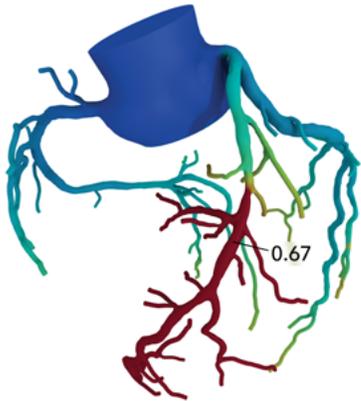# CTA + FFR$_{CT}$ and the 2021 ACC/AHA Chest Pain Guidelines

The coronary CTA + FFR$_{CT}$ pathway is recognized in the 2021 ACC/AHA Guideline for the Evaluation and Diagnosis of Chest Pain as the **front-line pathway** to aid clinicians in **diagnosing and guiding treatment decisions** in patients with **stable or acute** chest pain with **suspected or known** coronary artery disease (CAD).[1]

Coronary CTA has been elevated and is the **only Class 1 noninvasive test with Level A evidence**

FFR$_{CT}$: (Class 2a with Level B evidence) provides actionable information across a broad patient population

	STABLE	ACUTE
Suspected CAD	+	+
Known CAD	+	+

Stress Testing: (Class 1 with Level B evidence) fills a diagnostic role

Patient Considerations

The coronary CTA + FFR$_{CT}$ pathway is appropriate for many patients presenting with suspected or known CAD. The factors below may aid in choosing the most appropriate diagnostic pathway for each patient.[2]

Favors CCTA	Favors Stress Testing
• Intermediate-high risk	• Intermediate-high risk
• <65 years old	• ≥65 years old
• Prior functional test inconclusive	• Prior CCTA inconclusive
• Require evaluation of aorta and pulmonary arteries	• Suspect scar
• Incapable of exercise	• Allergy to iodinated contrast

[1] Gulati, et al. 2021 AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR Guideline for the Evaluation & Diagnosis of Chest Pain. J Am Coll Cardiol. | [2] Ibid. Fig. 6

Summary of the 2021 ACC/AHA Chest Pain Guidelines

Takeaway: Across stable and acute chest pain populations, CTA + FFR_{CT} helps guide clinical diagnosis and revascularization decisions.

Stable Chest Pain

A. With **Suspected** CAD[3]

- **CCTA** (1 A) "is effective for diagnosis of CAD, for risk stratification, and for guiding treatment decisions"

- **FFR_{CT}** (2a B) "can be useful for diagnosis of vessel-specific ischemia and to guide decision-making regarding the use of coronary revascularization" in stenoses of 40-90%

- **Stress Testing** (1 B) "is effective for diagnosis of myocardial ischemia and for estimating risk of MACE"

B. With **Known Non-obstructive** CAD[4]

- **CCTA** (2a B) for "determining atherosclerotic plaque burden and progression" and "guiding therapeutic decision-making"

- **FFR_{CT}** (2a B) "can be useful for diagnosis of vessel-specific ischemia and to guide decision-making regarding the use of ICA" in stenoses of 40-90%

- **Stress Testing** (2a C) if extensive CAD is known then "reasonable for diagnosis of myocardial ischemia"

C. With **Known Obstructive** CAD[5]

- **ICA** (1 A) if symptomatic **after** intensified guideline-directed medical therapy (GDMT)
  ICA (1 B) **before** intensified GDMT if left-main disease, severe 3-vessel disease, or FFR_{CT} ≤0.80

- **Stress Testing** (1 B) if symptomatic **after** intensified GDMT
  PET (2a B) if symptomatic **after** intensified GDMT in preference to SPECT "to improve diagnostic accuracy and decrease the rate of nondiagnostic tests results"

Acute Chest Pain

With **Suspected** CAD[6]

- **CCTA** (1 A) to exclude "plaque and obstructive CAD"

- **FFR_{CT}** (2a B) "can be useful for the diagnosis of vessel-specific ischemia and to guide decision-making regarding the use of coronary revascularization" in stenoses of 40-90%

- **Stress Testing** (1 B) "is useful for the diagnosis of myocardial ischemia"

With **Known** CAD[7]

- **CCTA** (2a B) "to determine progression of atherosclerotic plaque and obstructive CAD"

- **FFR_{CT}** (2a B) "is reasonable for diagnosis of vessel-specific ischemia and to guide decision-making regarding the use of coronary revascularization" in stenoses of 40-90%

- **Stress Testing** (2a B) "is reasonable"

[3] Ibid. §5.1.3 | [4] Ibid. §5.2.2 | [5] Ibid. §5.2.1 | [6] Ibid. §4.1.2.1 | [7] Ibid. §4.1.2.2