

# Project scope: CT-CA and CT-FFR

June 2026

## Research question(s)

1. In patients with suspected typical or atypical angina, does a computed tomography coronary angiography (CTCA)-first investigative strategy improve outcomes compared with diagnostic pathways based on invasive coronary angiography or functional stress testing?
2. In patients with suspected typical or atypical angina, what is the impact of rapid access chest pain clinics using CTCA-first diagnostic pathways compared with diagnostic strategies that do not use CTCA?
3. Does CTCA combined with CT fractional flow reserve (CT-FFR) reduce downstream diagnostic testing in patients with indeterminate or intermediate risk coronary stenosis on CTCA?

## Inclusion criteria

The selection of studies for inclusion in the literature review element of the project will be based on the following criteria:

### Question 1

<b>Population</b>	<ul style="list-style-type: none"> <li>■ people with stable chest pain (typical or atypical angina) suspected of being caused by coronary artery disease</li> </ul>
<b>Intervention</b>	<ul style="list-style-type: none"> <li>■ CTCA</li> </ul>
<b>Comparator</b>	<ul style="list-style-type: none"> <li>■ invasive coronary angiography (ICA) and/or functional stress testing e.g. exercise tolerance testing, stress echocardiography, myocardial perfusion scanning, stress cardiac MRI</li> </ul>
<b>Outcomes</b>	<ul style="list-style-type: none"> <li>■ diagnostic accuracy measures (sensitivity and specificity)</li> <li>■ adverse cardiovascular events</li> <li>■ waiting times</li> <li>■ cost effectiveness</li> <li>■ patient experience</li> </ul>
<b>Limits</b>	<ul style="list-style-type: none"> <li>■ published since 2017 (SIGN CTCA recommendation)</li> <li>■ English language</li> <li>■ systematic reviews or meta-analyses, economic evaluations</li> </ul>

## Question 2

<b>Population</b>	<ul style="list-style-type: none"><li>people with stable chest pain (typical or atypical angina) suspected of being caused by coronary artery disease</li></ul>
<b>Intervention</b>	<ul style="list-style-type: none"><li>rapid access chest pain clinics using CTCA-first diagnostic strategies</li></ul>
<b>Comparator</b>	<ul style="list-style-type: none"><li>rapid access chest pain clinics not using CTCA-first strategies</li><li>standard cardiac clinics without CTCA-first investigation</li></ul>
<b>Outcomes</b>	<ul style="list-style-type: none"><li>adverse cardiovascular events</li><li>waiting times</li><li>time to diagnosis</li><li>patient experience</li></ul>
<b>Limits</b>	<ul style="list-style-type: none"><li>published since 2017 (SIGN CTCA recommendation)</li><li>English language</li><li>primary studies</li></ul>

## Question 3

<b>Population</b>	<ul style="list-style-type: none"><li>people with stable chest pain (typical or atypical angina) and indeterminate or intermediate risk coronary stenosis on CTCA</li></ul>
<b>Intervention</b>	<ul style="list-style-type: none"><li>CTCA plus CT-FFR</li></ul>
<b>Comparator</b>	<ul style="list-style-type: none"><li>CTCA alone</li></ul>
<b>Outcomes</b>	<ul style="list-style-type: none"><li>downstream diagnostic testing (functional stress testing, ICA)</li><li>referral for ICA or revascularisation</li><li>time to diagnosis</li><li>cost effectiveness</li><li>patient experience</li></ul>
<b>Limits</b>	<ul style="list-style-type: none"><li>published since 2020 (SHTG Heartflow recommendation)</li><li>English language</li><li>systematic reviews or meta-analyses, economic evaluations</li></ul>

## Exclusion criteria

The exclusion of studies from the literature review element of the project will be based on the following criteria:

<b>Population</b>	<ul style="list-style-type: none"><li>■ people with unstable chest pain, previous myocardial infarction or previous coronary stenting</li><li>■ people with non-cardiac chest pain</li><li>■ children and young people (&lt;18 years of age)</li></ul>
<b>Intervention</b>	<ul style="list-style-type: none"><li>■ ICA or invasive FFR</li></ul>
<b>Comparator</b>	<ul style="list-style-type: none"><li>■ standard of care (too much variation in what this means across studies)</li></ul>
<b>Outcomes</b>	-
<b>Limits</b>	<ul style="list-style-type: none"><li>■ Published before 2017 or 2020</li><li>■ Non-English language</li></ul>

## Planned activities

SHTG have agreed on the following activities to support the development of an SHTG Assessment:

1. a rapid systematic review of the published literature on clinical effectiveness, cost effectiveness, safety and patient experience
2. epidemiology and equalities section with input from Public Health Scotland
3. a budget impact assessment for NHSScotland
4. a plain language summary
5. engagement with clinical experts through peer review

## End products

At the end of the project, SHTG will publish:

- an SHTG Assessment
- a plain language summary

## Timescales (approximate)

Publication in December 2026.