FAME 3 Trial:
FFR-Guided PCI vs. CABG

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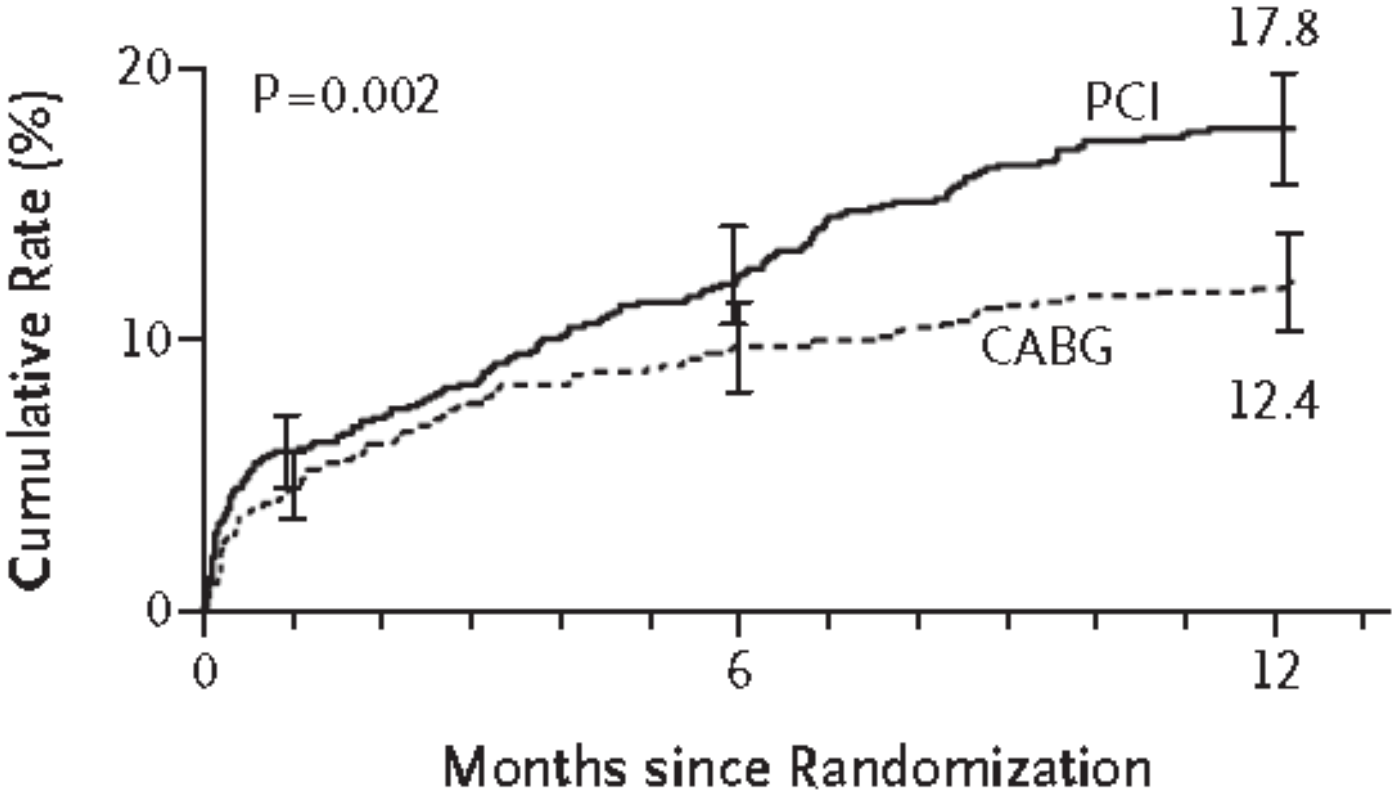
Background:

SYNTAX Trial One Year MACCE Results



Serruys, et al. NEJM 2009;360:961-72.

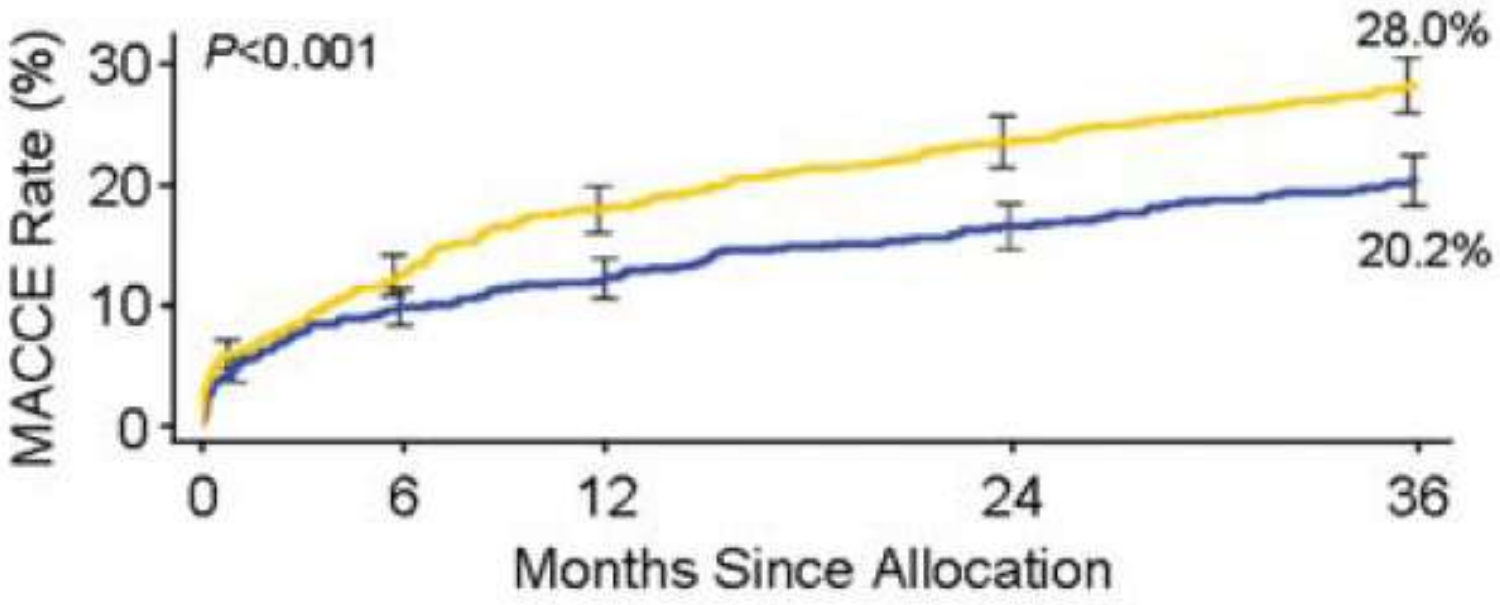
Background:

- At one year in the SYNTAX trial:
  - Cardiac death was higher in PCI arm vs. CABG (3.7 vs. 2.1%, p=0.05)
  - MI was higher in PCI arm vs. CABG (4.8 vs. 3.3%, p=0.11)
  - Stroke was higher in CABG arm vs. PCI (2.2 vs. 0.6%, p=0.003)
  - Repeat revascularization was higher with PCI (13.5 vs. 5.9%, p<0.001)

Serruys, et al. NEJM 2009;360:961-72.

Background:

SYNTAX Trial Three Year MACCE Results



Kappetein, et al. Eur Heart J 2011;32:2125-34.

Background:

- At three years in the SYNTAX trial:
  - Cardiac death was higher in PCI arm vs. CABG (6.0 vs. 3.6%, p=0.02)
  - MI was higher in PCI arm vs. CABG (7.1 vs. 2.6%, p=0.002)
  - Stroke was higher in CABG arm vs. PCI (3.4 vs. 2.0%, p=0.07)
  - Repeat revascularization was higher with PCI (21 vs. 11%, p<0.001)

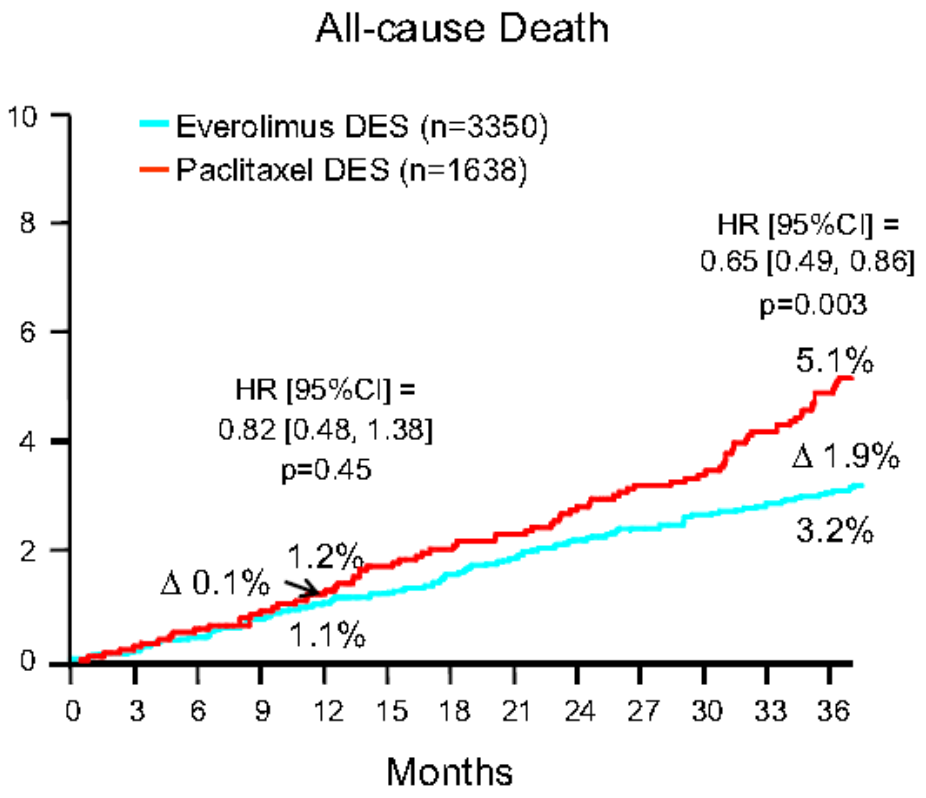
Kappetein, et al. Eur Heart J 2011;32:2125-34.

Background:

- Why should we expect a different result with FAME 3?
  - 2nd Generation DES outperform 1st Generation.
  - Fractional Flow Reserve-guided PCI outperforms angiography-guided PCI.

Background:

3 Year Benefit of 2nd Generation DES in SPIRIT meta-analysis



Dangas, et al. JACC Intv 2013;6:914-22.

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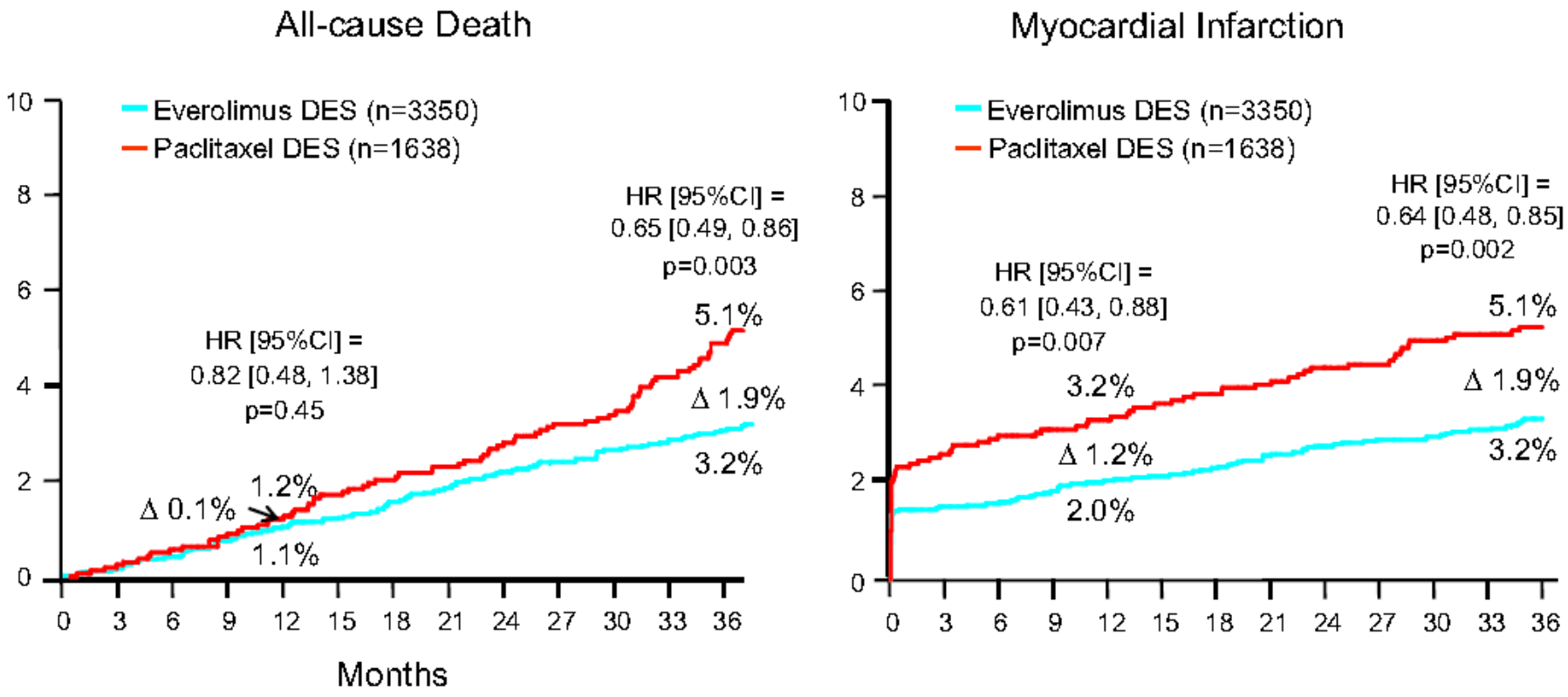
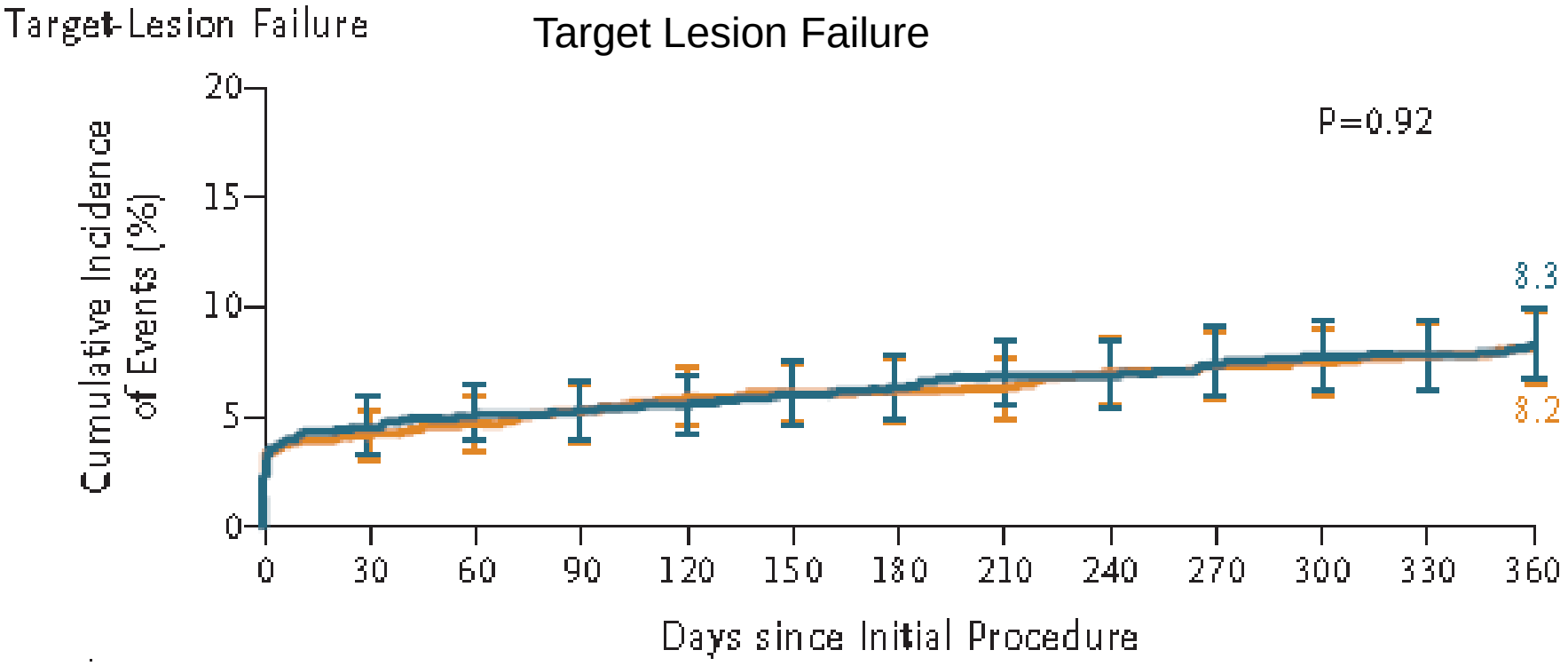


Ischemia-driven TLR reduced from 8.2 to 6.0%, p=0.004

Dangas, et al. JACC Intv 2013;6:914-22.

Background:

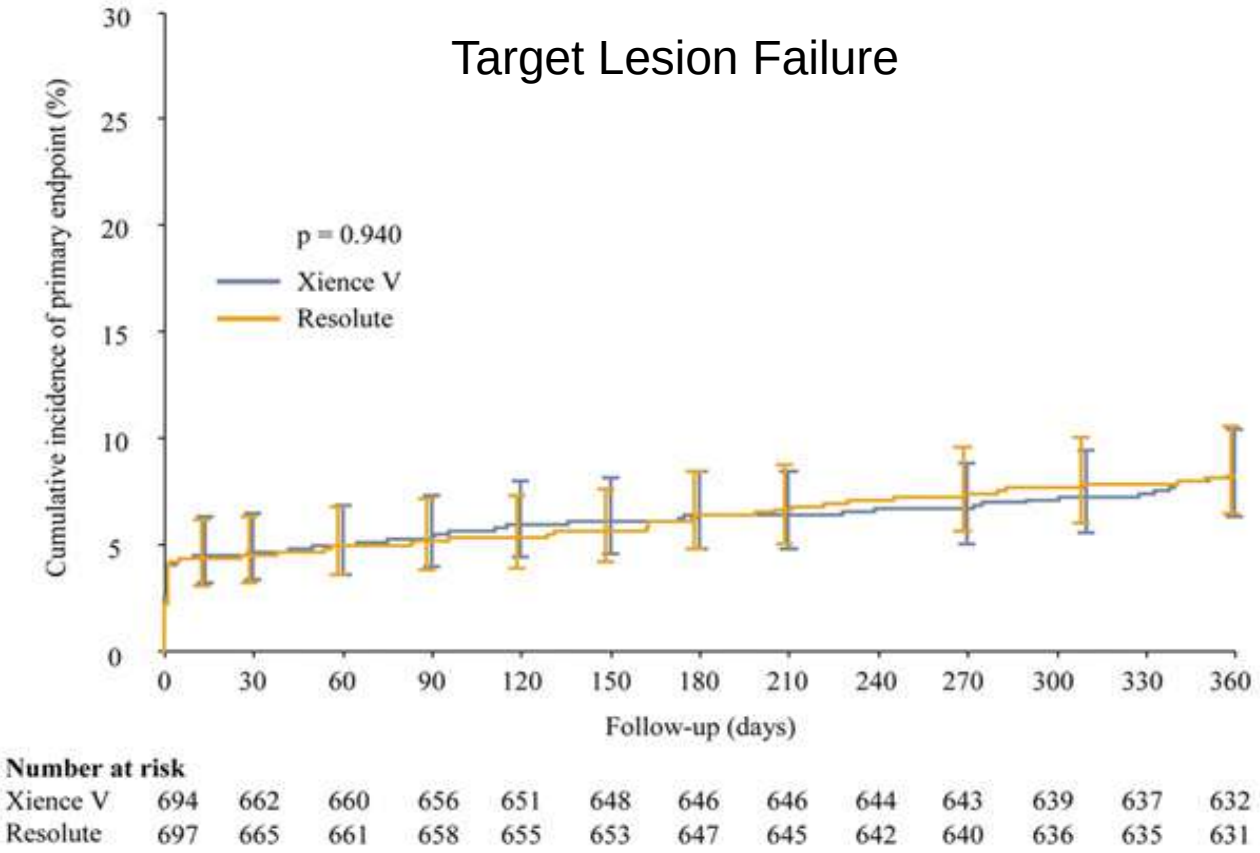
Randomized comparison of two 2nd generation DES (Resolute and Xience stents)



Serruys, et al. NEJM 2010;363:136-46.

Background:

Randomized comparison of 2nd generation Resolute and Xience stents in the TWENTE trial



Von Birgelen, et al. JACC 2012;59:1350-61.

Background:

- Why should we expect a different result with FAME 3?
  - 2nd Generation DES outperform 1st Generation.
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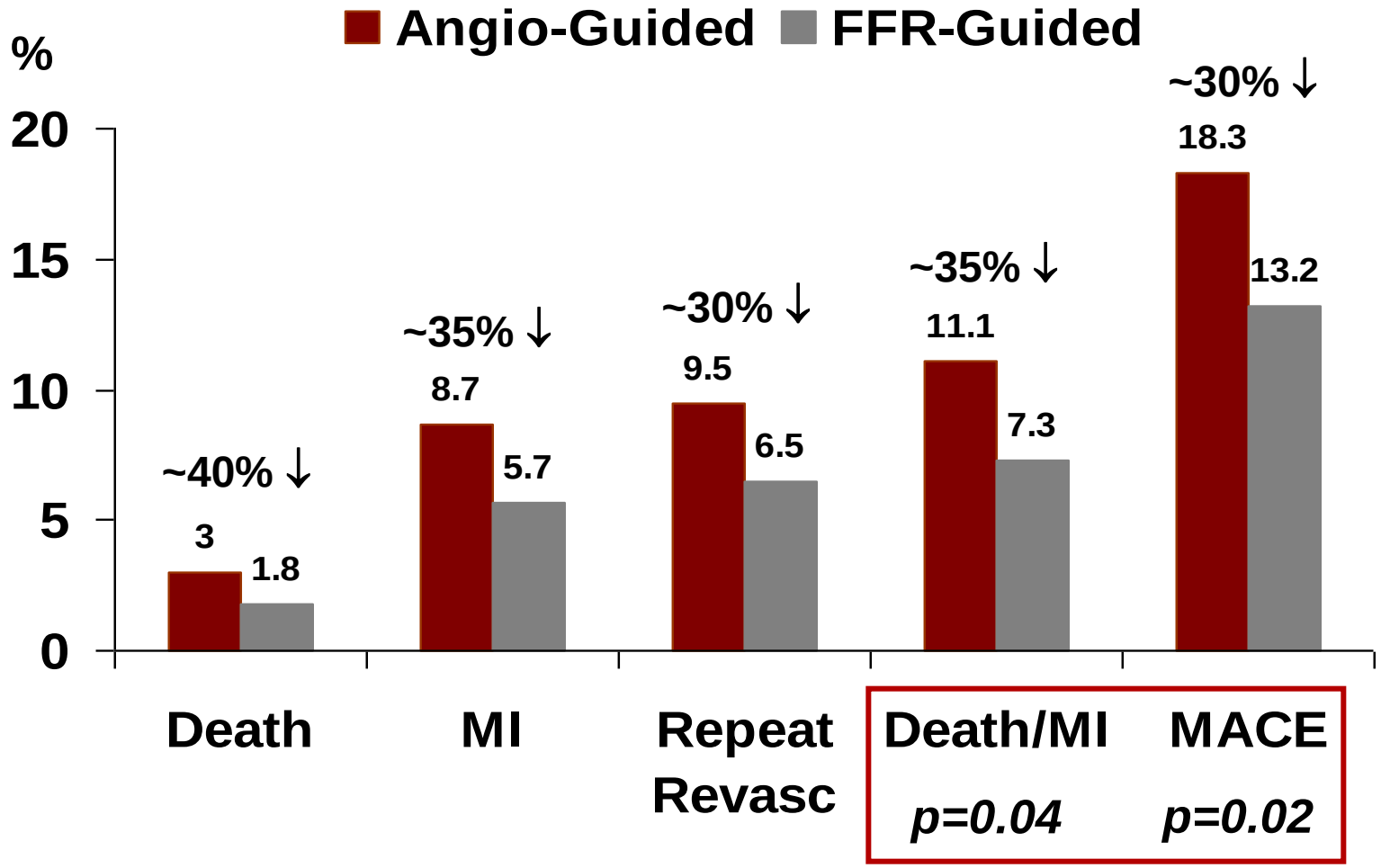
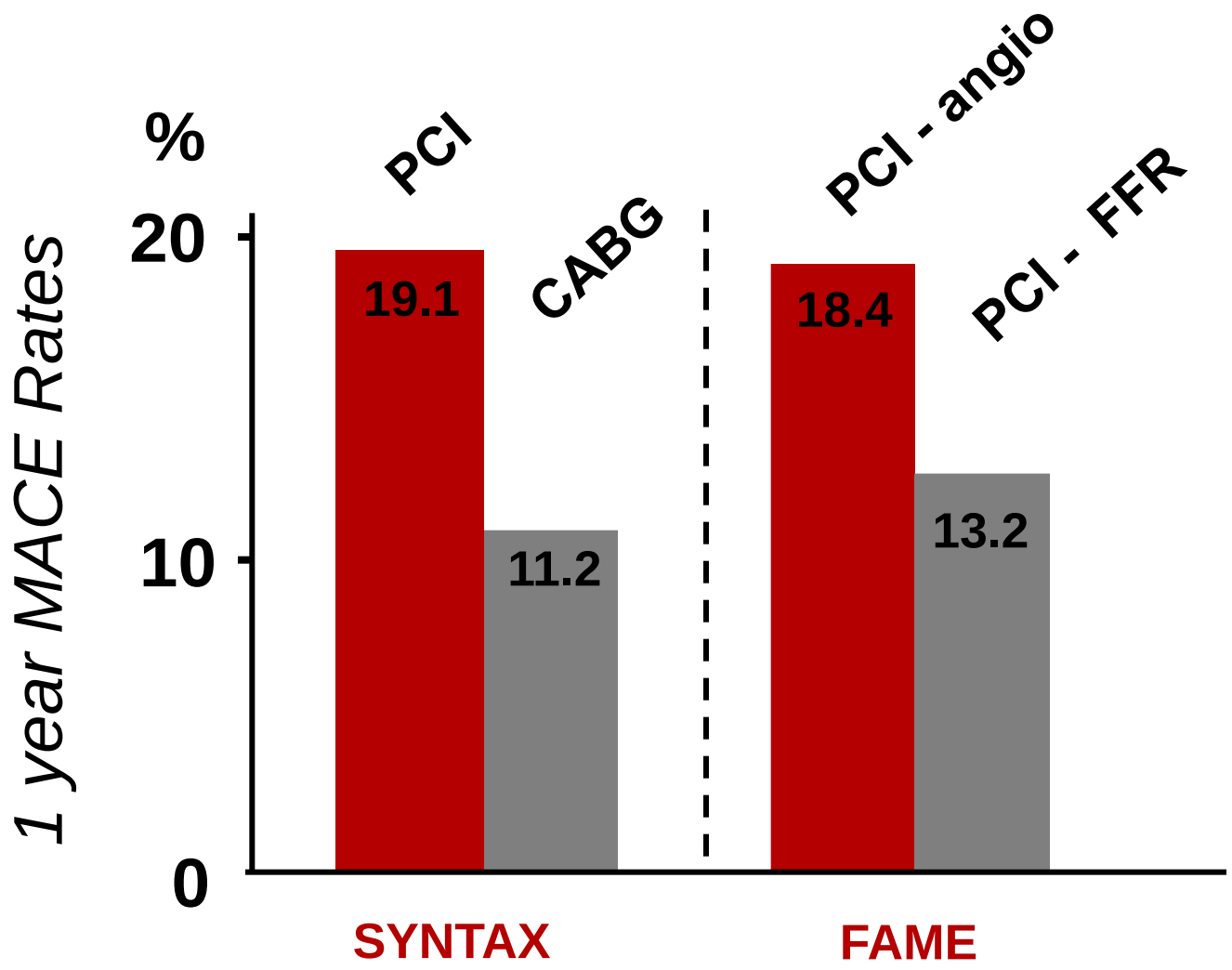
FAME Study: One Year Outcomes

1,005 patients with MVD randomized to FFR or Angio-guided PCI



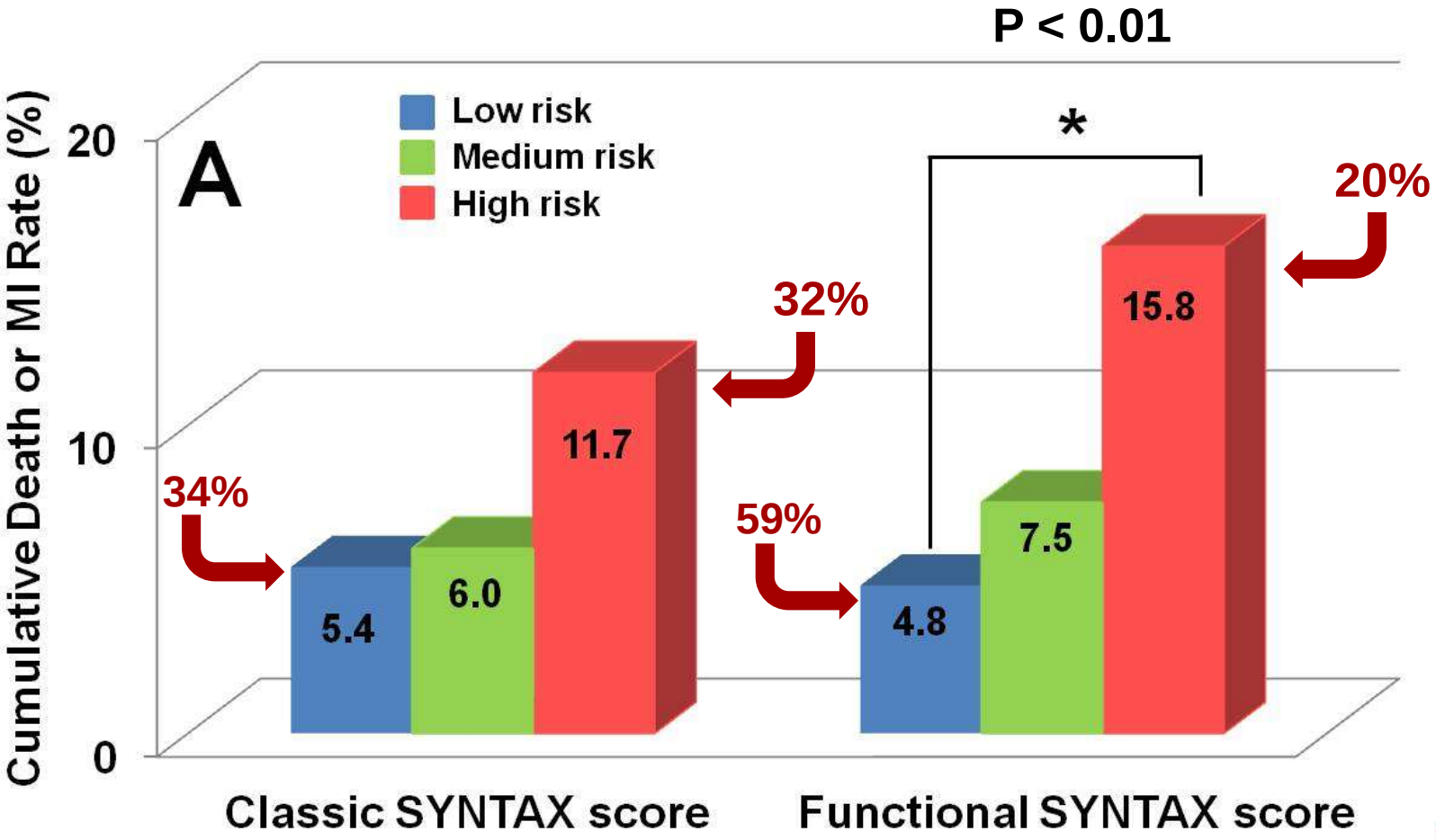
Tonino, et al. New Engl J Med 2009;360:213-24.

Implications of FAME



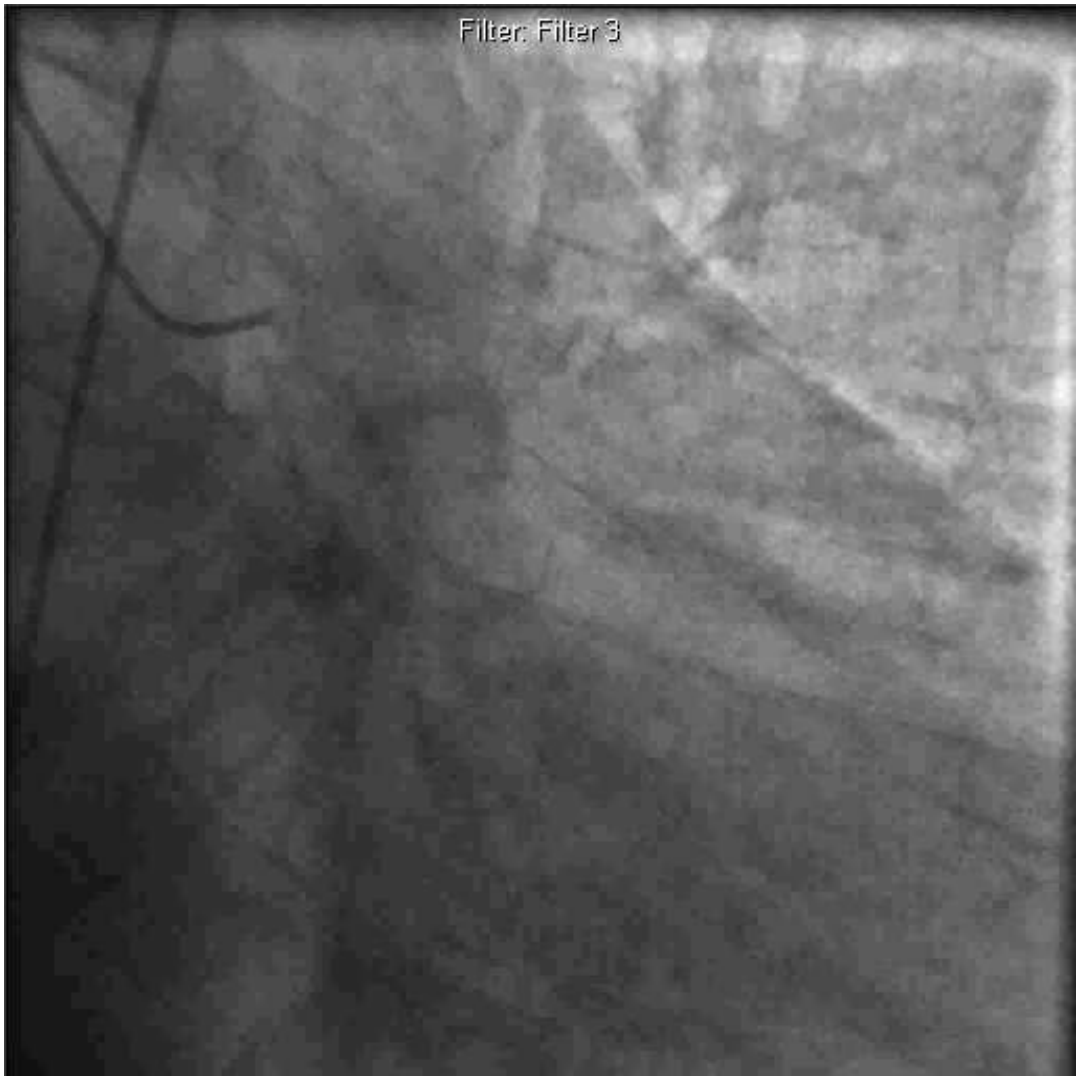
Functional SYNTAX Score (FSS)

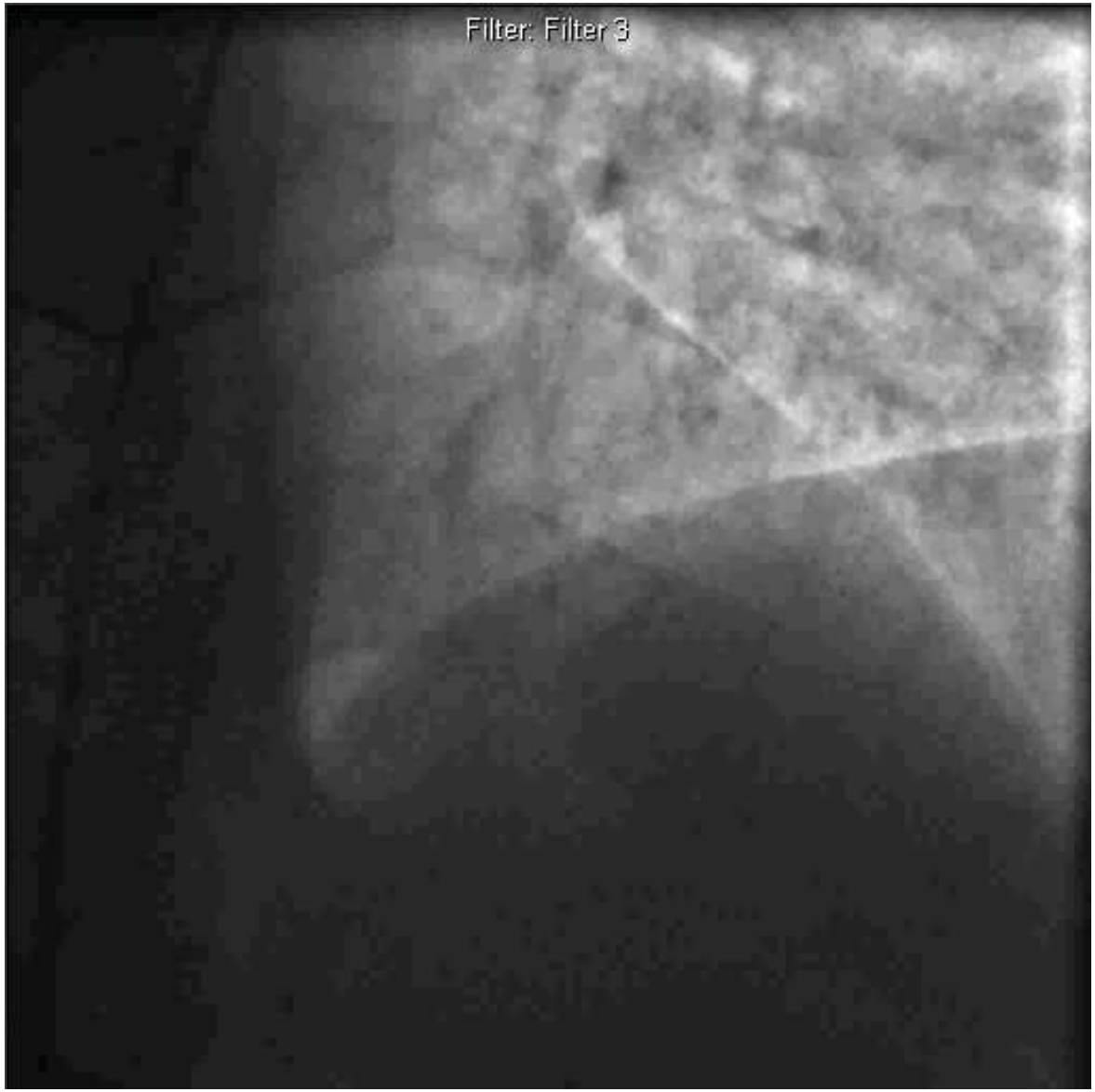
FSS converts patients from higher to lower risk and better discriminates risk for death/MI

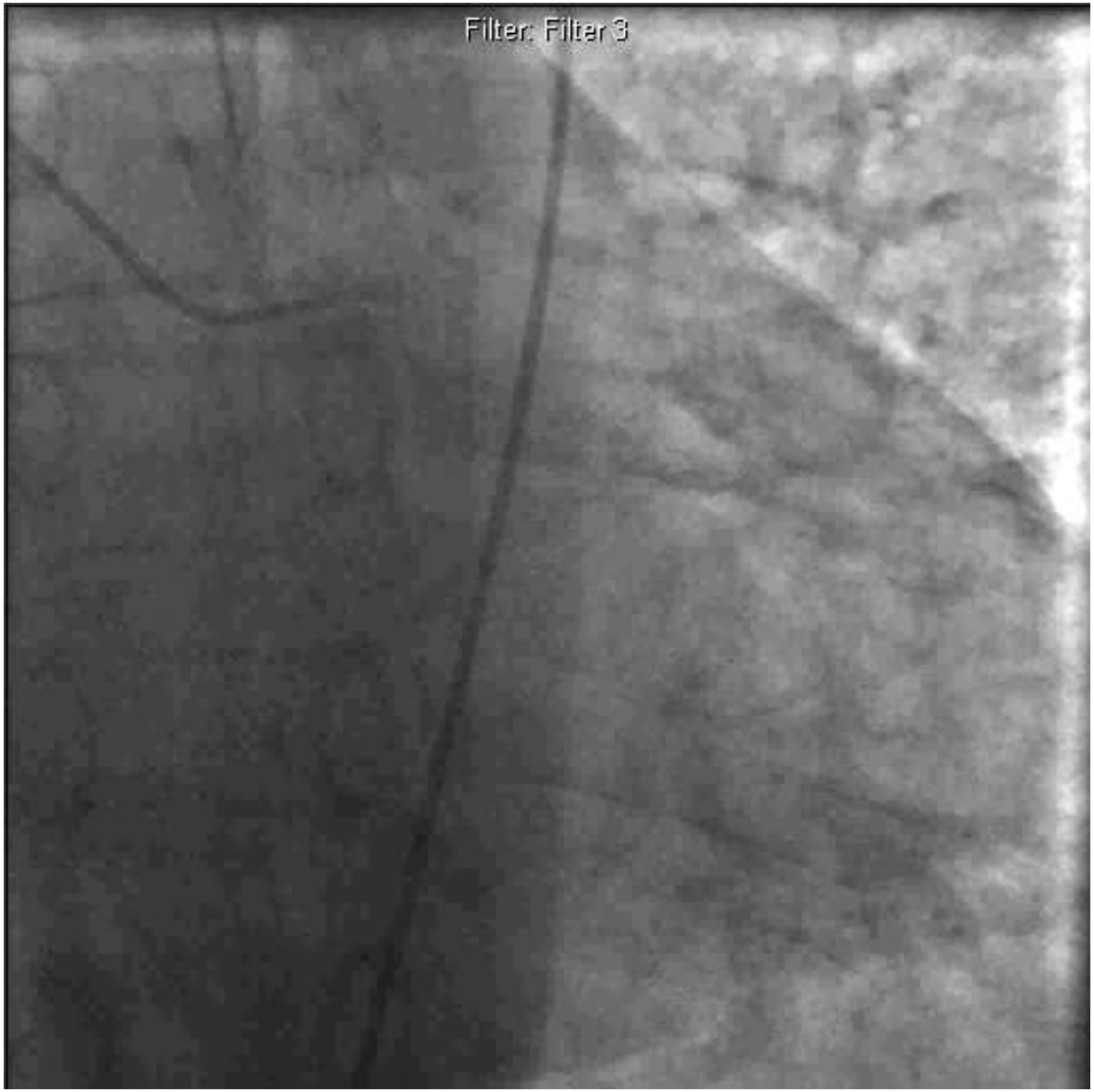


Nam CW, et al. J Am Coll Cardiol 2011;58:1211-8

55 year old man with dyslipidemia, tobacco use and chest pain




Filter: Filter 3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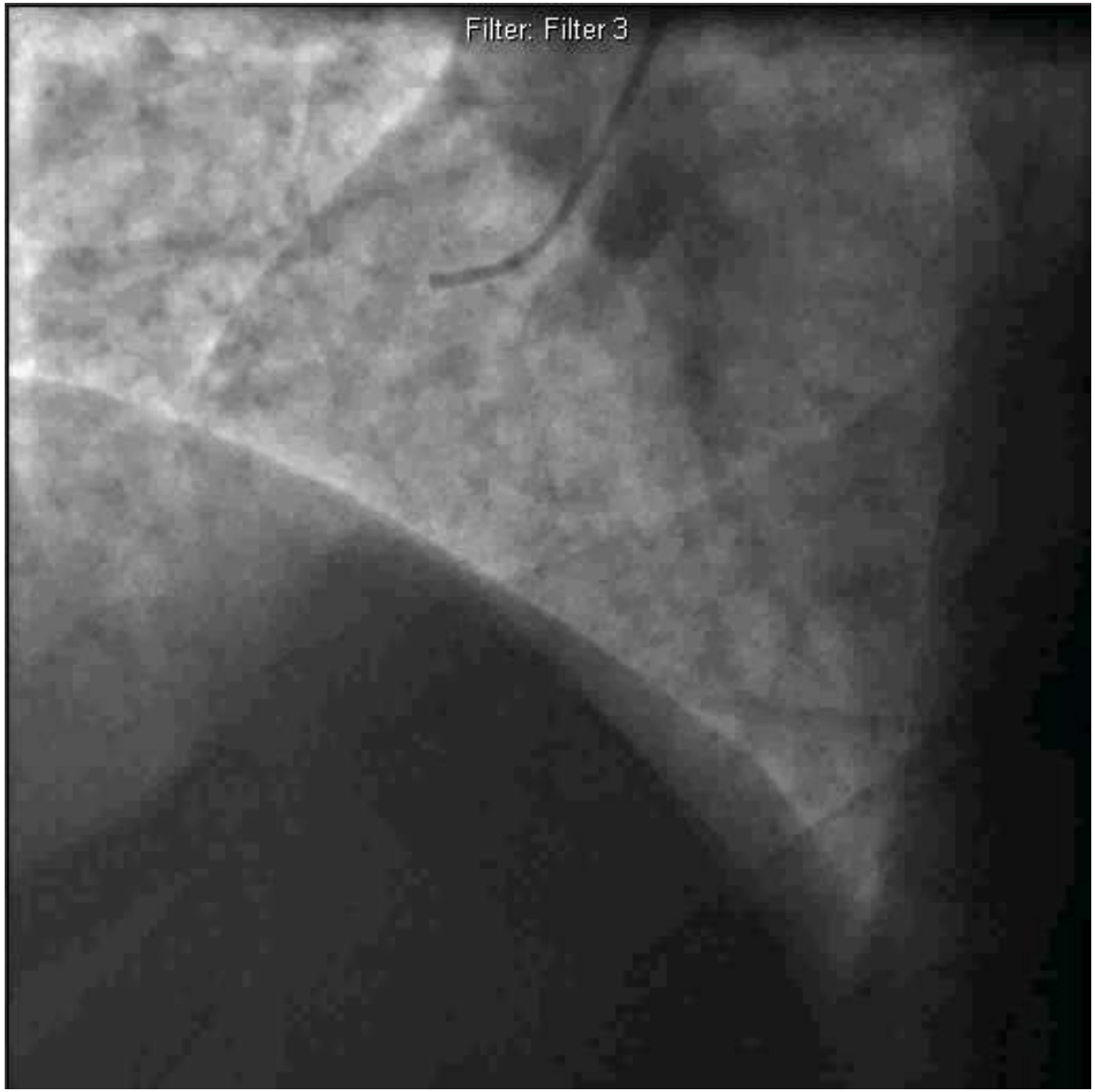
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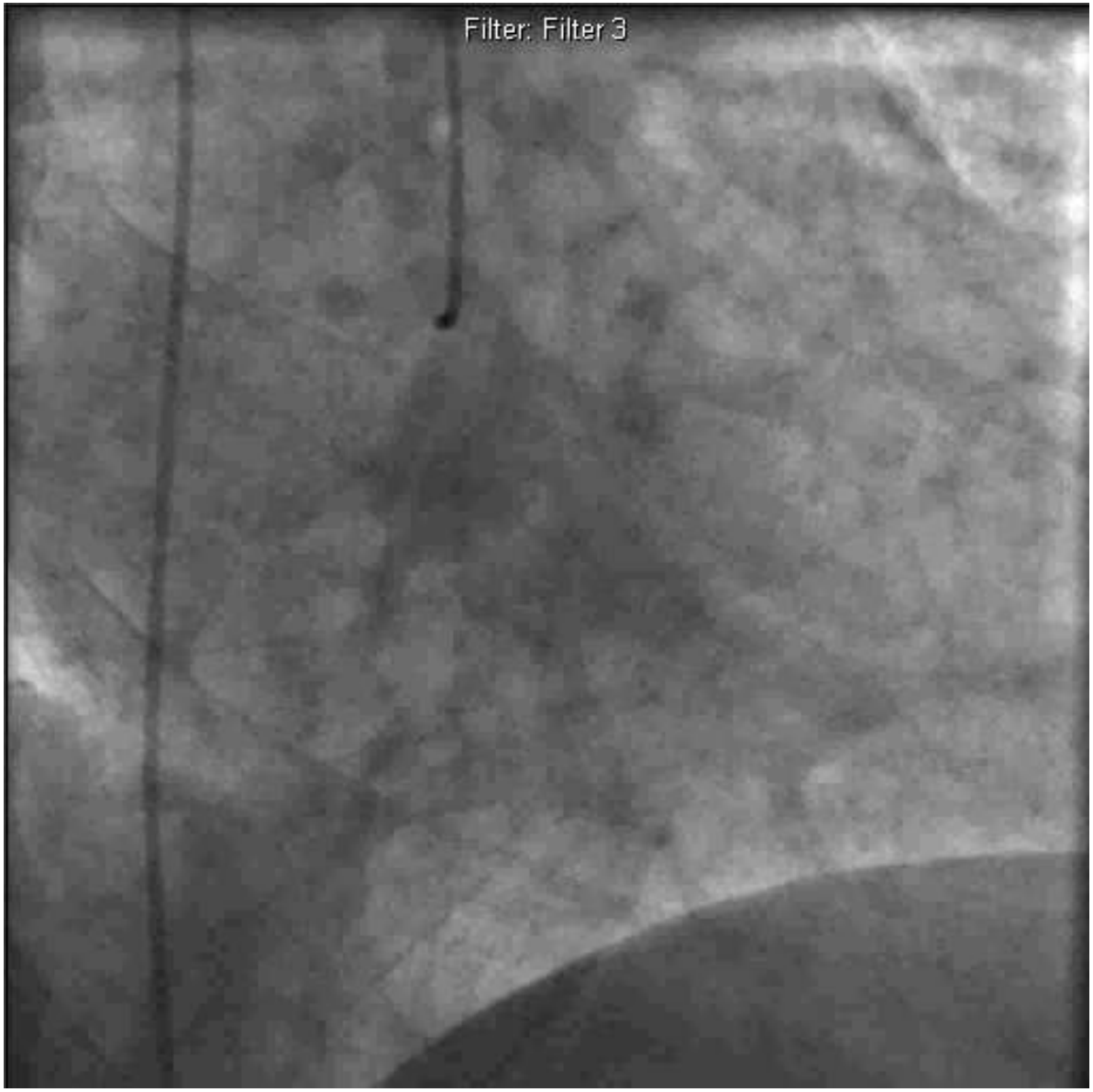
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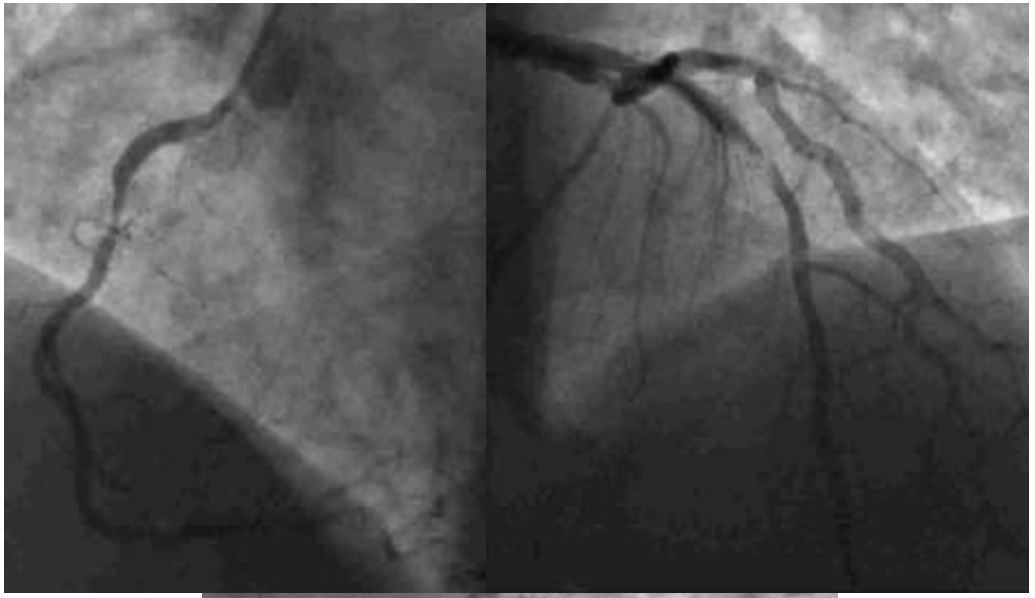
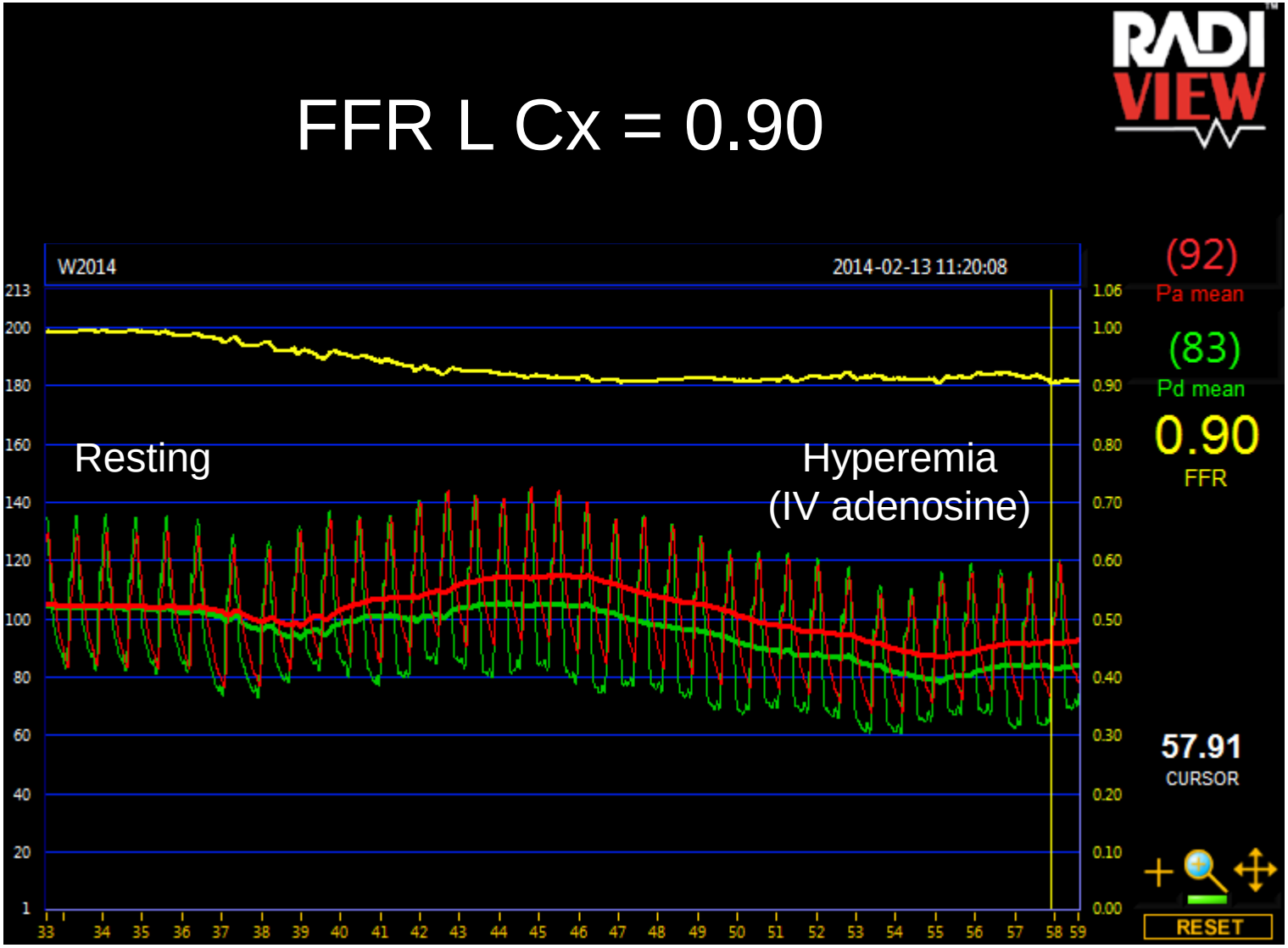
What should we do now?

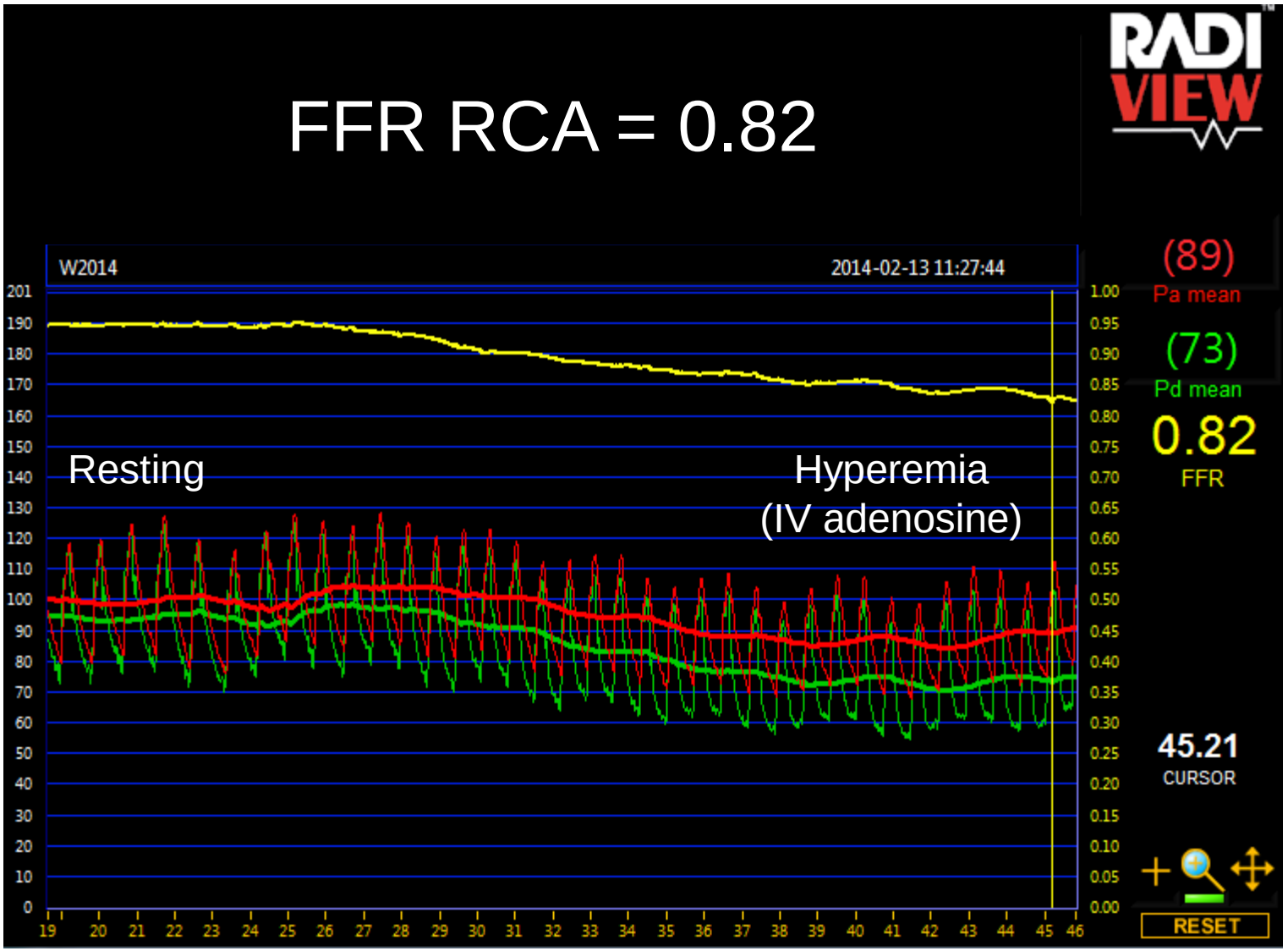
- Med Rx alone
- PCI
  - Which vessels?
- CABG

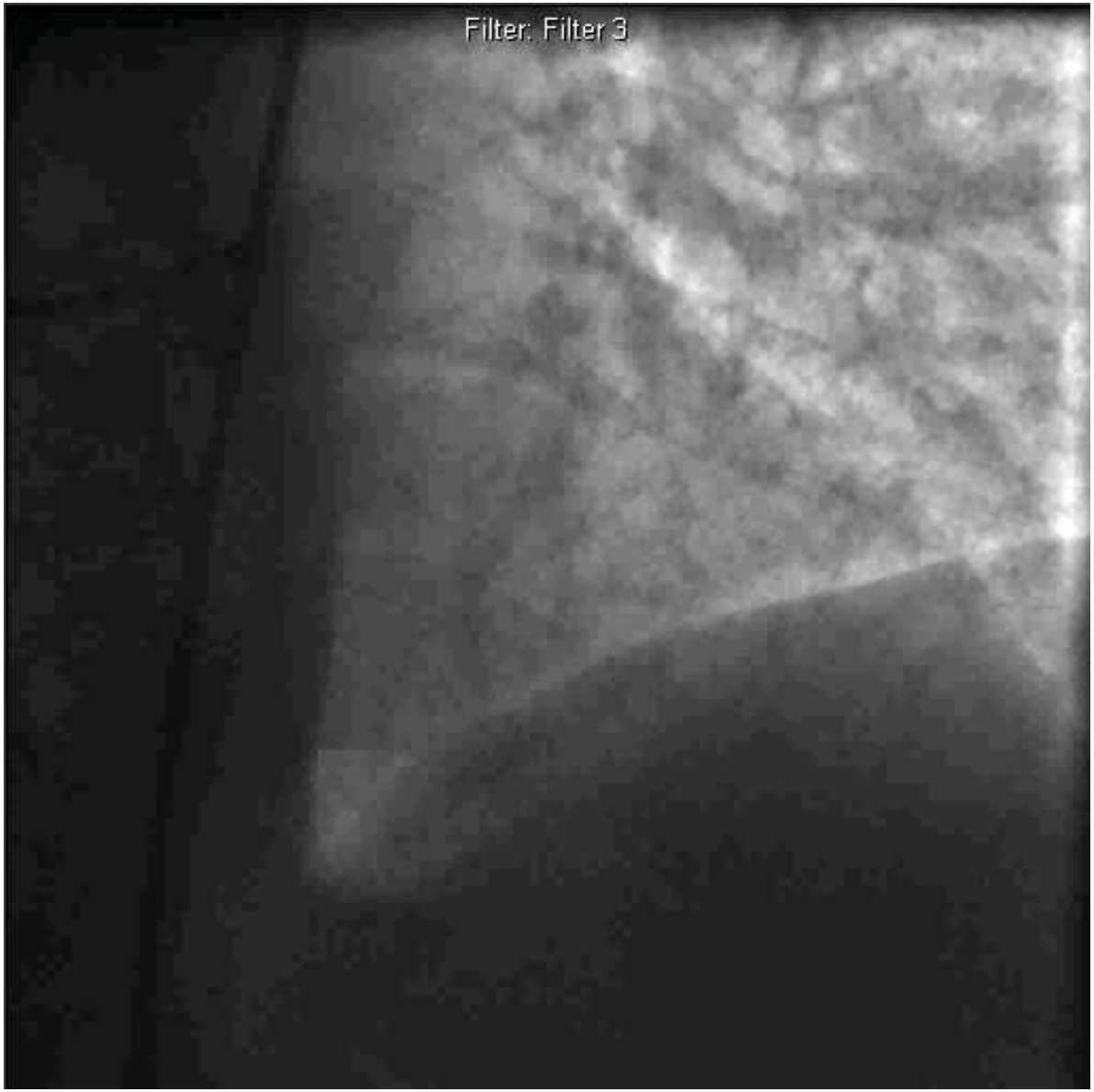


FFR L Cx = 0.90


RADI VIEW
W2014
2014-02-13 11:20:08
Resting
Hyperemia
(IV adenosine)
(92)
Pa mean
(83)
Pd mean
0.90
FFR
57.91
CURSOR
RESET

FFR RCA = 0.82


RADI VIEW
W2014
2014-02-13 11:27:44
Resting
Hyperemia
(IV adenosine)
(89)
Pa mean
(73)
Pd mean
0.82
FFR
45.21
CURSOR
RESET


Filter: Filter 3

Summary of Case

- Anatomic 3V CAD, functional 1V CAD
- Successfully treated with single stent
- <150 cc contrast, < 1 hour procedure
- Angina free at 1 month

FAME 3:

Hypothesis

- Fractional flow reserve (FFR)-guided percutaneous coronary intervention (PCI) using the 2nd generation Resolute DES in patients with multivessel coronary artery disease (CAD) will result in similar outcomes to coronary artery bypass graft surgery (CABG).

FAME 3:

Objective

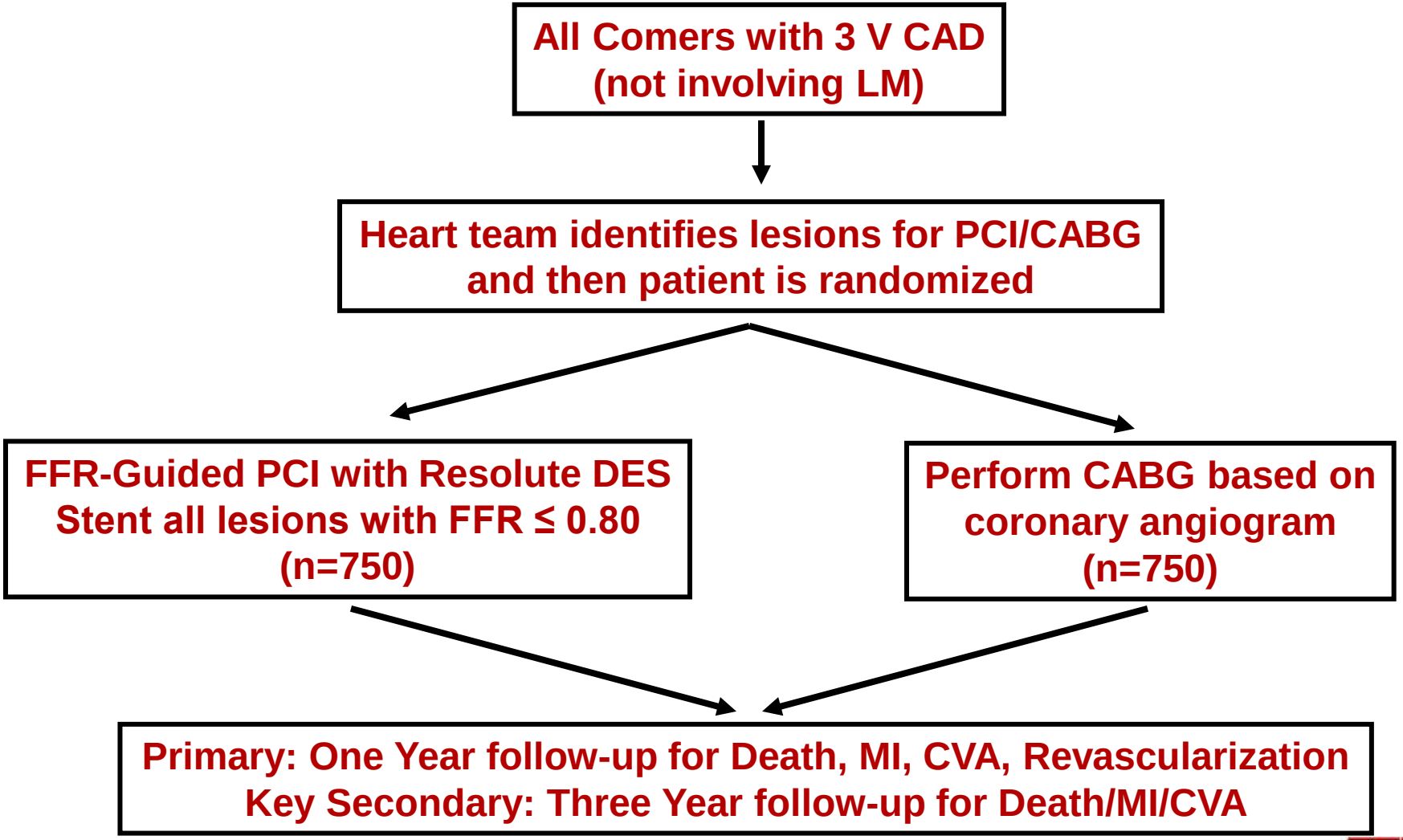
- The primary objective of the FAME 3 Trial is to demonstrate that FFR-guided PCI with the 2nd generation Resolute DES is non-inferior to CABG in patients with multivessel CAD.

FAME 3:

Design

- Multicenter, worldwide, prospective, randomized trial
- Non-inferiority design
- 1500 patients from 50 sites
- Plan for 2 years enrolment and up to 5 year follow-up

Study Flow:



Non-inferior Design

FAME 3:

Inclusion Criteria

- Age ≥ 21 years
- Three vessel CAD, defined as ≥ 50% diameter stenosis by visual estimation in each of the three major epicardial vessels, but not involving left main coronary artery, and amenable to revascularization by both PCI and CABG as determined by the Heart Team
- Willing and able to provide informed, written consent

FAME 3:

Key Exclusion Criteria

- Requirement for other cardiac or non-cardiac surgical procedure (e.g., valve replacement)
- Previous CABG
- Left main disease requiring revascularization
- Cardiogenic shock and/or need for mechanical/pharmacologic hemodynamic support
- Recent STEMI (<5 days)
- Ongoing Non STEMI with biomarkers (e.g., cardiac troponin) still rising
- Known left ventricular ejection fraction <30%

FAME 3:

Major Endpoints

- Primary Endpoint:
  - One year rate of Death, MI, Stroke and Revascularization
- Key Secondary Endpoint:
  - Three year rate of Death, MI and Stroke

FAME 3:

Secondary Endpoints

- MACCE rate at 1 and 6 months, 3 years and 5 years
- Stent thrombosis (ARC definition) and graft occlusion at each time point
- Bleeding complication
- Significant arrhythmia
- Development of acute renal failure
- Length of hospitalization
- Rehospitalization
- Quality of life and cost-effectiveness
- Utility of Functional SYNTAX Score

FAME 3

Study Organization

- Investigator initiated trial
- Coordinated by Stanford with support of a CRO
- Funded by research grants from Medtronic and St. Jude Medical
- Independent DSMB and CEC

Conclusion:

- By incorporating FFR-guided PCI and utilizing the 2nd generation Resolute Integrity stent, FAME 3 aims to demonstrate that FFR-guided PCI is non-inferior to CABG in patients with 3-vessel coronary disease not involving the left main coronary artery.