

## Imaging

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### A SERVICE REVIEW AND COMPARISON OF RESOURCE UTILISATION WITH THE CHANGE IN RECOMMENDATIONS FROM NICE 2010 CG95 TO THE NICE 2016 UPDATE (CHEST PAIN OF RECENT ONSET: ASSESSMENT AND DIAGNOSIS)

James RJ Foley\*, Graham J Fent, Pankaj Garg, Petra Bijsterveld, Lisa Clarke, Pei G Chew, Laura E Dobson, Peter P Swoboda, Sven Plein, John P Greenwood. *University of Leeds* **KeyWords**

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**Background** NICE 2010 guidelines (CG95) proposed investigation according to pre-test likelihood (PTL) of coronary artery disease (CAD) in patients presenting with stable chest pain; low risk patients are referred for CT coronary angiography (CTCA), intermediate risk should have a functional test (stress echocardiography, MPS, CMR) with invasive angiography reserved for high risk patients and those with a PTL >90% having no investigation and treated prospectively as angina. The 2016 update to CG95 now recommends referral for CTCA in all patients with typical or atypical chest pain and in those with non-anginal pain but with ECG changes, with functional imaging reserved for those who have previously documented coronary disease or revascularisation. Our aim was to compare imaging resource utilisation between the 2010 and 2016 guideline recommendations to highlight the potential service implications if followed explicitly.

**Methods** Consecutive patients referred over 4 weeks to the Leeds General Infirmary rapid access chest pain clinic (RACPC) with stable chest pain symptoms were prospectively evaluated. Non identifiable data was collected on demographics, typicality of chest pain symptoms and ECG findings and subsequently requested 1st line investigation. Patient notes were reviewed and PTL for patients was calculated in accordance with CG95 and hypothetical investigative strategies calculated according to both 2010 and 2016 guidelines.

**Results** 157 consecutive patients were evaluated between 17th October and 17th November 2016. Patient demographics are displayed in table 1. 37 (23.5%) patients had typical angina, 55 (35.0%) had atypical angina, 65 (41.4%) had non-anginal symptoms. 16 (10.2%) patients had previous infarction/revascularisation. 25 (15.9%) patients had a PTL <10%, 36 (22.9%) had a PTL of 10%–29%, 30 (19.1%) had a PTL of 30%–60%, 41 (26.1%) had a PTL of 61%–90% and 25 (15.9%) had a PTL of >90%. Table 2 shows diagnostic tests requested and hypothetical investigative strategies according to NICE 2010 CG95 and the 2016 update.

**Conclusion/Implications** Our results show that if implemented in proposed 2016 form there will be a significant increase in the referral rate for CTCA with a corresponding decrease in referral for functional imaging and angiography. Furthermore the number of patients that are not investigated would more than double following the introduction of the proposed NICE 2016 guidelines. CTCA has high sensitivity for the diagnosis of CAD but more limited specificity and concerns are that increased usage in intermediate/high risk patients may lead to increased rates of unnecessary angiography due to the overestimation of severity of CAD. The change in guidelines would lead to a significant shift in practice that has implications for both workforce planning and provision of resources.

**Abstract 104 Table 1** Patient demographics

Patient Characteristics	Number (n=157)
Age/years (mean/SD)	60.4 (13.0)
Male n/%	83 (52.8)
Hypertension n/%	62 (39.5)
Dyslipidaemia n/%	50 (33.8)
Diabetes mellitus n/%	30 (19.1)
Smoking n/%	27 (17.2)
Family History n/%	61 (38.9)
ECG Q-waves n/%	8 (5.0)
ECG ST segment change n/%	8 (5.0)

**Abstract 104 Table 2** Investigative strategy according to CG95 guidelines and per clinician request

	Actual investigation requested	2010 recommended investigation	2016 recommended investigation	P-value (difference between 2010 and 2016)
No test	22	25	62	<0.001
CTCA	14	36	79	<0.001
Functional imaging	111	30	16	0.031
X-ray	10	41	0	<0.001
Angiogram				
Treat as angina	0	25	0	<0.001

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### DIFFERENCES IN MYOCARDIAL MECHANICS BETWEEN ISCHAEMIC AND NON-ISCHAEMIC CARDIOMYOPATHY ASSESSED BY CMR: A SUB-GROUP ANALYSIS OF THE VINDICATE TRIAL

James RJ Foley\*, Peter P Swoboda, Graham J Fent, Pankaj Garg, David P Ripley, Adam K McDiarmid, Laura E Dobson, Tarique A Musa, Sven Plein, Klaus K Witte, John P Greenwood. *University of Leeds* **Cardiomyopathy, Torsion, CMR**

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**Background** Prognosis and treatment of patients with chronic heart failure (CHF) differs according to whether it is ischaemic (ICM) or non-ischaemic cardiomyopathy (NICM). Multi-parametric cardiovascular magnetic resonance (CMR) can distinguish these aetiologies; strain imaging however may confer incremental diagnostic and prognostic information over left ventricular ejection fraction (LVEF). We hypothesised in a prospectively recruited sample of CHF patients, ICM and NICM have different myocardial strain patterns.

**Methods** The VINDICATE trial investigated efficacy of high dose vitamin D in patients with CHF. A subgroup of the trial underwent CMR, blood and cardiopulmonary exercise tests at baseline. 53 patients (31 ICM, 22 NICM) underwent identical 3.0T CMR protocols (Achieva, Philips Healthcare, Best, The Netherlands). Tissue tagging by spatial modulation of magnetization (SPAMM) (spatial resolution  $1.51 \times 1.57 \times 10 \text{mm}^3$ , tag separation 7 mm, 18 phases, typical TR/TE 5.8/3.5 ms, flip angle  $10^\circ$ , typical temporal resolution 55 ms) was acquired in short axis slices acquired at the apex, mid-ventricle, and base.