we have demonstrated that myocardial calcium handling is impaired in patients with either type 1 or type 2 diabetes mellitus even in the absence of left ventricular systolic dysfunction. This suggests altered myocardial calcium handling may underlie, or contribute to, diabetic cardiomyopathy which has implications in developing novel therapeutic targets for the prevention and treatment of diabetic cardiomyopathy. [1] Skjold, A et al. J Magn Reson Imaging 2006;24:1047–1055.

Conflict of Interest None

Abstract 151 Figure 1 Manganese-enhanced magnetic resonance imaging (MEMRI) in patients with type 1 and type 2 diabetes mellitus. Column A shows baseline native T1 maps and column B shows post-contrast T1 maps obtained 30 min after manganese contrast infusion in (1) a healthy volunteer, (2) a participant with type 1 diabetes mellitus (T1DM) and (3) a participant with type 2 diabetes mellitus (T2DM)

Abstract 151 Figure 2 Myocardial manganese uptake in healthy volunteers, participants with type 1 diabetes mellitus and type 2 diabetes mellitus

Objective As stipulated by the 2016 NICE Chest Pain of recent onset guidelines, Computed Tomography Coronary Angiography (CTCA) is the recommended first line investigation when stable angina cannot be excluded by clinical assessment alone (1). Non-invasive Computed Fractional Flow Reserve (CT-FFR; Heartflow) is a method which utilises CT data as a diagnostic tool in identification of patients that may benefit from coronary revascularisation (2). We aimed to evaluate the diagnostic utility of CT-FFR in a district general setting in predicting significant coronary disease, defined as a positive functional test or the need for revascularisation (percutaneous or coronary artery bypass grafting). Method: This was a single centre, retrospective study of patients who had CTCA with subsequent FFR analysis from July 2019 to February 2021 (n=106). Electronic records were used to determine subsequent downstream testing and revascularisation. Lesions were documented as concordant or discordant; the former indicating an FFR result that was in keeping with the reported anatomical severity and the latter indicated discrepant results. Due to the intermediate nature of CAD-RADS 3 results, CT-FFR findings could not be defined as either concordant or discordant. Positive and negative predictive values of both CTCA and CT-FFR in identifying significant coronary pathology were calculated. Results: 106 patients underwent CTCA with subsequent FFR analysis. 15 were excluded from this study due to suboptimal image quality preventing reliable FFR results. The Positive Predictive Value (PPV) and Negative Predictive Value (NPV) for CTCA alone in predicting significant coronary disease was 41.3% and 86.9%, respectively. When the CAD-RADS 3 cohort was eliminated, PPV increased to 71.4% and the NPV remained unchanged (86.9%). The combination of CTCA with FFR gives a Positive and Negative Predictive Value of 48.4% and 83.3%, respectively. With elimination of the CAD-RADS 3 group, PPV was 85.7% and NPV of 80%.

Conclusion As supported by previously published literature, the negative predictive value of both CTCA in isolation, and
when combined with FFR remains consistently reliable. Our study demonstrated that the positive predictive value is less reliable for both tests and supports the notion that these tests tend to over-estimate the severity of coronary lesions. However, at the extremes of the CAD-RADS spectrum, PPV is a much more robust variable, as highlighted by the increase in this value when CAD-RADS 3 results are removed from the cohort. This reiterates the importance of not letting test results detract from robust clinical assessment and symptom correlation, particularly in the context of discordant or intermediate results.

REFERENCES
1. National Institute for health and care excellence (NICE) guidance for the assessment and diagnosis of recent-onset chest pain of suspected cardiac origin (clinical guideline 95 (CG95)).

Conflict of Interest none