# Audit template using CAD-RADS TM - Computed tomography coronary angiography (CTCA) versus the gold standard of invasive coronary angiography (ICA).

**Descriptor:**

An audit template using a recognised grading system for stenosis severity Coronary Artery Disease - Reporting and Data System (CAD-RADSTM)[1] for CTCA reports in comparison with invasive coronary angiogram stenosis for each patient to assess the prevalence of disease sufficient to indicate catheter angiography.

**Background:**

CT coronary angiography is increasingly used for first line investigation of coronary artery disease (CAD) in patients with typical and atypical angina. With this increasing volume of work it is important to develop robust clinical audit tools to ensure quality. To date within the UK, there has been significant work ensuring the lowest appropriate radiation dose in CTCA, and national audit evaluating individual centre mean dose as a surrogate for quality [2]. We propose and evaluate an audit tool evaluating report quality. Previous guidelines (NICE CG95)[3] have suggested a pretest probability of greater than 60% incidence of disease is sufficient to indicate catheter angiography[4]. We propose this is an appropriate audit standard for those patients referred for ICA following CTCA. In our institution we use standardised reporting templates including a recognised grading system for stenosis severity (CAD-RADSTM). This has enabled us to perform a secondary audit analysis evaluating discrepancy between CTCA and ICA.

## The Cycle

**The standard:**

Pre-test probability of CAD 60%.

**Target:**

Prevalence of CAD 60%.

## Assess local practice

**Indicators:**

The prevalence of patients with ≥ CAD-RADS 4 and a ≥ 70% stenosis of CAD in ICA in a per patient and per vessel analysis based on decision matrix of test CTCA and gold standard ICA.

**Data items to be collected:**

A retrospective search on Clinical Radiology Information System (CRIS) for patients with CTCA and ICA

Use CRIS and referral letters to find:

Baseline demographics of study population (age, gender, height, weight, BMI)

Risk factors for ischaemic heart disease (diabetes, smoking, family history of premature CAD, Agaston calcium score)

Heart rate

Date of CTCA and ICA performed

CAD-RADS grading for the most severe stenosis for each vessel (right coronary artery, left main stem, left anterior descending artery and circumflex artery) for CTCA and ICA.

Reporter

Per patient and per vessel status of CAD-RADS 4 (true positive, true negative, false positive, false negative)

Patients with ICA before CTCA, assessment for grafts/ stents, non diagnostic images and greater than 6 months between CTCA and ICA were excluded.

**Suggested number:**

50

**Suggestions for change if target not met:**

Risk stratification discussed by the accepting radiologist and discussion with the clinicians on alternative tests when appropriate.

**Resources:**

Excel spreadsheet to analyse data attached

CAD-RADS grading system (see references)

[**audit\_template\_spreadsheet\_ctca\_vs\_ica.xlsx**](https://www.rcr.ac.uk/sites/default/files/audit_template/audit_template_spreadsheet_ctca_vs_ica_1.xlsx)EXCEL - 12.81 KB

**References:**

1. Cury, Ricardo C. et al. CAD-RADSTM Coronary Artery Disease – Reporting and Data System. An expert consensus document of the Society of Cardiovascular Computed Tomography (SCCT), the American College of Radiology (ACR) and the North American Society for Cardiovascular Imaging (NASCI). Endorsed by the American College of Cardiology. Journal of Cardiovascular Computed Tomography, Volume 10, Issue 4, 2016, 269-281.
2. Isabel A. Castellano, Edward D. Nicol, Russell K. Bull, Carl A. Roobottom, Michelle C. Williams, Stephen P. Harden. A prospective national survey of coronary CT angiography radiation doses in the United Kingdom. Journal of Cardiovascular Computed Tomography, Volume 11, Issue 4, 2017, 268-273.
3. National Institute for Health and Care Excellence. CG95 Chest pain of recent onset. 2016. <https://www.nice.org.uk/guidance/cg95/evidence/full-guideline-245282221> [Access 25/11/2017].
4. Diamond GA, Forrester JS. Analysis of probability as an aid in the clinical diagnosis of coronary-artery disease. New England Journal of Medicine. 1979; 300: 1350–8.

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