Reste-t-il une place pour la FFR en 2023?

Xve CARDIORUN, 27 Septembre 2023

Gilles Rioufol MD, PhD

Interventional cardiology dpt
Cardiovascular Hospital - Lyon - France

Hospices Civils de Lyon

UNIVERSITÉ DE LYON

Inserm
Institut national
de la santé et de la recherche médicale
INSERM U1060

CarMeN LYON

Considérant que peuvent être inscrits sur la liste visée au premier alinéa de l'article L. 162-22-7 du code de la sécurité sociale (CSS), les produits et prestations répondant à l'ensemble des conditions suivantes :

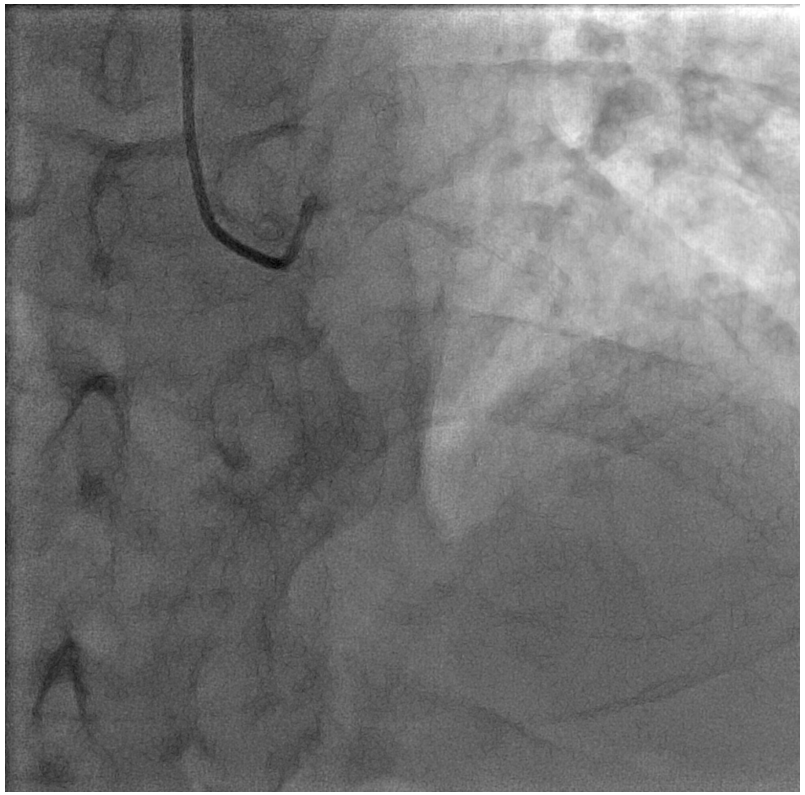
– ceux utilisés majoritairement au cours d'un séjour donnant lieu à la facturation d'une prestation d'hospitalisation mentionnée à l'article L. 162-22-6 du CSS ;
– ceux bénéficiant d'un service attendu suffisant dans la ou les indications considérées et d'une amélioration du service attendu majeure, importante, modérée, mineure ou d'une amélioration du service attendu absente si les comparateurs sont inscrits sur la liste visée au premier alinéa de l'article L. 162-22-7 du CSS dans l'indication considérée ;
– ceux dont la fréquence d'utilisation du produit ou de la prestation, au sein des groupes homogènes de malades attendus, est inférieure à 80 % ;
– ceux dont le coût lié à leur utilisation ne peut être financé par les forfaits d'hospitalisation prévus au 1° de l'article R. 162-33-1 du CSS ;

Considérant que pour l'appréciation de ce dernier critère, les ministres chargés de la santé et de la sécurité sociale considèrent qu'il est rempli dès lors que le rapport entre, d'une part, le coût estimé du produit ou de la prestation par séjour, dans l'indication considérée, en tenant compte des produits à usage individuel associés et, d'autre part, le montant de l'un des tarifs des forfaits d'hospitalisation, prévus au 1° de l'article R. 162-33-1 du CSS, dans lesquels le produit ou la prestation est susceptible d'être utilisé, est supérieur à 30 % ;

Art. 2. – *a)* A l'annexe de l'arrêté du 2 mars 2005, les rubriques et codes suivants sont radiés :

Référence dans la LPP	Code	Libellé
Titre V, chapitre 2, section 3	5219111, 5233157, 5227777, 5206663, 5208260, 5222870, 5205617	Guides de mesure de la fraction du flux de réserve coronarien (FFR)

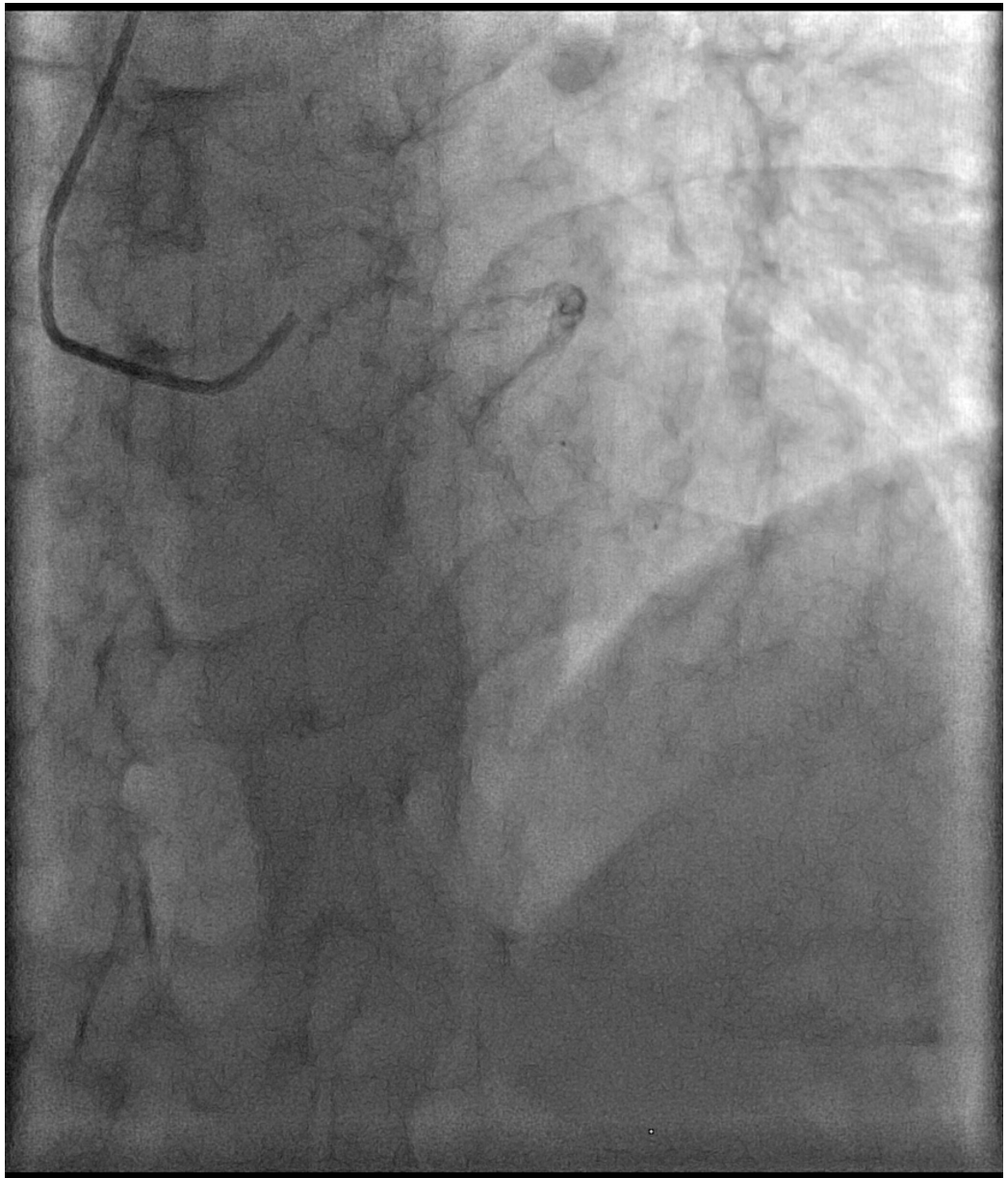
76 yo male
2017 stent RCA
Recurent angina CCS2 sous BB + Ca-

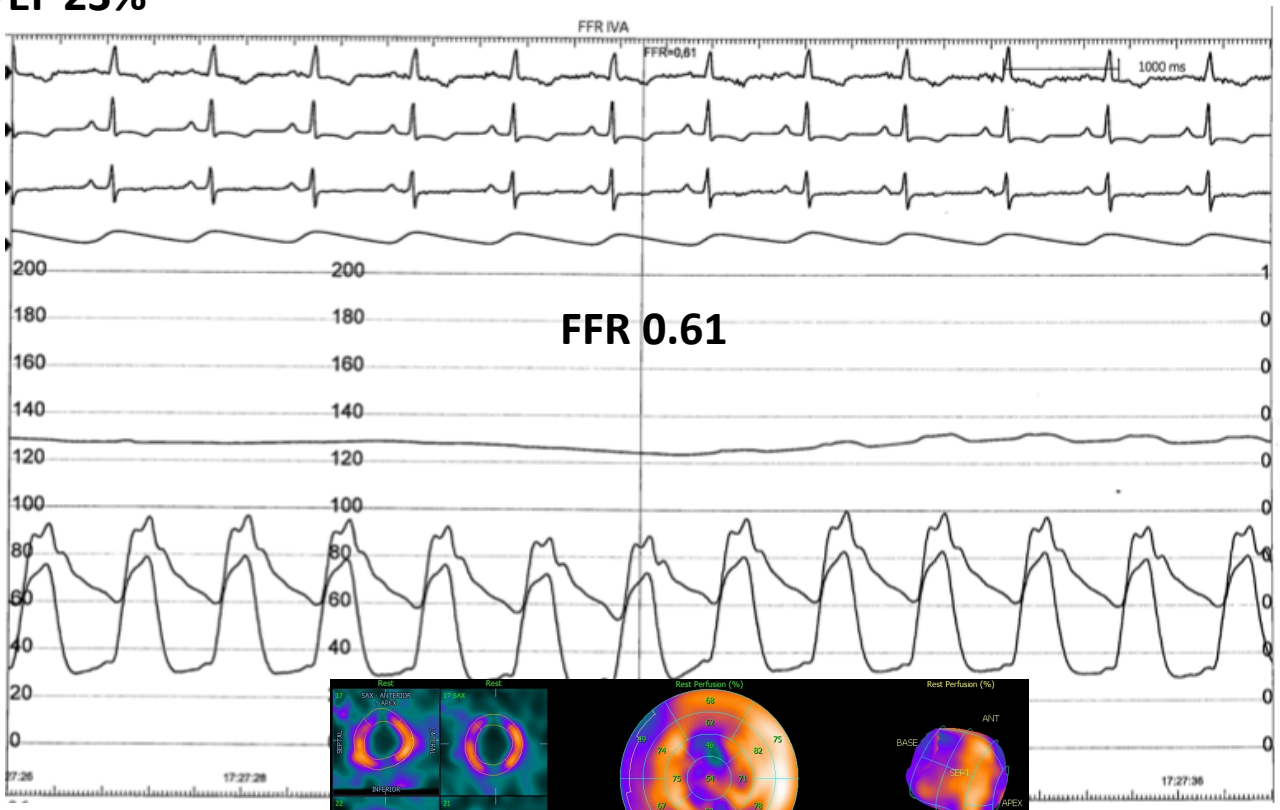


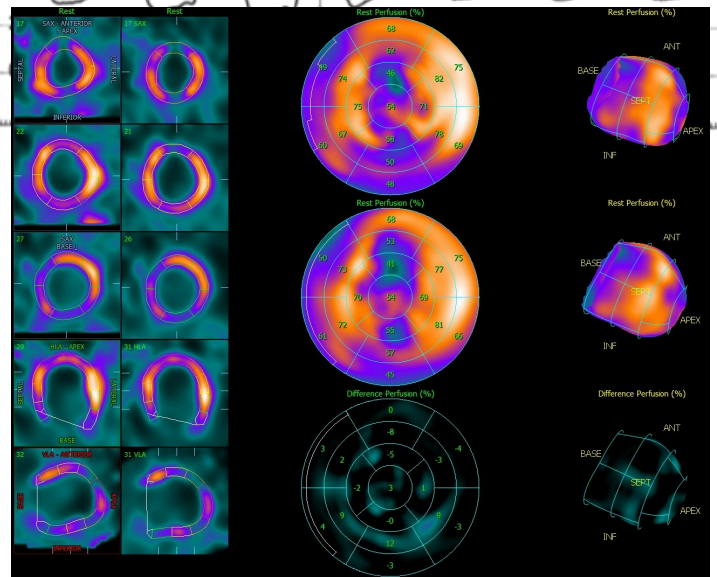
FFR 0.96

FFR 0.76

56 yo male
History of large anterior MI
Degradation LVEF 23%

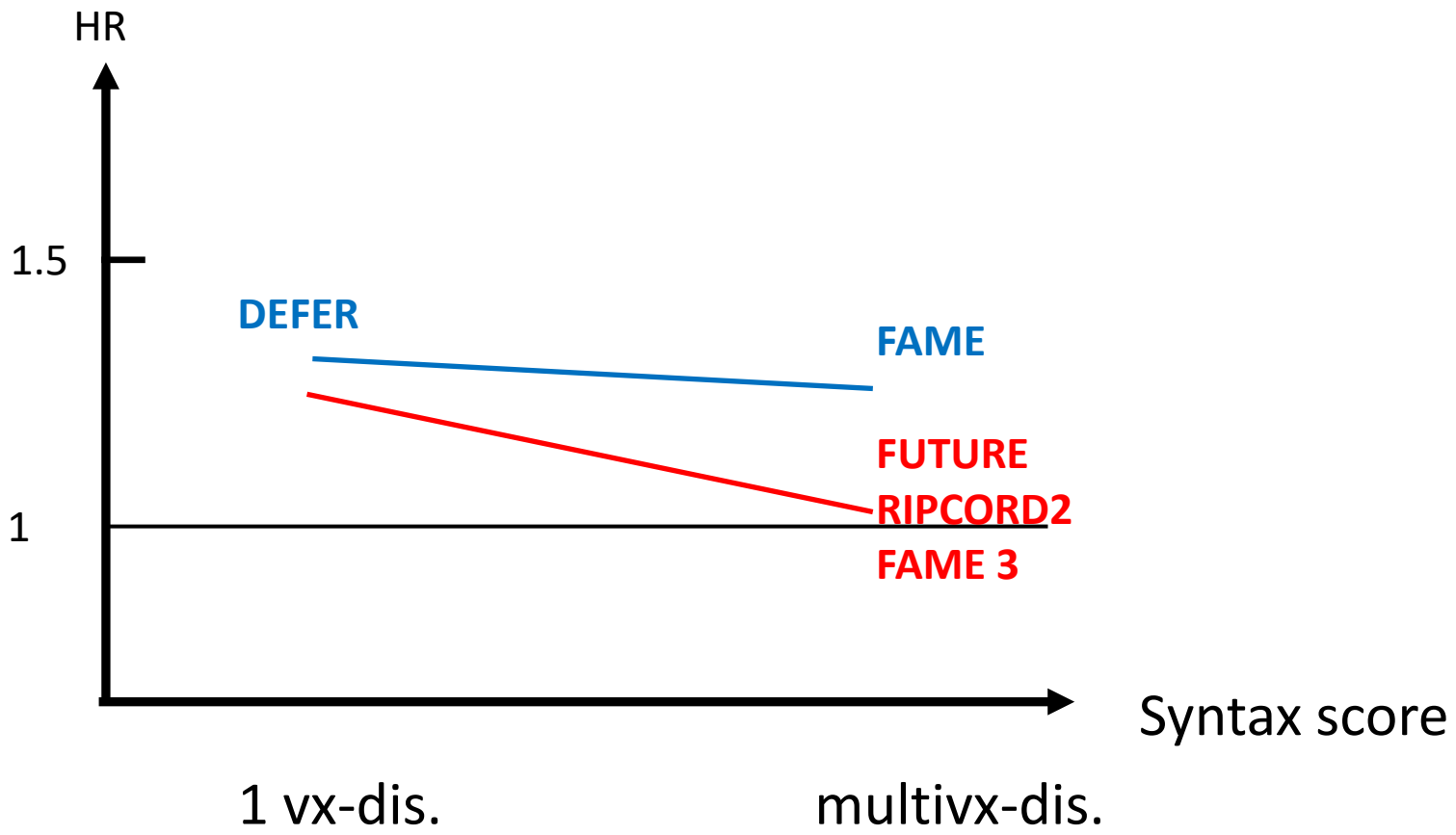




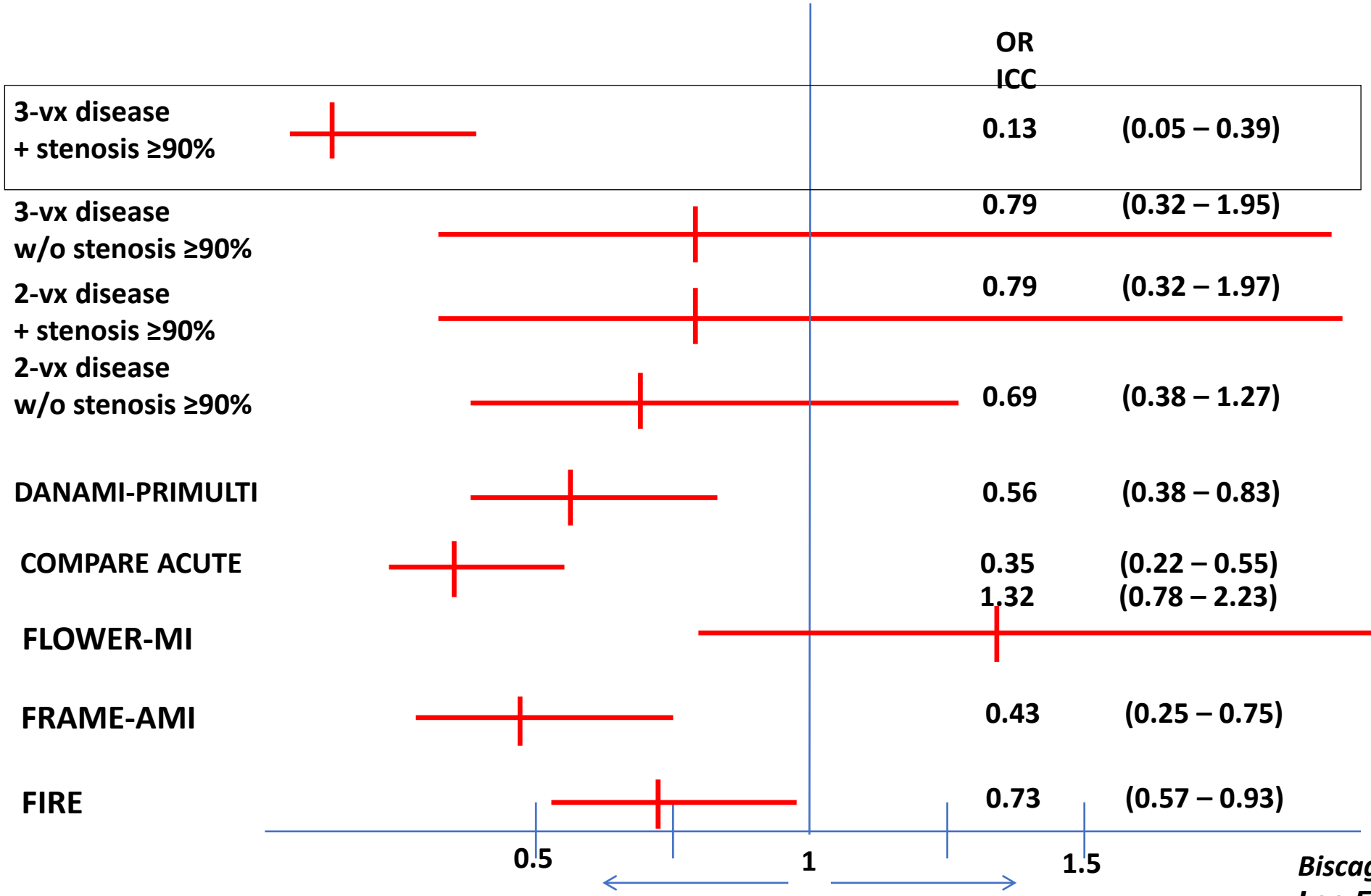


FFR clinical benefit

FFR benefit



FFR trial: STEMI & mutivessel disease

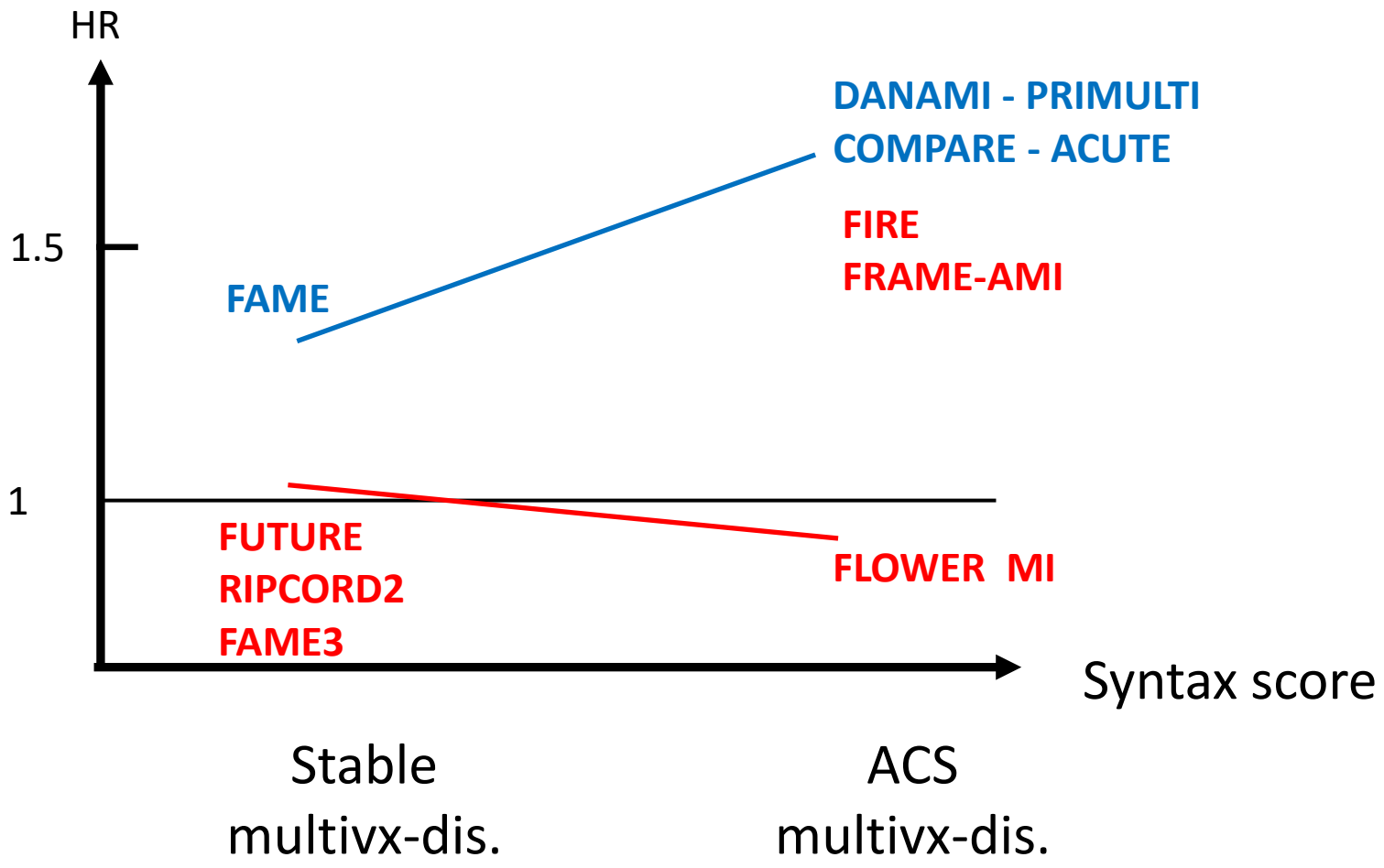


Biscaglia NEJM 2023
Lee Eur Heart J 2023
Puymirat NEJM 2021
Lønborg Circ Intv 2017

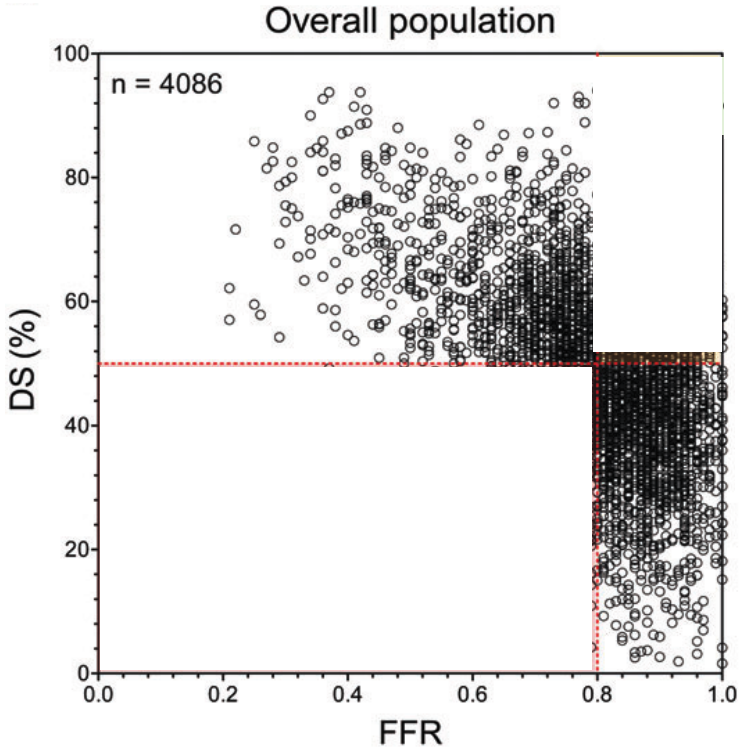
Conclusions (I)

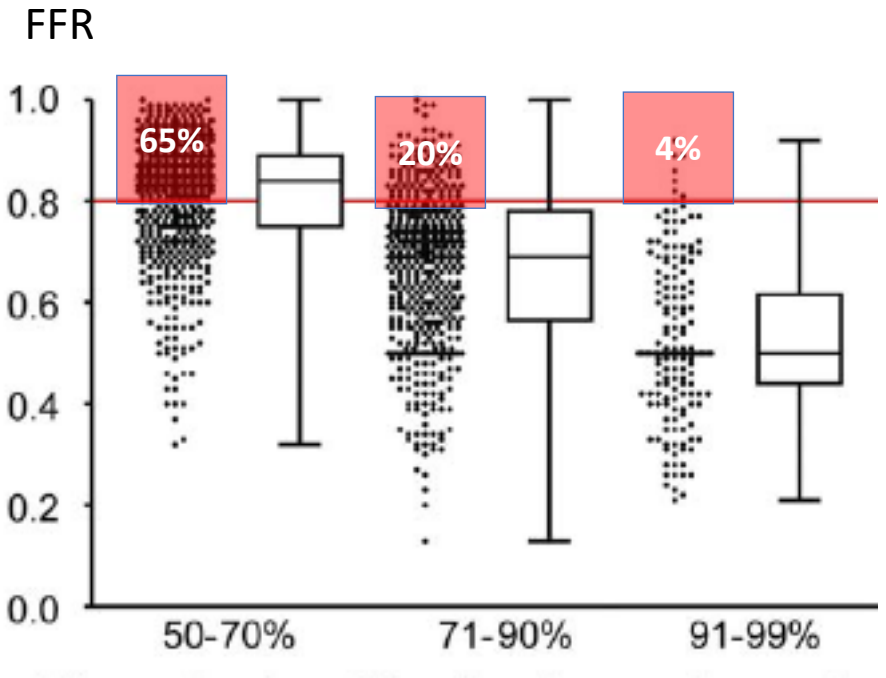
FFR clinical benefit

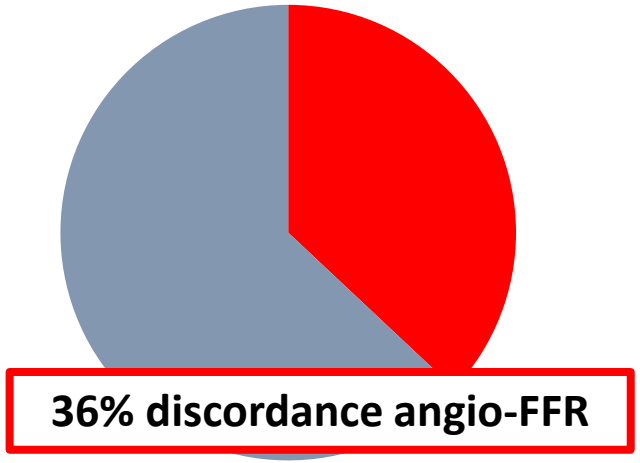
FFR benefit



FFR≤0.80 stenosis and Angiography







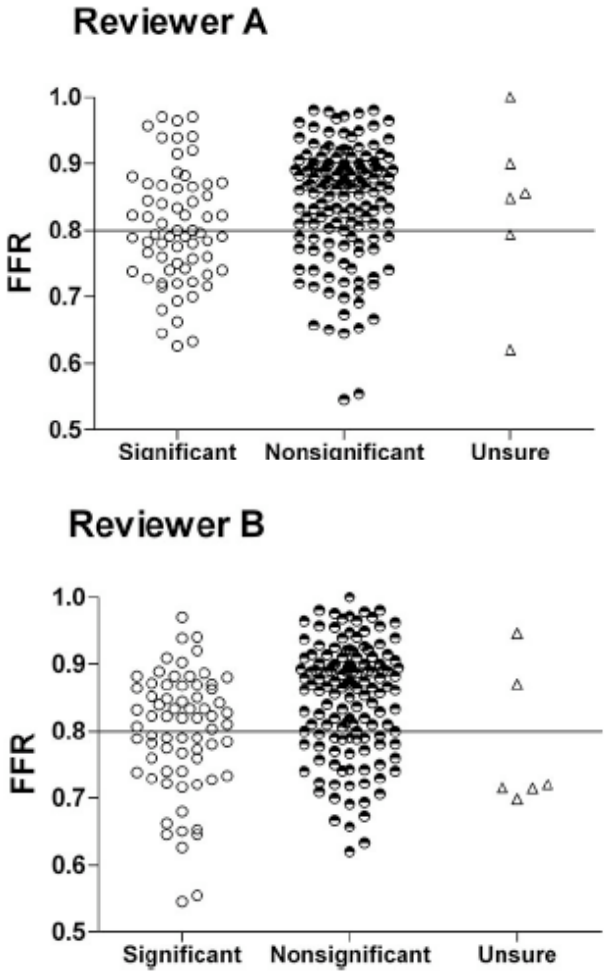
36% discordance angio-FFR

Toth JACC 2014

Tonino NEJM 2009

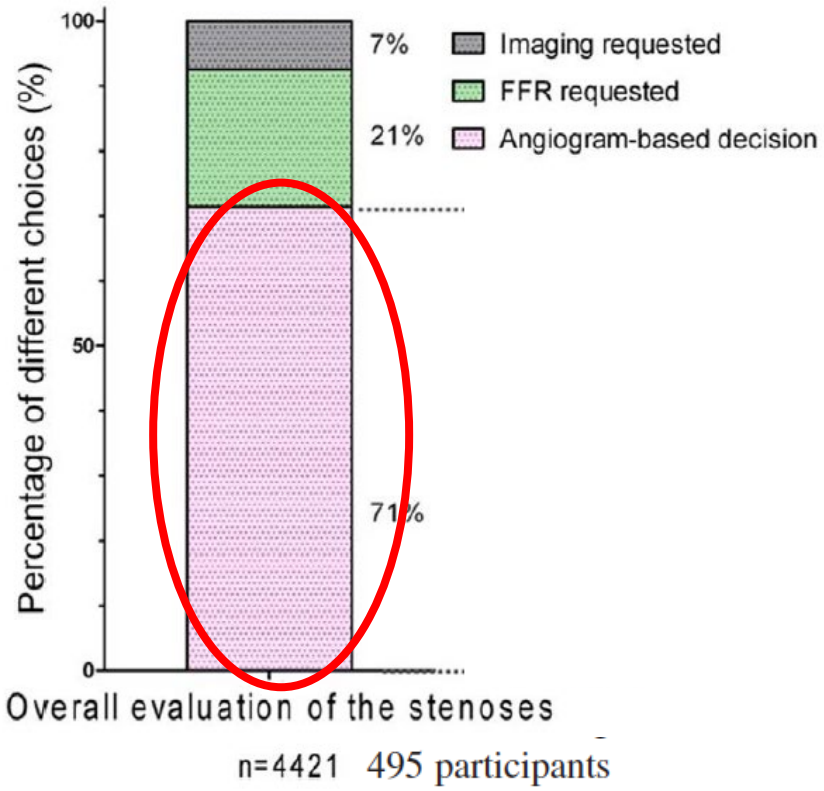
Tonino JACC 2010

How should we act (I): FFR dissemination



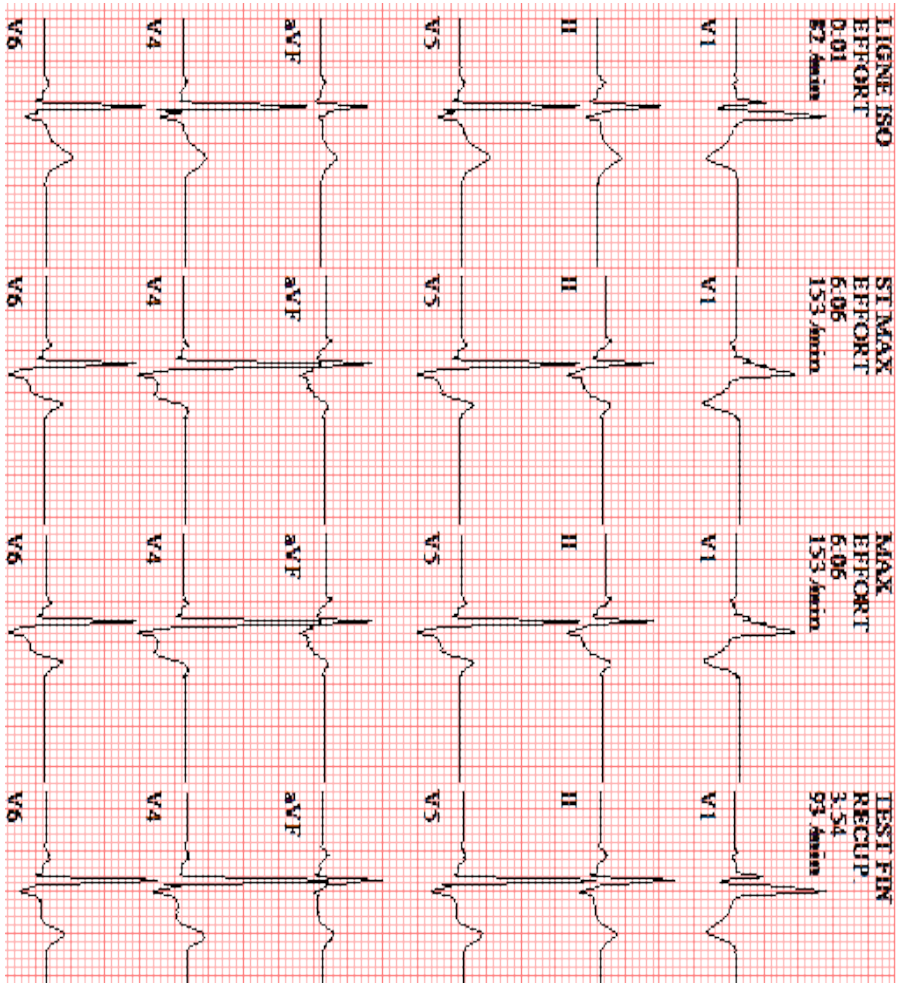
Hamilos Circulation 2009

panel of non critical lesions

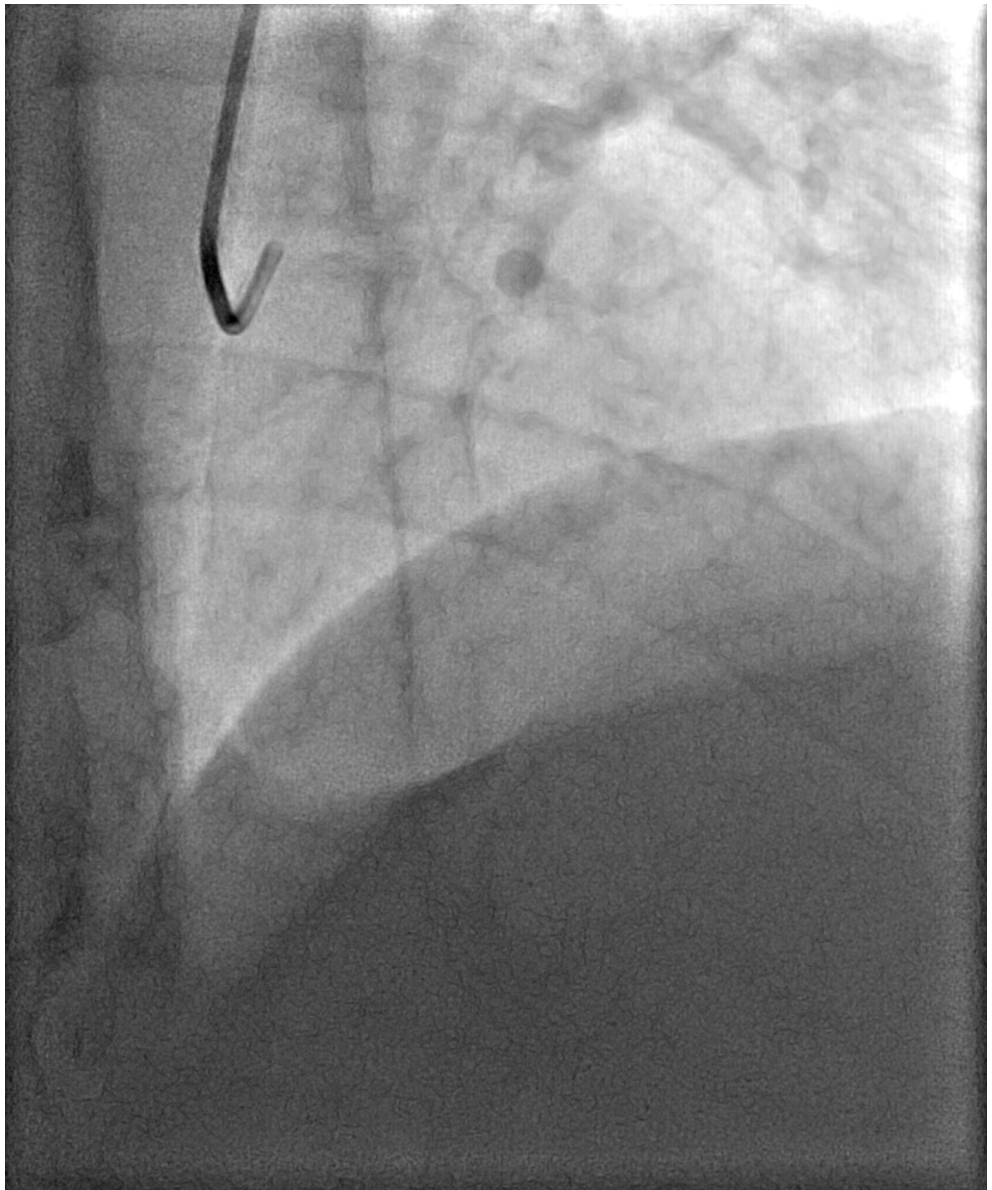


Toth Circulation Intv 2014

69 yo male
angina CCS2 + blockpnea



120 W – 100% FMT



69 yo male
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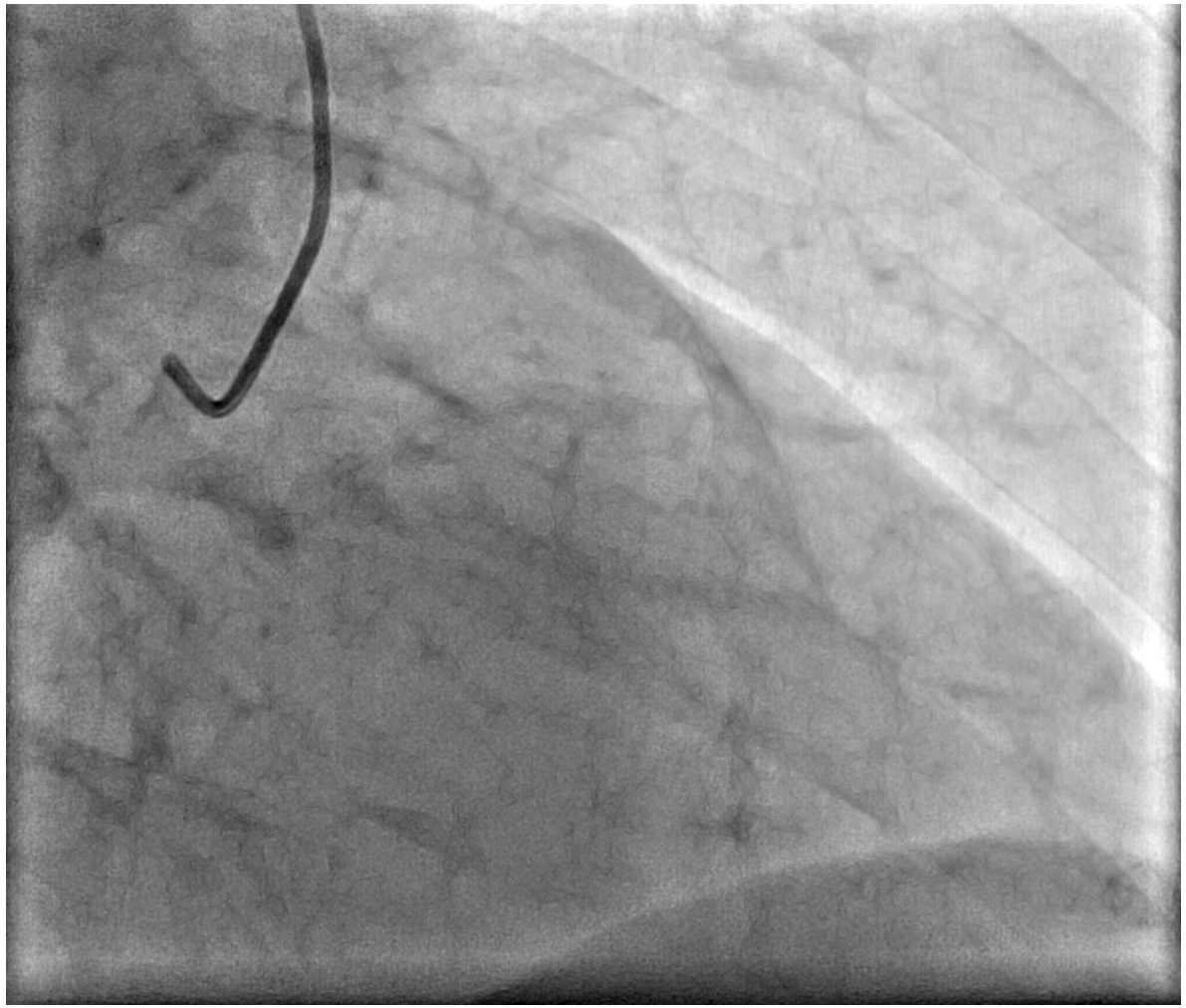
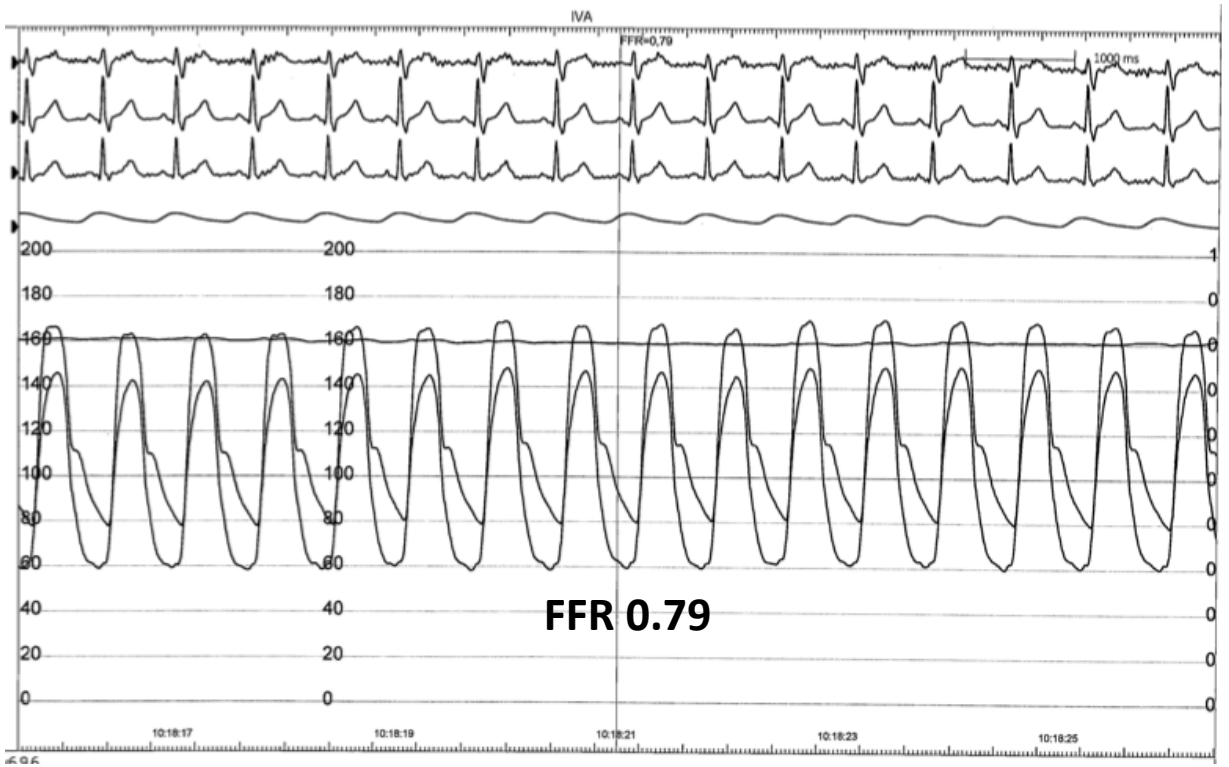
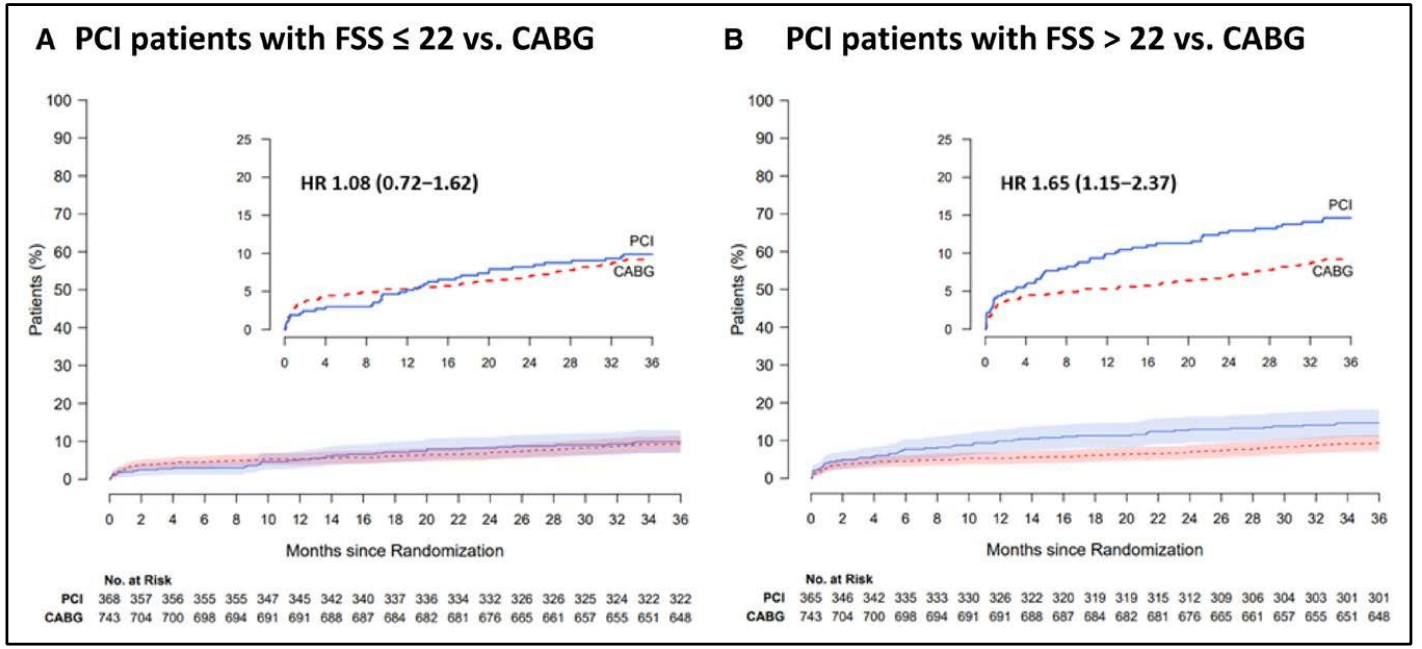




Atheroma Burden – FAME3 & FUTURE

FAME 3

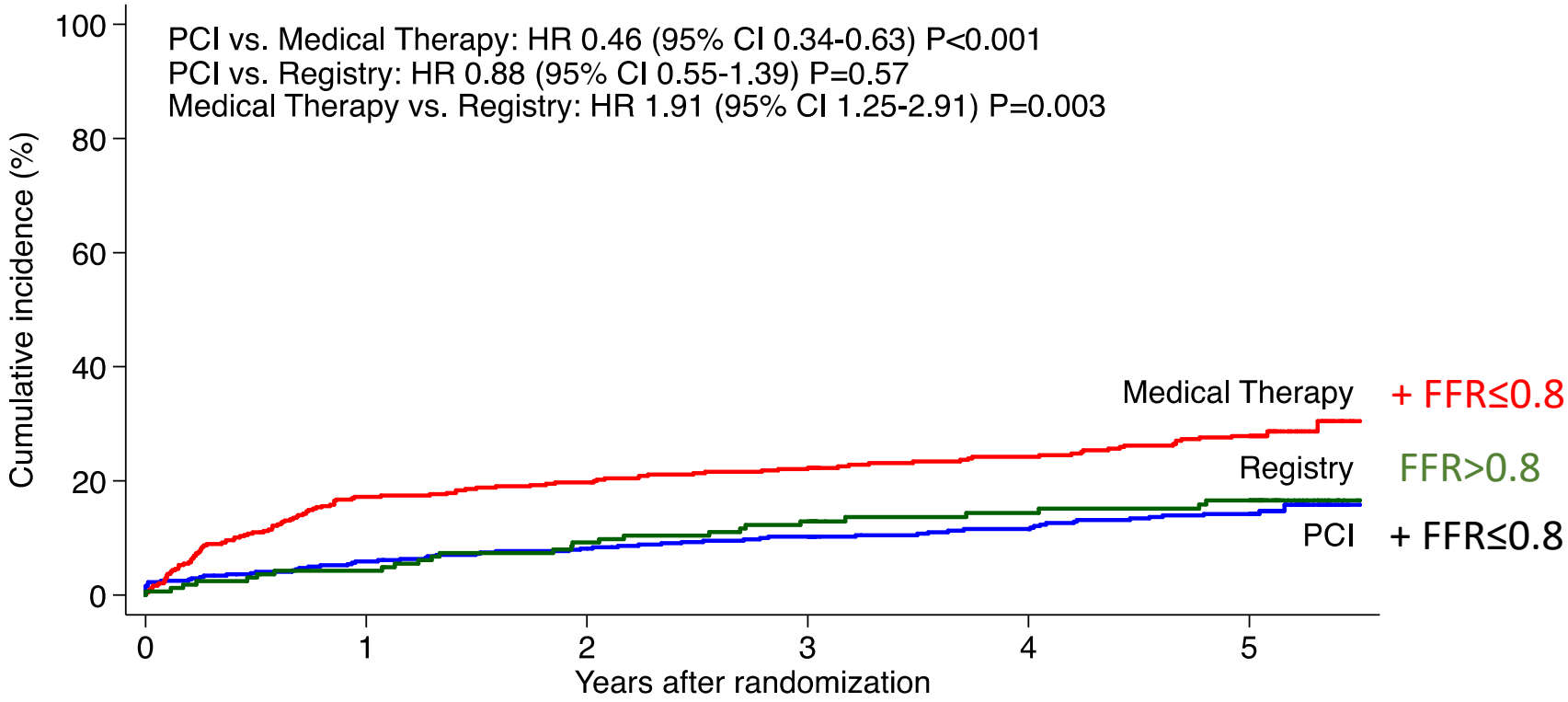


FUTURE

Syntax score >32 OR 3.36 P<0.001

Zimmermann Circulation 2023 in press
Rioufol JACC 2021

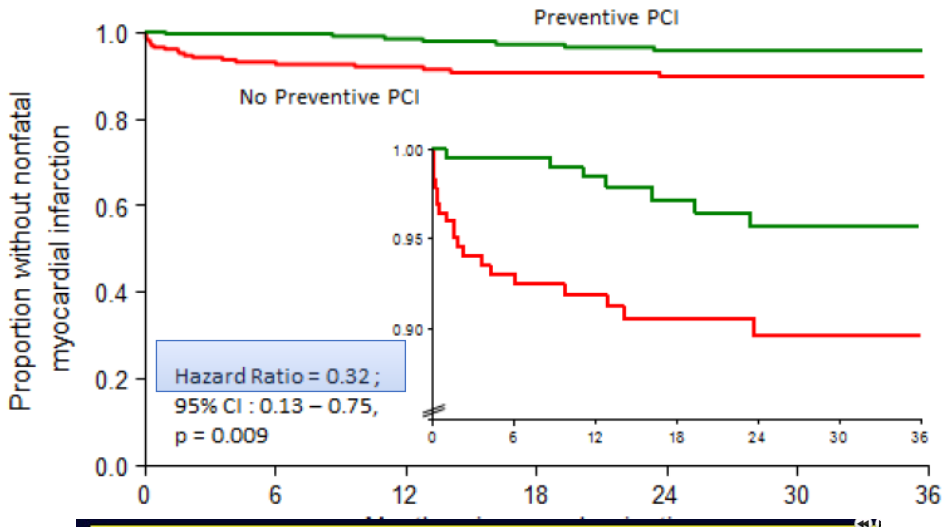
Figure S2: Kaplan–Meier curves for the primary composite endpoint of death, myocardial infarction or urgent revascularization for the two randomized groups and the registry cohort.

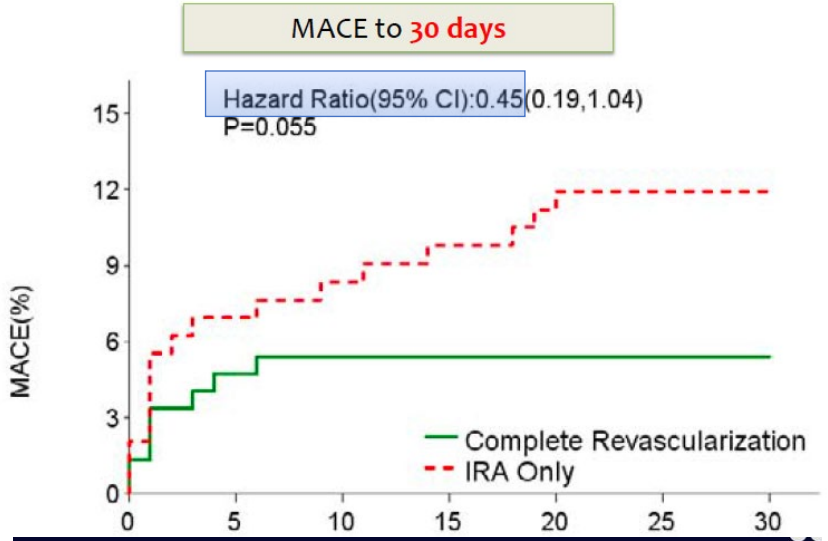


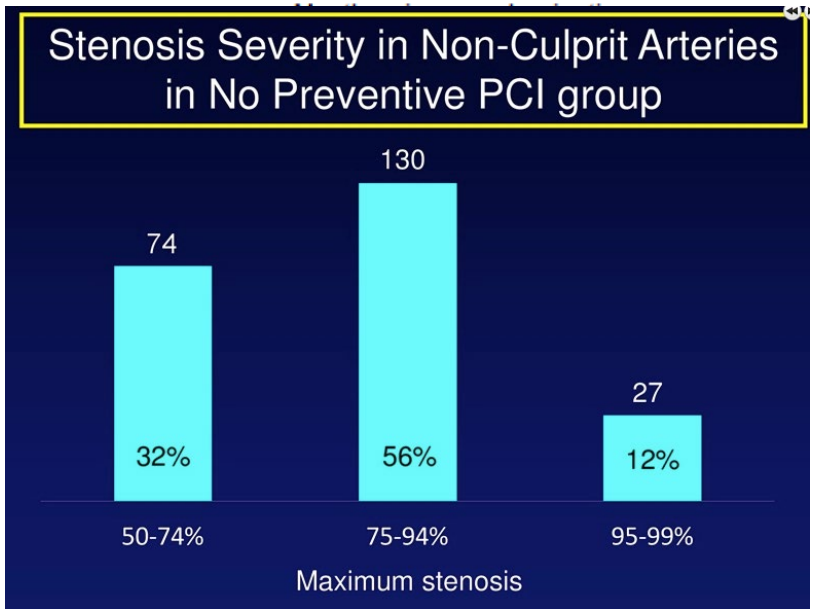
No. at risk						
Medical Therapy	441	360	349	337	271	258
PCI	447	416	403	391	334	321
Registry	166	156	147	141	116	113

Xaplanteris NEJM 2018

Atheroma instability – PRAMI & CULPRIT







Stenosis Severity and Outcomes

Stenosis %	No Preventive PCI	Primary outcome event	Percentage with event
50-74	74	10	14% (10/74)
75-94	130	32	23% (32/130) *
95-99	27	11	47% (11/27)
All	231	53	23% (53/231)

* p for trend <0.01

Oldroyd. EuroPCR 2014

Gershlick et al. ESC 2014
Wald et al. NEJM 2013;369:1115

FFR: risk of deferring a negative FFR-lesion

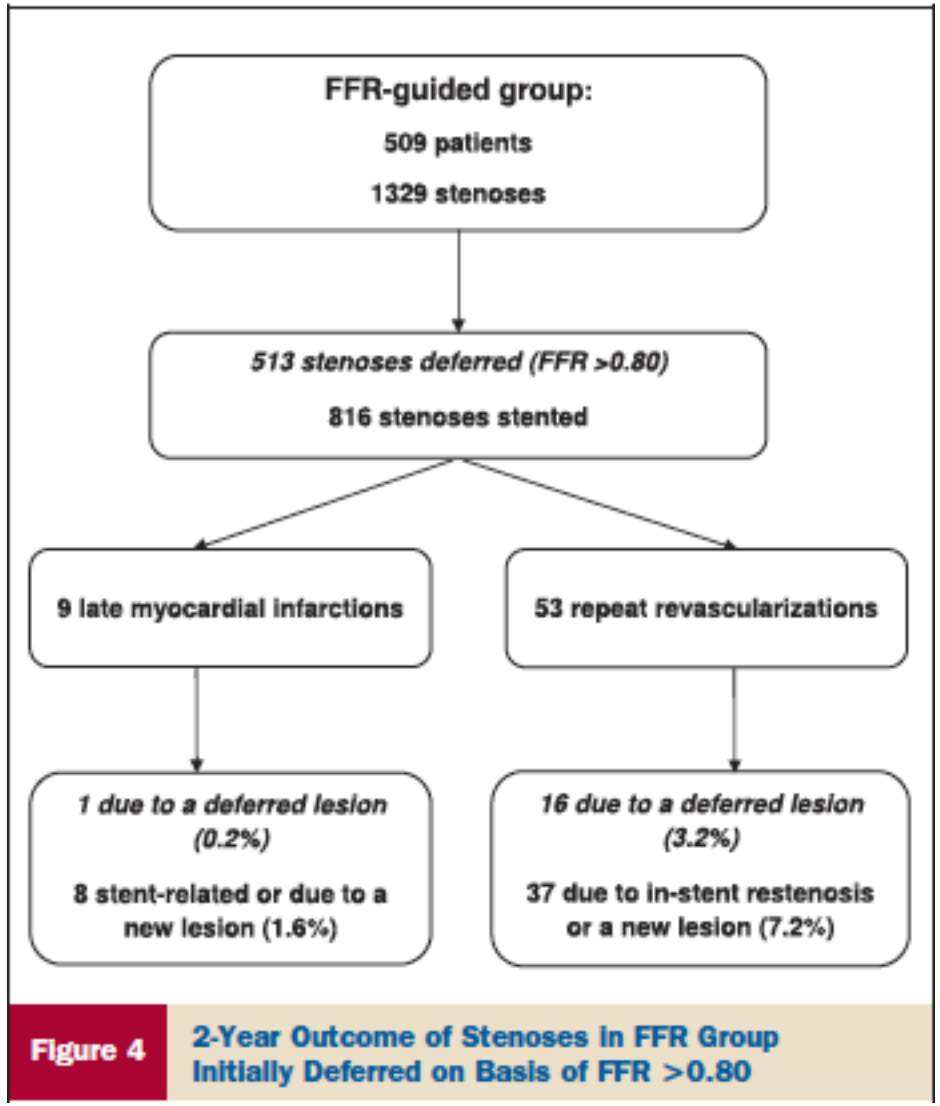
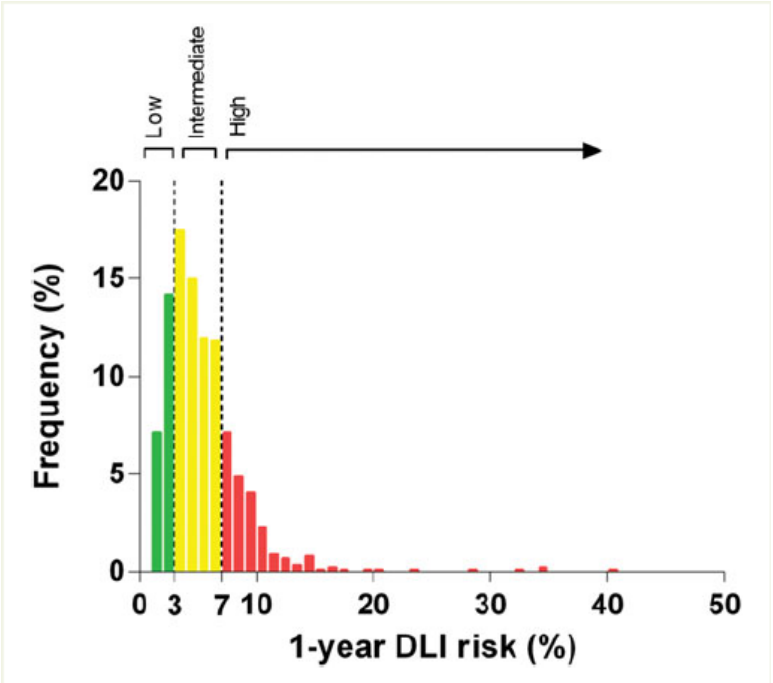


Figure 4 2-Year Outcome of Stenoses in FFR Group Initially Deferred on Basis of FFR >0.80

Pijls JACC 2010

1-year incidence of DLI: 5.3%,



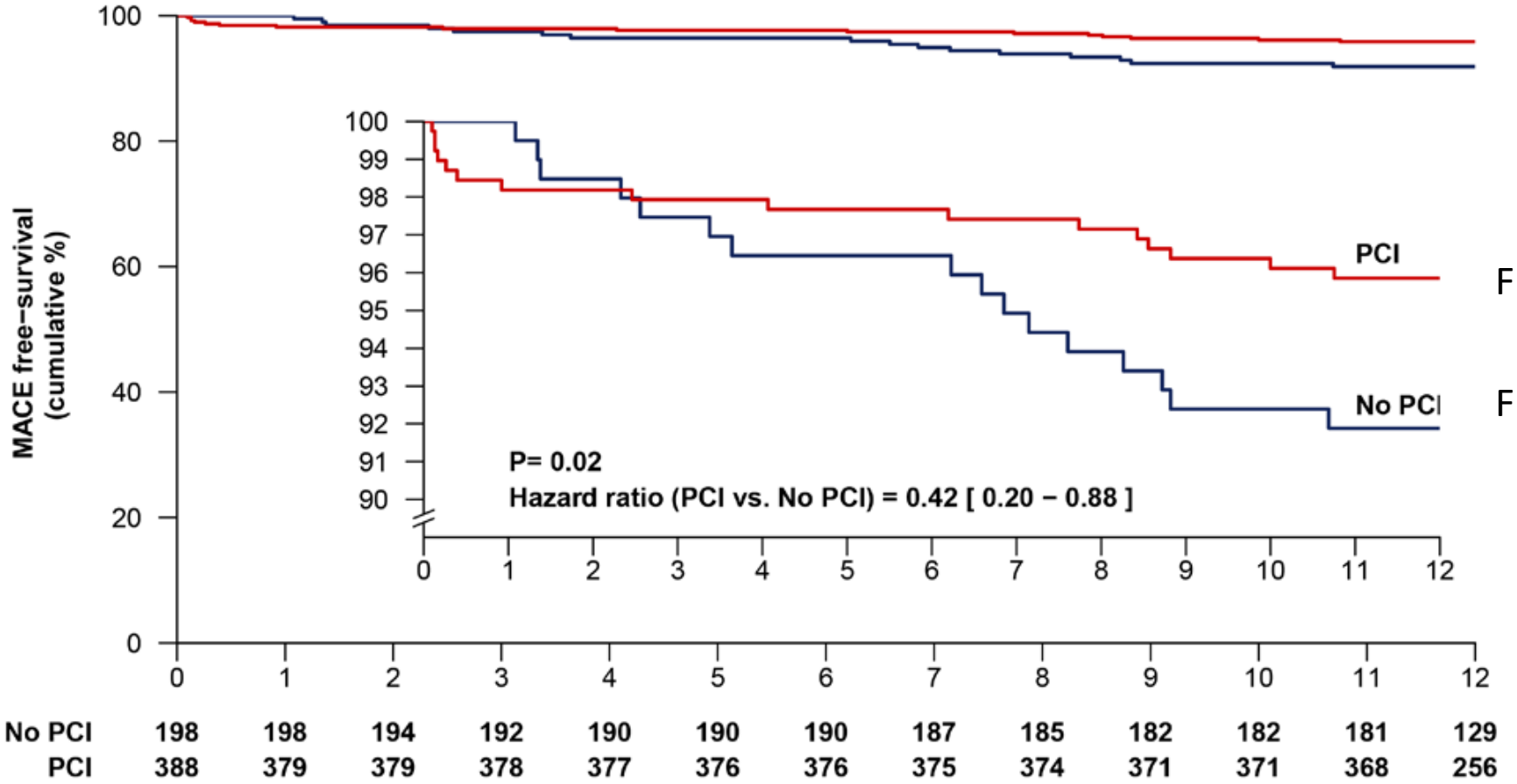
721 pts, 151 defered revasc

multivariate analysis

	HR (95% CI)
Age (per 1-year increase)	0.98 (0.97–0.99)
Current/former smoker	1.49 (1.04–2.14)
History of CAD or prior PCI	1.62 (1.05–2.49)
Creatinine (per 1 mg/dL increase)	1.15 (1.08–1.22)
Multi-vessel CAD	1.68 (1.09–2.58)
FFR value (per 0.05 unit decrease)	1.21 (1.03–1.42)

Depta Eur Heart J 2015

FLOWER MI



FFR≤0.8 (0.75±0.10)

FFR>0.8 (0.88±0.06)

Denormandie Circ Cardiovasc Interv 2021

Conclusions

Since nearly 30y we learnt much in coronary physiology with FFR

Since nearly 20y we learnt much in CAD treatment with FFR

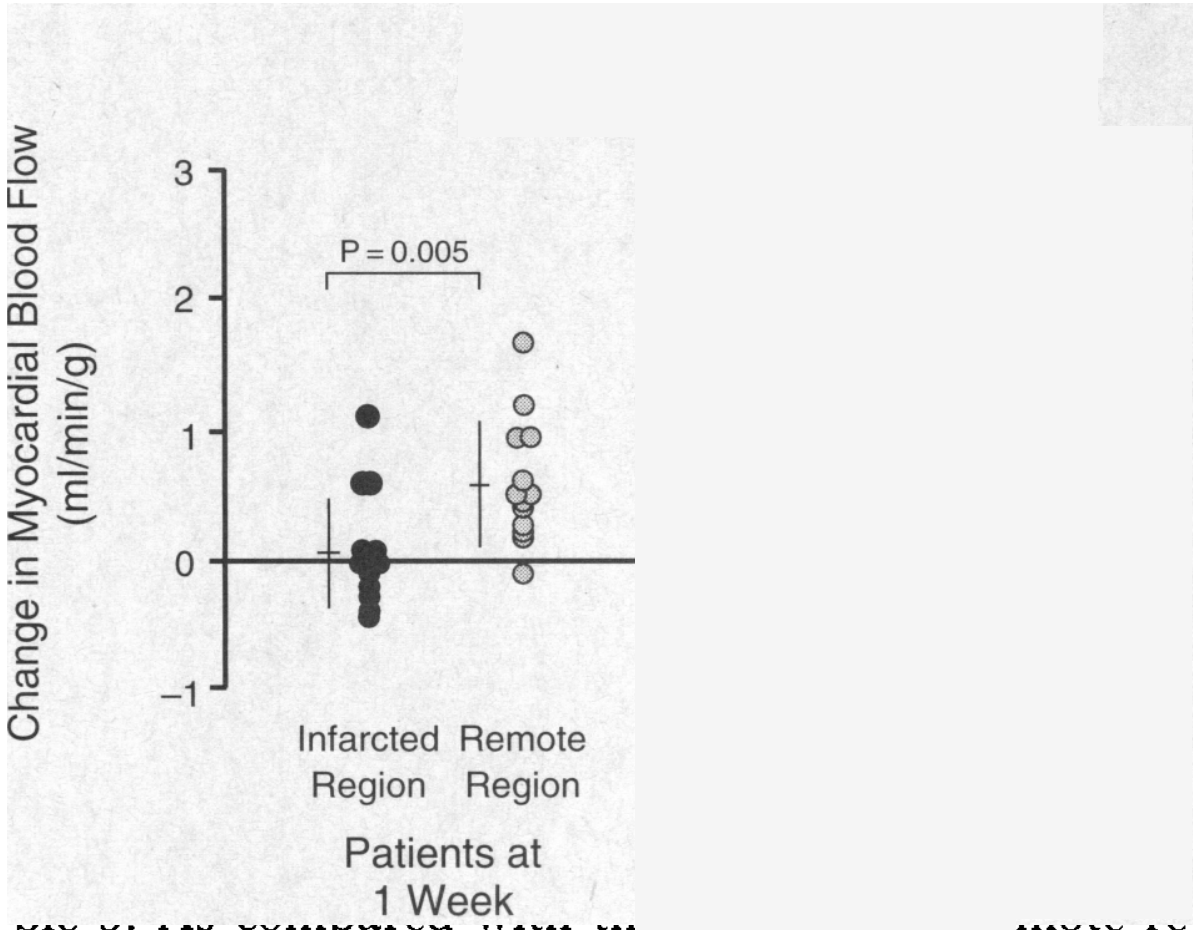
FFR is accurate for ischemia in stable single lesion

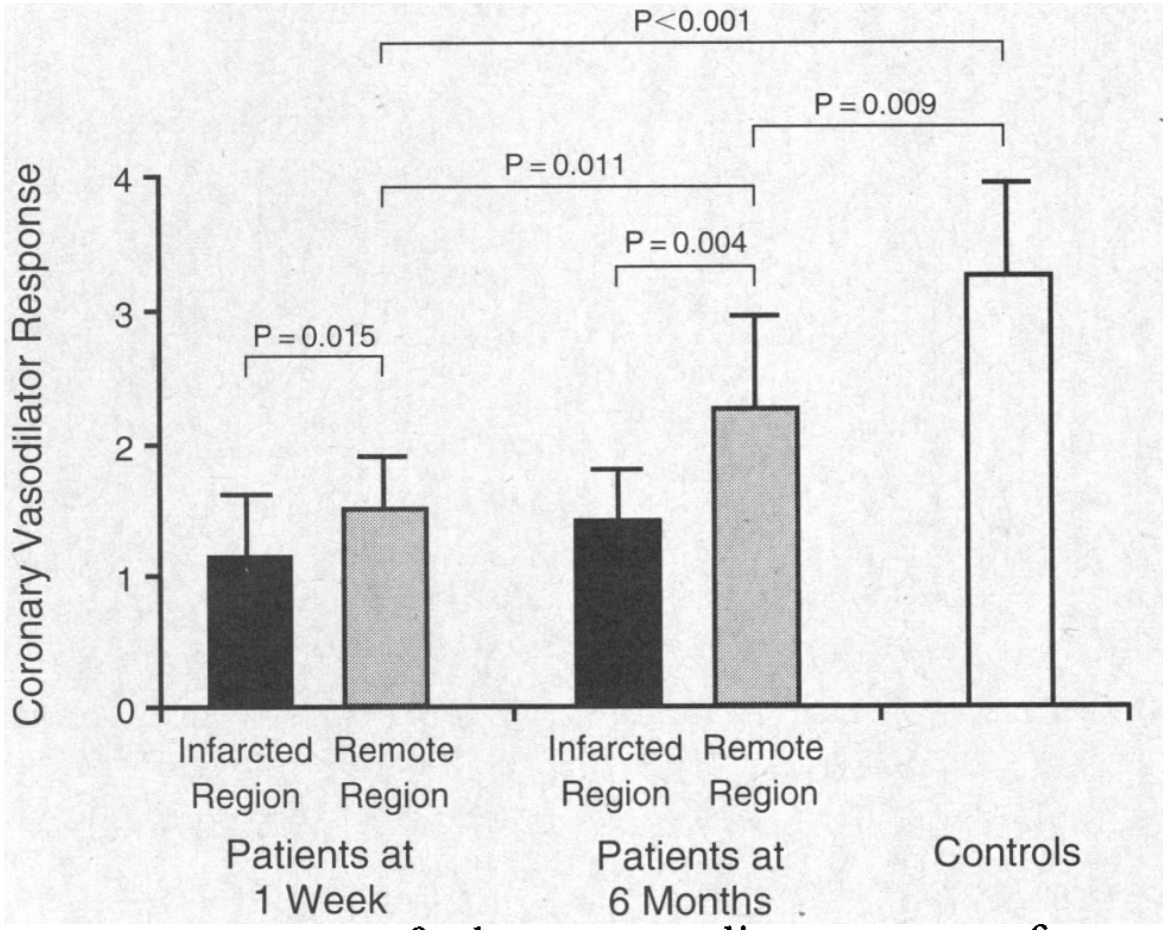
But can't predict coronary evolution in ACS

But can't overtake anatomical complexity in multivessel disease

FFR takes part in precision medicine

FFR dereimbursement is a national step-back





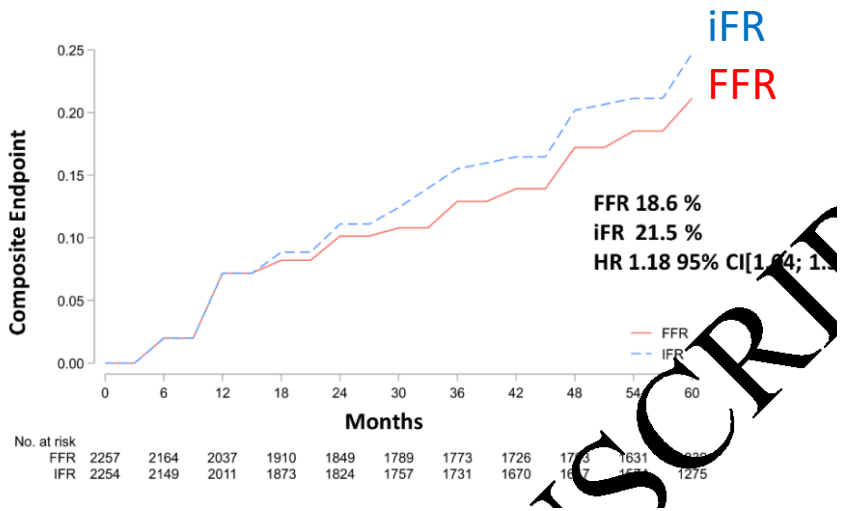
n=13

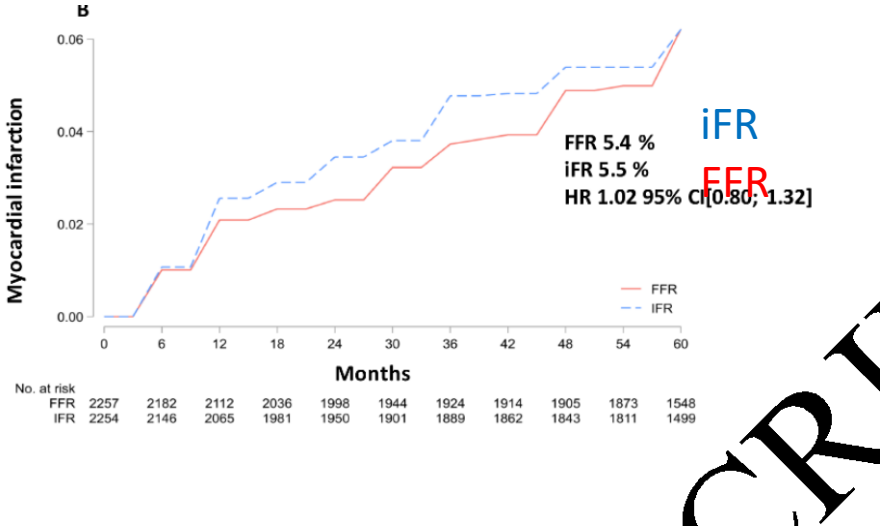
Fibrinolysis – TIMI 3

Single-vx dis

Uren NEJM 1994

Pooled-analysis of iFR SWEDHEART & DEFINE-FLAIR

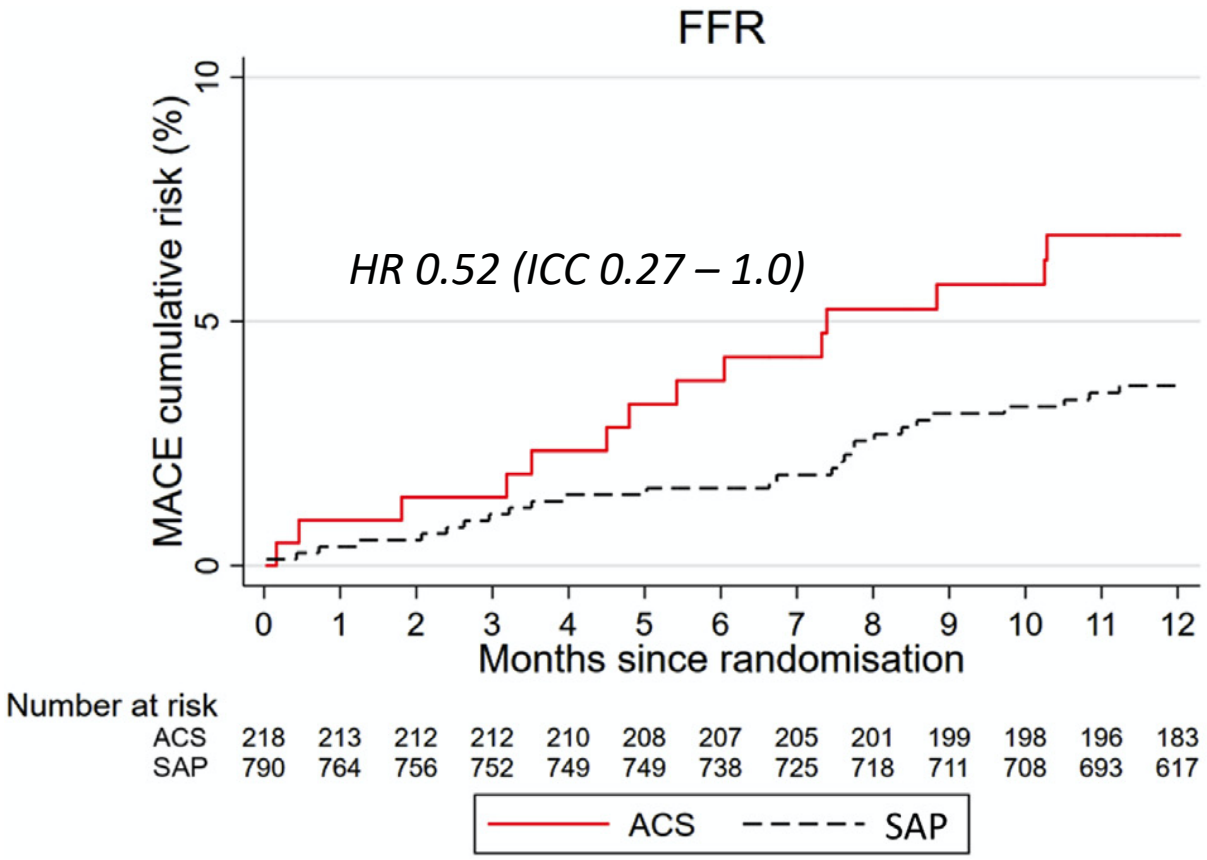




Eftekhari Eur Heart J 2023 in press

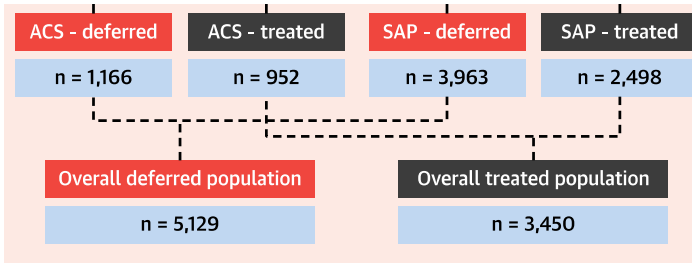
STEMI & mutivessel disease: non culprit revasc FFR-guided vs routine

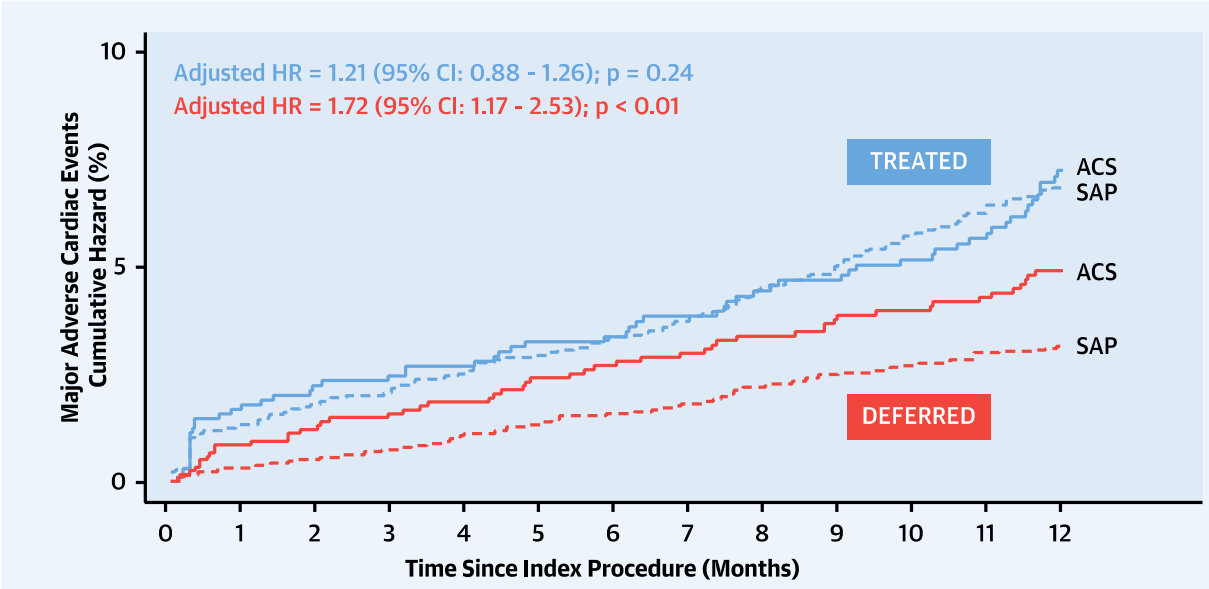
DEFINE FLAIR & IFR SWEDEHEART



Escaned JACC Intv 2018

French FFR Registry (R3F)
POST-IT
IRIS-FFR
DEFINE-FLAIR
iFR-SWEDEHEART

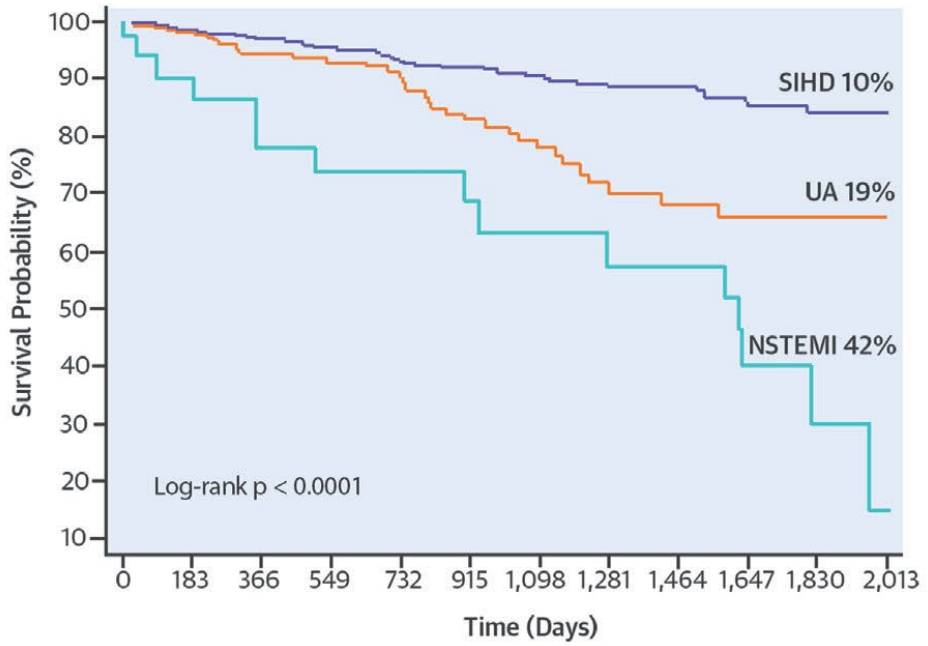




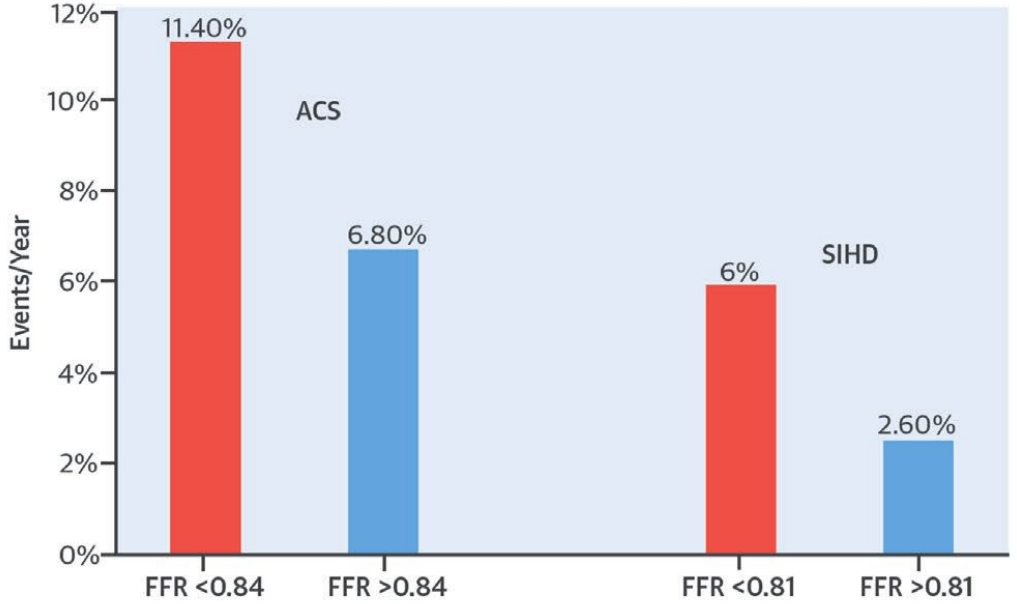
Cerrato JACC Intv 2020

CENTRAL ILLUSTRATION Outcomes of FFR-Based Deferral in ACS

MI/TVF in SIHD, UA, and NSTEMI Subgroups



Annualized MI/TVF Rates on the Basis of Optimal FFR Cutoffs for ACS and SIHD



206 ACS, 370 SA

TABLE 5 Cox Proportional Hazards Model

	HR	95% CI	p Value
Entire cohort			
Age	0.97	0.95–1.00	0.07
DM	0.83	0.54–1.29	0.42
Previous MI or revascularization	1.96	1.07–3.61	**0.03**
ACS	2.64	1.70–4.1	**<0.0001**
FFR	0.007	0.0001–0.64	**0.03**
Multivessel disease	1.62	1.23–2.13	**0.0005**
PVD/CVA	1.38	0.85–2.23	0.19
CKD	0.80	0.44–1.43	0.45