

Research Project

Name of Institution and department:

Guy's and St Thomas' NHS Foundation Trust (GSTT)
Department of Radiology, Cardiothoracic Imaging

Link to website: <https://www.guysandstthomas.nhs.uk>

City and Country of Institution: London, United Kingdom

RESEARCH GROUP

The Cardiothoracic Imaging Unit at Guy's and St Thomas' NHS Foundation Trust is a high-volume tertiary referral centre with extensive expertise in cardiac CT and advanced cardiovascular imaging research. The department performs a large number of CT Coronary Angiography (CTCA) examinations, including referrals from the Rapid Access Chest Pain Clinic (RACPC). Advanced post-processing techniques, including FFR-CT and coronary plaque analysis, are routinely integrated into clinical practice through collaboration with HeartFlow and the Interventional Cardiology Department.

The group's mission is to improve the diagnosis and management of patients with suspected coronary artery disease through innovative imaging techniques, multidisciplinary collaboration, and clinically relevant research that directly impacts patient care pathways and outcomes.

TITLE OF PROPOSED RESEARCH PROJECT

Impact of CT Coronary Angiography, FFR-CT and Plaque Analysis on Clinical Decision-Making and Patient Outcomes in Rapid Access Chest Pain Clinic Patients

OBJECTIVES

- To evaluate the concordance between CTCA radiology reports and HeartFlow FFR-CT findings in patients referred from the Rapid Access Chest Pain Clinic with significant stenosis found on CTCA (50% or more or mild in LMS or proximal LAD/RCA).
- To assess the influence of CTCA and FFR-CT results on downstream clinical management, including further functional testing, invasive coronary angiography, revascularisation procedures, and optimisation of medical therapy.
- HeartFlow will also give us plaque analysis, and we will review this in relation to radiology report and downstream management.
- To identify imaging and clinical factors associated with patient outcomes and resource utilisation within the chest pain pathway.

APPLICANT'S DUTIES

- Perform retrospective review of CTCA examinations and radiology reports from RACPC patients.
- Collect and analyse corresponding HeartFlow FFR-CT results and assess concordance with CTCA findings. This will also include HeartFlow Plaque Analysis results.
- Retrieve and analyse downstream clinical outcome data, including further investigations, invasive coronary angiography, revascularisation, and medical management changes.
- Contribute to data analysis, presentation of results, and manuscript preparation.

APPLICANT'S BENEFITS

- Participation on scientific outcomes of the project i.e. presentations to congresses or publications of papers

- Training in advanced cardiac CT interpretation, FFR-CT assessment, and coronary plaque analysis.
 - Exposure to multidisciplinary cardiovascular imaging research involving radiologists and interventional cardiologists.
 - Experience in clinical outcomes research, data analysis, and research methodology within a high-volume tertiary cardiac centre.
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- **Project Leader:**
Dr Giulia Benedetti, Consultant Cardiothoracic Radiologist, Guy's and St Thomas' NHS Foundation Trust

 - **Members:**
 - Dr Michelle Mak, Consultant Cardiothoracic Radiologist
 - Professor Divaka Perera, Interventional Cardiologist
 - Dr Kalpa De Silva, Interventional Cardiologist
 - Wider Interventional Cardiology Team, Guy's and St Thomas' NHS Foundation Trust
 - Rapid Access Chest Pain Clinical, Guy's and St Thomas' NHS Foundation Trust
 - HeartFlow Team
 - Additional collaborators from the Cardiothoracic Imaging Research Group as appropriate.