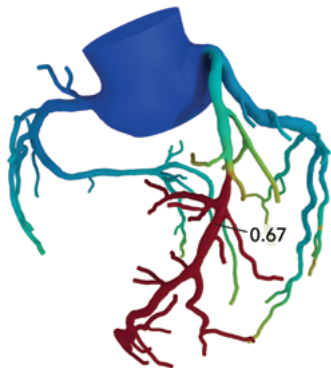


## Appropriate FFR<sub>CT</sub> Patient Selection: 40-90% Stenoses Applying the 2021 ACC/AHA Chest Pain Guideline

### Expanding Clinical Clarity



The coronary CTA + FFR<sub>CT</sub> pathway is recognized in the [2021 ACC/AHA Chest Pain Guideline for the Evaluation and Diagnosis of Chest Pain](#) as the front-line pathway to aid clinicians in answering vital questions for each individual patient.

**Is CAD present?** Coronary CTA's high sensitivity allows clinicians to confidently identify and assess the severity of CAD.

**What is the next step?** When a coronary stenosis of 40-90% is identified by coronary CTA, FFR<sub>CT</sub> is appropriate to determine if coronary blood flow is being impeded.



#### Anatomic Testing

1

A

1. For intermediate-high risk patients with stable chest pain and no known CAD, CCTA is effective for diagnosis of CAD, for risk stratification, and for guiding treatment decisions (1-12).



#### Sequential or Add-on Testing: What to do if Index Test Results are Positive or Inconclusive

2a

B-NR

7. For intermediate-high risk patients with stable chest pain and known **coronary stenosis of 40% to 90%** in a proximal or middle coronary segment on CCTA, FFR<sub>CT</sub> can be useful for diagnosis of vessel-specific ischemia and to guide decision-making regarding the use of coronary revascularization (12, 53-58).

### A More Informed View

Adding physiologic insight from the HeartFlow FFR<sub>CT</sub> Analysis to cases with anatomic disease in the 40-90% stenosis range enables informed clinical treatment decisions that benefit patients:<sup>1</sup>

- **Avoid False Negatives:** Identify physiologically significant disease that may otherwise be overlooked
- **Avoid False Positives:** Minimize patients sent for unnecessary invasive procedures
- **Increase Clinical Clarity:** Expand and improve information for clinical decision-making

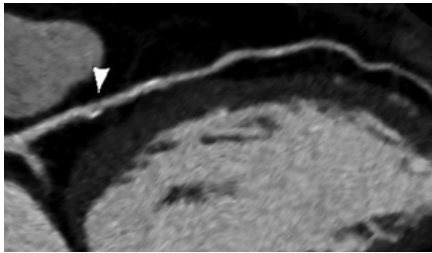
As clinicians have a clear understanding of CAD's physiologic impact, they can more fully assess the relationship between identified disease and the symptoms with which the patient presents.<sup>2</sup>

## Avoid False Negatives: <50% Stenosis with Physiologic Significance

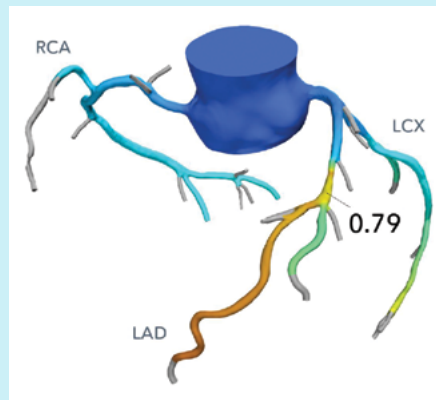
### A

58-year old woman presents to the ED with palpitations and vague chest discomfort.

- History of diabetes, depression, hyperlipidemia
- Medications: Metoprolol, HCTZ, amitriptyline
- Family history: Father had CABG in 50s, twin brother succumbed to heart disease in 30s
- CCTA shows proximal LAD 25-49% stenosis



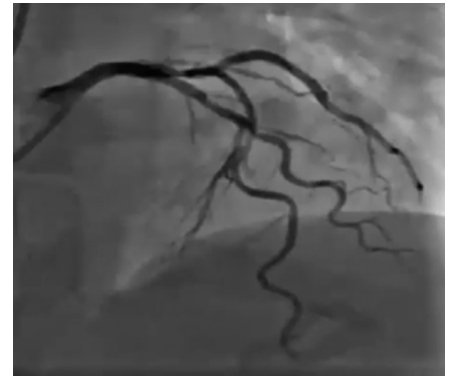
### B



HeartFlow Analysis reveals 0.79 for proximal LAD stenosis

Patient referred to ICA

### C



Invasive Angiography confirmed proximal LAD stenosis with invasive FFR 0.78

LCX confirmed negative with FFR 0.87

Patient received LAD DES revascularization

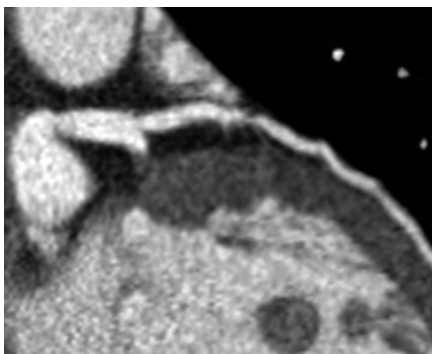
*Case Example Courtesy of William Beaumont.*

## Avoid False Positives: >70% Stenosis Safely Managed Medically

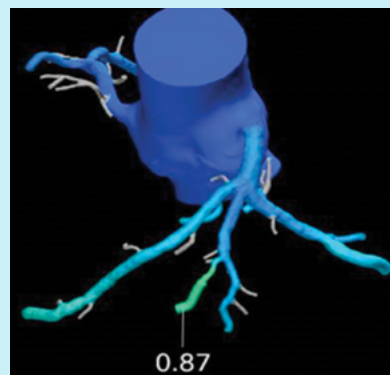
### A

40-year old male with atypical symptoms.

- Hyperlipidemia
- ST changes noted in inferior leads on exercise stress test
- CCTA shows >70% stenosis in large Ramus



### B



HeartFlow Analysis reveals 0.87 distal to >70% stenosis

### C

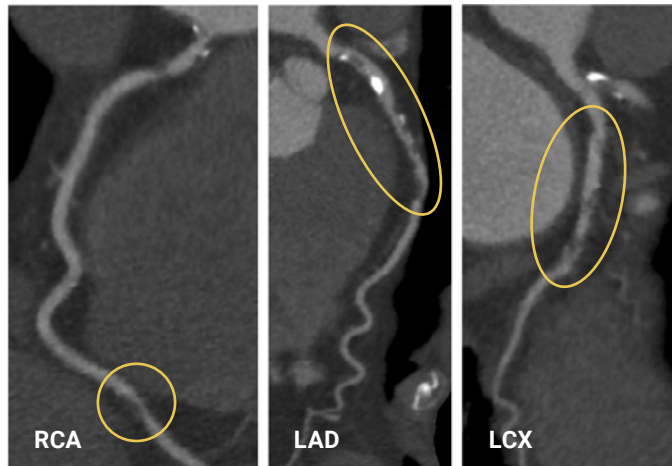
Patient managed with OMT. No adverse events after 1 year.

*Case Example Courtesy of St. Paul's Hospital.*

## Increase Clinical Clarity: Planning Multi-vessel Disease

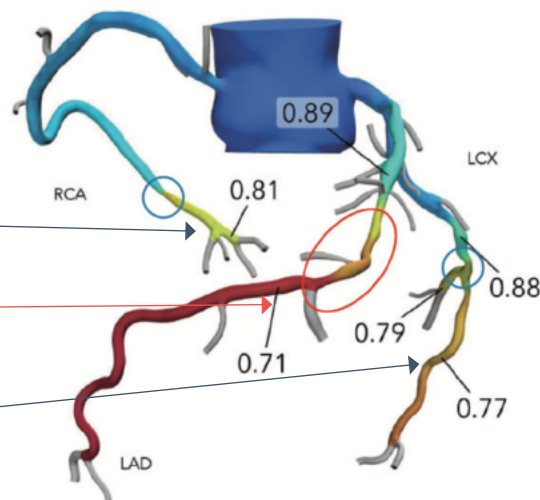
### Severe 3-Vessel Disease – Anatomic Findings

- Female in her 80s
- CCTA suggested severe anatomic disease:
  - **RCA** (segment 1 and 3)
  - **Left-main to LAD bifurcation** (segments 5 & 6)
  - **LAD** (segment 7)
  - **LCX** (segment 11)
- CABG considered as a treatment option



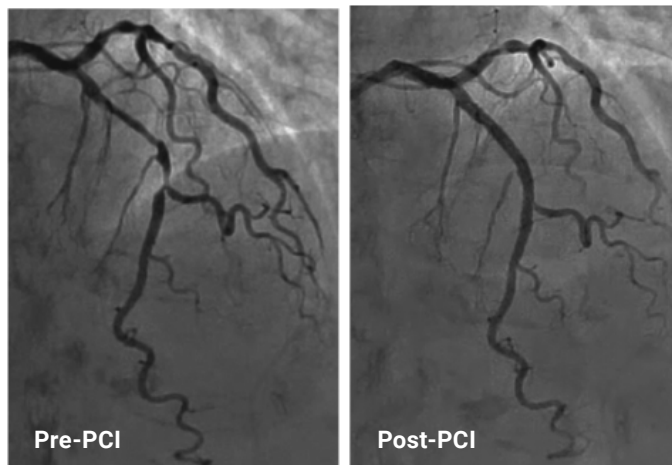
### Severe 3VD – Physiologic Findings

- Anatomic and physiologic findings were discordant in multiple locations:
  - **RCA:** (FFR<sub>CT</sub> of 0.81 indicating **no** physiologically significant disease
  - **LAD:** FFR<sub>CT</sub> of 0.71 indicating physiologically significant disease that may benefit from intervention
  - **LCX:** FFR<sub>CT</sub> of 0.77 indicating **only borderline** physiologically significant disease



### Severe 3VD – Treatment

- PCI was performed only in the LAD
- No invasive FFR assessment in the RCA and LCX:
  - Ongoing OMT
- Clinicians also reported benefit in the ability to **discuss and plan treatment** strategies prior the coronary angiogram

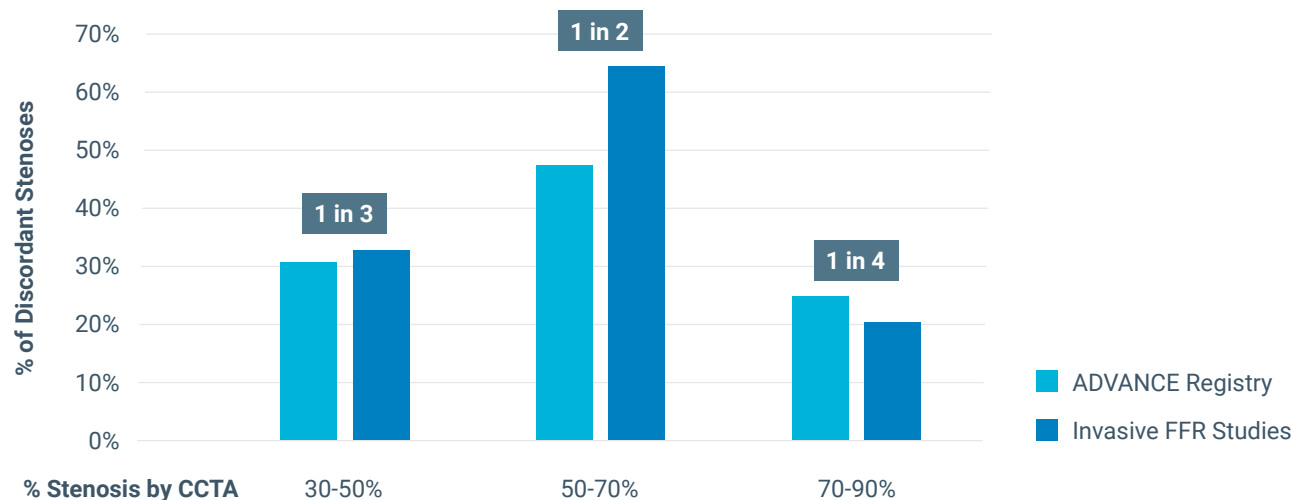


PCI in functionally significant LAD lesion

## Discordance in Anatomy and Physiology Across CT Stenosis Ranges

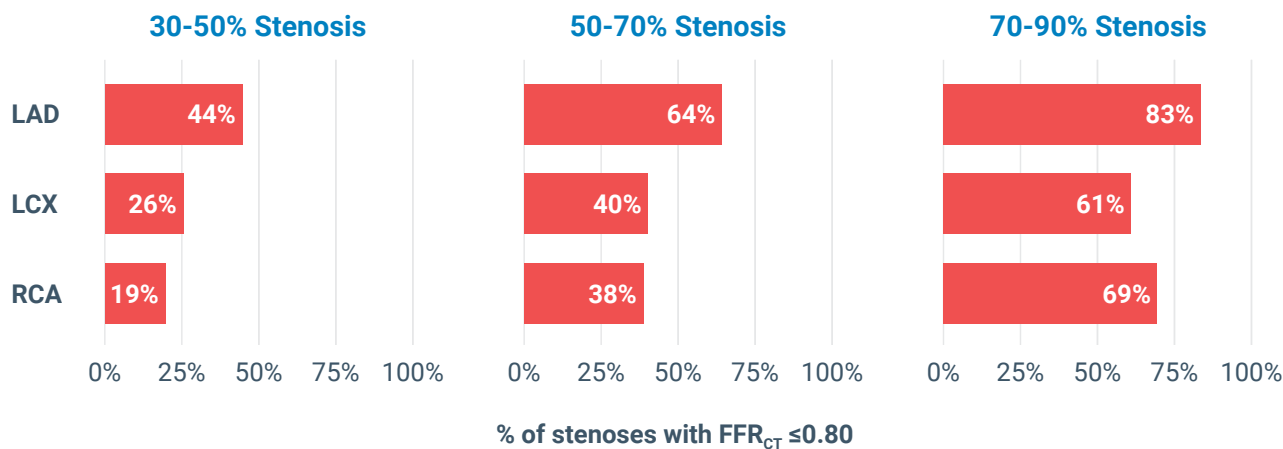
A visual assessment of anatomy alone cannot determine the physiologic impact to blood flow of an identified coronary lesion. This discordance between the clinical impact of anatomy and physiology is well documented.

### Anatomic and Physiologic Mismatch



The ADVANCE Registry | The RIPCORD Trial, Curzen et al, Circ Int 2014 | The FAME Study, Tonino et al, JACC 2010

### Physiologically Significant CAD ( $FFR_{CT} \leq 0.80$ ) Across Stenosis Ranges



The ADVANCE Registry - Fairbairn, et al. Euro Heart J 2018.

## Delivering Guideline-directed Care

The opportunity to improve care through the **avoidance of false negatives and false positives** while **increasing clinical clarity** underlies the guidance to use of  $FFR_{CT}$  in anatomic stenosis of 40-90% in diameter as identified by coronary CTA as found in the 2021 ACC/AHA Chest Pain Guideline.

Consistent and appropriate application of the coronary CTA +  $FFR_{CT}$  pathway in symptomatic patients enables clinicians to gain the insight they need to make a more informed decision for each patient.