

# Radiological Reporting and Subsequent Clinical Management of Incidental Coronary Artery Calcification in CT Skeletal Surveys for Patients with Suspected or Confirmed Myeloma in a Large Teaching Hospital

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## BACKGROUND & OBJECTIVES

- Coronary artery calcification (CAC) is an established imaging marker of coronary artery disease<sup>21</sup>, but incidental detection on non-cardiac CT is frequently under-recognised, under-reported, and under-managed.
- Patients with myeloma face a greater overall cardiovascular risk due to both disease-related (e.g. inflammation, paraproteinemia) and treatment-related (e.g. corticosteroids, chemotherapy) factors.<sup>22</sup>
- CT skeletal surveys (CTSS), routinely used for bone evaluation in suspected myeloma, offer a valuable opportunity for early identification of CAC and initiation of preventative interventions in this high cardiovascular risk population.
- We conducted two audits in parallel to evaluate standards of (1) reporting and (2) subsequent clinical management of incidental CAC on CTSS, followed by a repeat cycle for each audit to assess improvement post-intervention.

## STANDARDS & TARGETS

While there are no CTSS-specific national guidelines, recommendations from the British Societies of Cardiovascular Imaging (BSCI), Cardiac CT (BS CCT), and Thoracic Imaging (BS TI) offer advice on reporting/management of incidental CAC on non-gated thoracic CT.<sup>23</sup> Our audit to use the following standards derived from their consensus:

### 1. Reporting & Grading

If CAC is explicitly identified, it should be quantified using a simple visual scale (none, mild, moderate, severe) unless there is a valid reason making this difficult or inappropriate (e.g. previous CABG, stent in situ).  
→ target: 100%

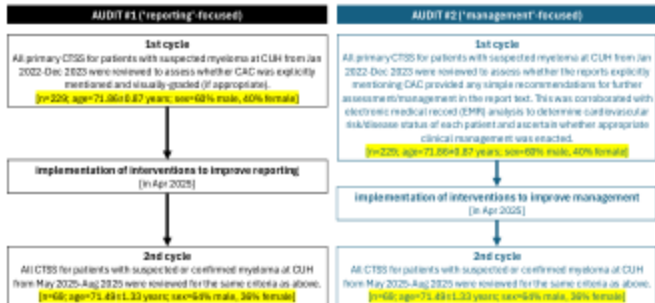
### 2. Suggesting Recommendations in Report

If CAC is explicitly identified, simple recommendations for further assessment or management should be provided in the report text itself.  
→ target: 100%

### 3. Enacting Subsequent Clinical Management

If CAC is explicitly identified, some form of appropriate clinical management (e.g. patient discussion, lifestyle modification, statin initiation, GP referral, etc.) should be enacted by the primary medical team responsible for the patient's care.  
→ target: 100%

## METHODOLOGY



## INTERVENTIONS

### INTERVENTIONS TO IMPROVE REPORTING:

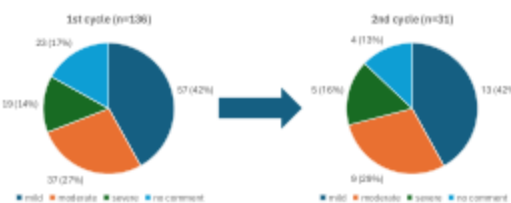
- educational presentation of findings:** to speciality leads for oncological imaging to reinforce value of looking at coronary arteries on all CTSS
- guidance to radiologists:** if a grade cannot be given where calcification is present, include an explicit reason in the report for why not (e.g. previous CABG, stent in situ)

### INTERVENTIONS TO IMPROVE MANAGEMENT:

- educational presentation of findings:** to both speciality leads for oncological imaging and haematology consultants specialising in myeloma to raise awareness
- guidance to radiologists:** introduction of a standardised reporting template for CAC, which automatically includes simple recommendations for further management in the report text if CAC is explicitly identified
- guidance to clinicians:** clinicians receiving a report definitively identifying CAC advised to...
  - suggest lifestyle changes to minimise overall cardiovascular risk
  - initiate/optimize statin therapy for primary prevention
  - encourage patient to discuss long-term cardiovascular risk reduction with GP
- patient information sheet:** co-developed with haematology consultants specialising in myeloma to empower patients with information needed to discuss strategies for cardiovascular risk reduction in primary care

## RESULTS

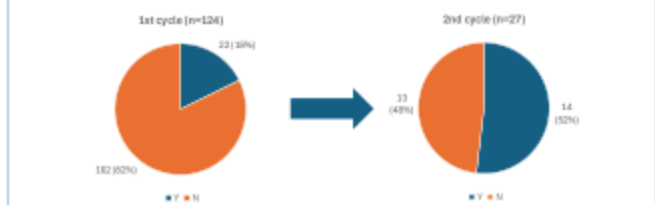
### 1. In reports in which the coronary arteries were/CAC was explicitly commented on, what degree of calcification was noted?



### 2. What percentage of reports in which the coronary arteries were/CAC was explicitly commented on visually-qualified the severity of calcification OR had an appropriate reason not to comment?



### 3. In reports where CAC was definitively identified, was there any simple recommendation re. further assessment/management given in the report text?



### 4. In the most at-risk patients (i.e. those with risk factors for CVD) in whom CAC was definitively identified in the report and were not already on sub-optimal primary prevention, was any subsequent clinical management enacted?



## DISCUSSION & CONCLUSION

- Sub-optimal reporting of incidental CAC directly translates into sub-optimal management of CAC-positive patients, with only 7% of high-risk individuals receiving any intervention at initial haematology follow-up prior to our changes being implemented.
- Following implementation of changes, both of our audits demonstrated clear improvements from both reporting and management perspectives.
- Raising awareness among relevant specialities, embedding simple management recommendations within the radiology report, and prompting clinicians to enact simple management all proved effective in positively changing clinical practice.
- Implementing management (e.g. lifestyle modification, statin initiation, etc.) at the time of myeloma diagnosis has the potential to significantly reduce long-term cardiovascular morbidity and mortality in this high-risk group, improving overall health outcomes beyond their haematological condition alone.

## REFERENCES

1. British Society of Cardiovascular Imaging (BSCI). 2020. The 2020 British Society of Cardiovascular Imaging (BSCI) Guidelines for the Reporting of Coronary Artery Disease. <https://www.bscivascular.org/2020/01/20/2020-bsci-guidelines-for-the-reporting-of-coronary-artery-disease/>

2. British Society of Cardiac CT (BS CCT). 2020. The 2020 British Society of Cardiac CT (BS CCT) Guidelines for the Reporting of Coronary Artery Disease. <https://www.bscicardiacct.org/2020/01/20/2020-bscicardiacct-guidelines-for-the-reporting-of-coronary-artery-disease/>

3. British Society of Thoracic Imaging (BS TI). 2020. The 2020 British Society of Thoracic Imaging (BS TI) Guidelines for the Reporting of Coronary Artery Disease. <https://www.bscithoracicimaging.org/2020/01/20/2020-bscithoracicimaging-guidelines-for-the-reporting-of-coronary-artery-disease/>