

Fate of Deferred Lesion

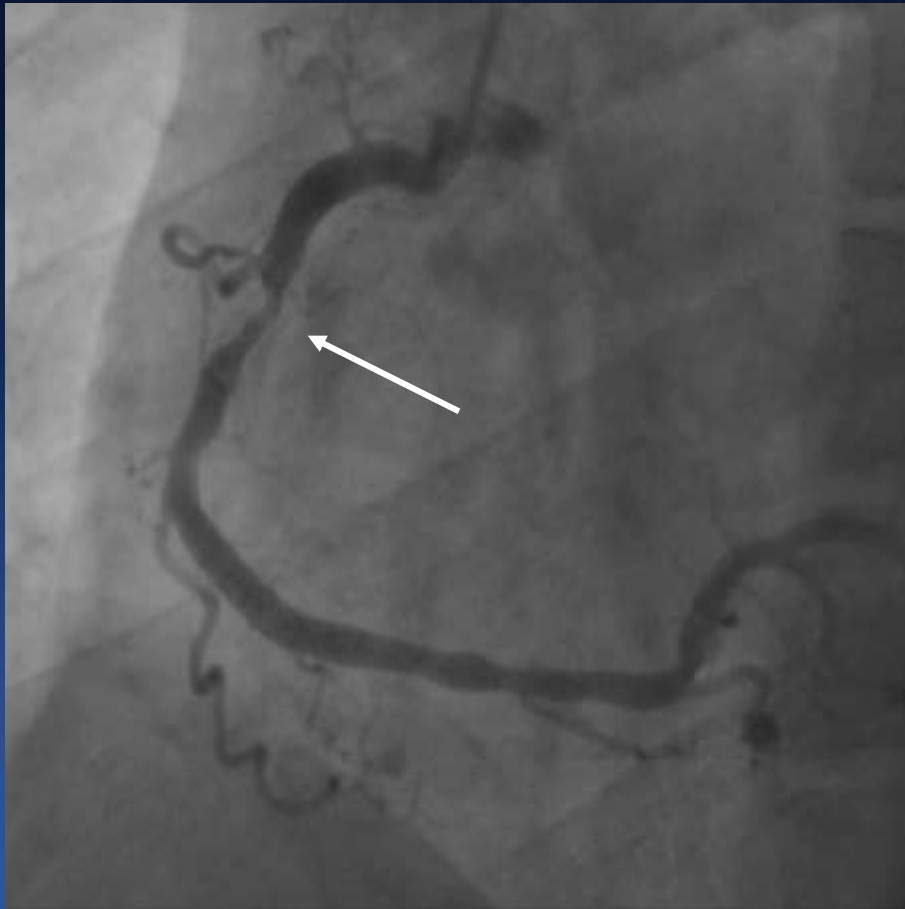
Insight from IRIS FFR Registry

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M/72,

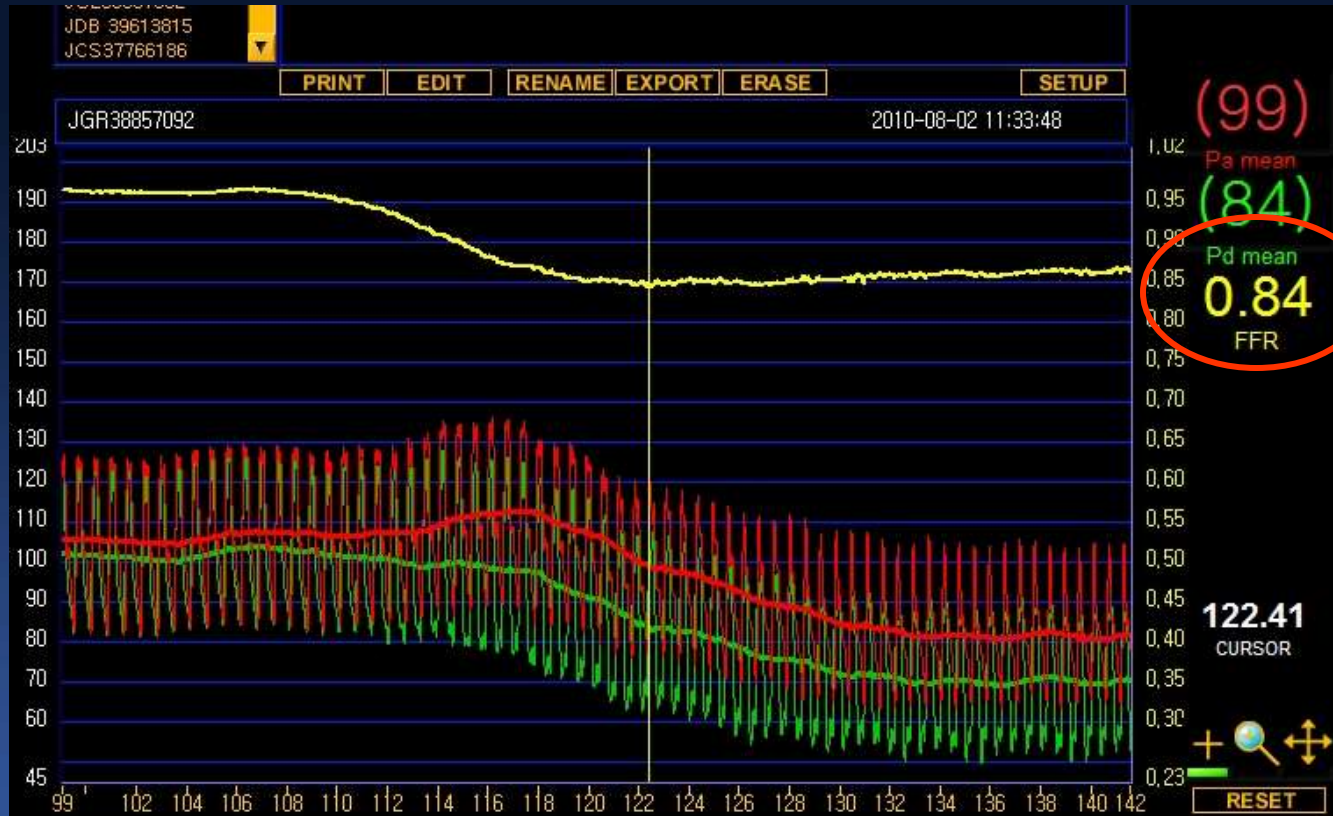
Recent developed Effort chest pain, Hyperlipidemia, Smoker
We took a coronary angiogram first,



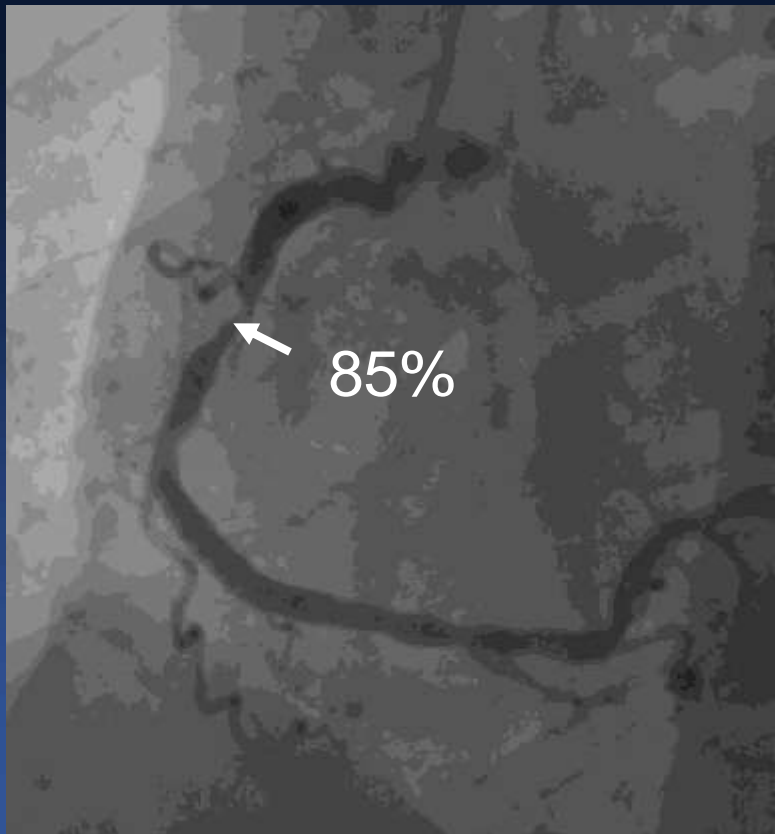
**Visual
Estimation
85%**

FFR

Intravenous adenosine, 160 $\mu\text{g}/\text{kg}/\text{min}$

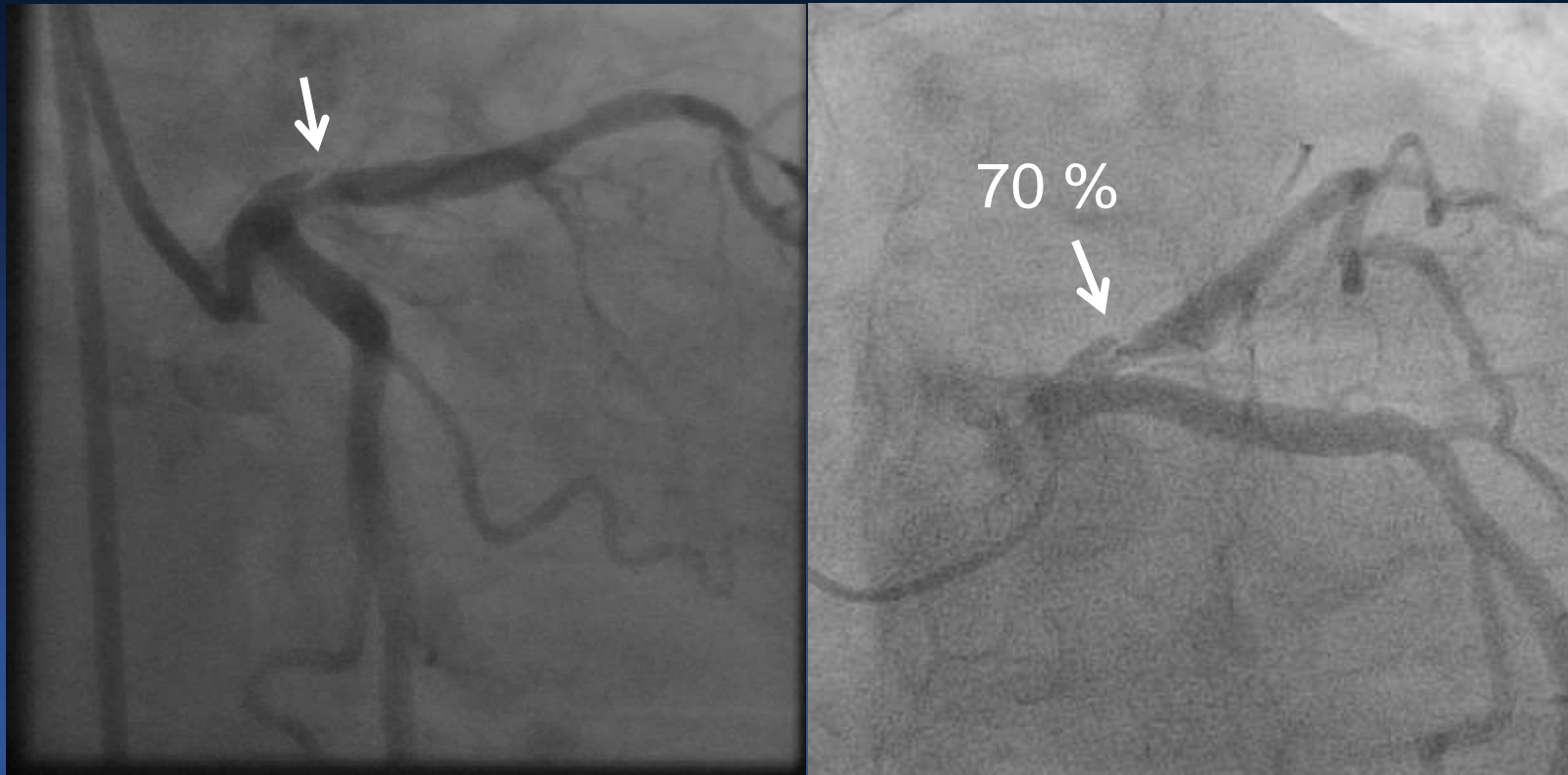


Tight Stenosis and Negative FFR, *Defer!*



M/74,
Asymptomatic Plaque Rupture

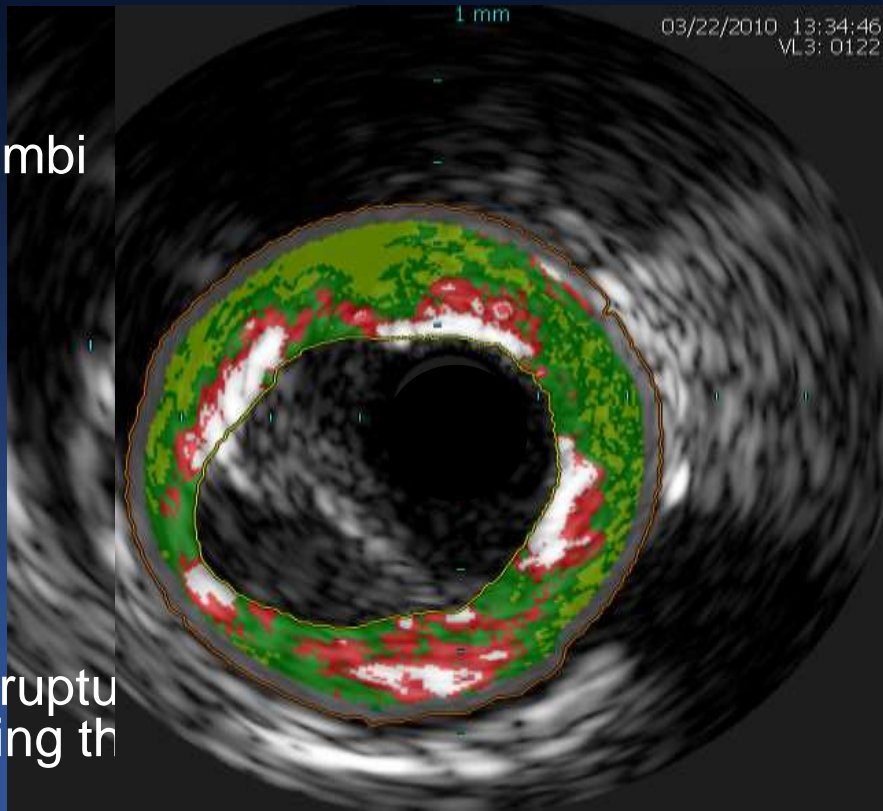
Proximal LAD Stenosis on Coronary CT,
Hypertension, DM, Hyperlipidemia, Ex-smoker



IVUS, VH-IVUS

LAD, Culprit

Thrombi



PB: 71.3%

FI : 41.4%

FF: 20.0%

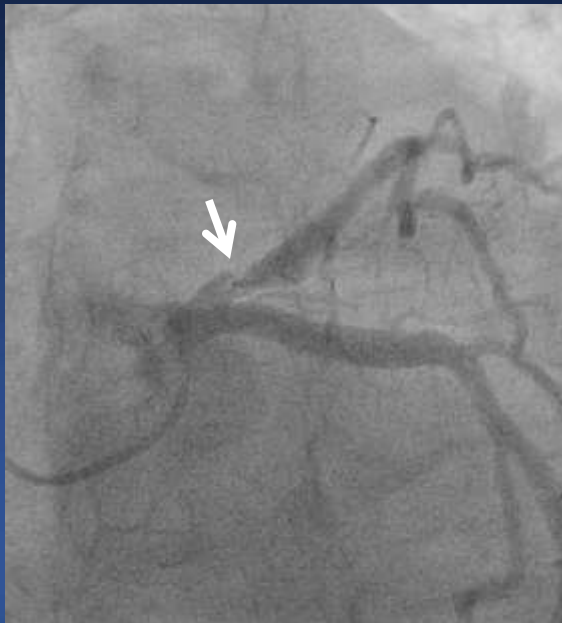
NC: 23.0%

DC: 15.6%

Vulnerable Plaque !

Vulnerable Plaque and Negative FFR, *Defer!*

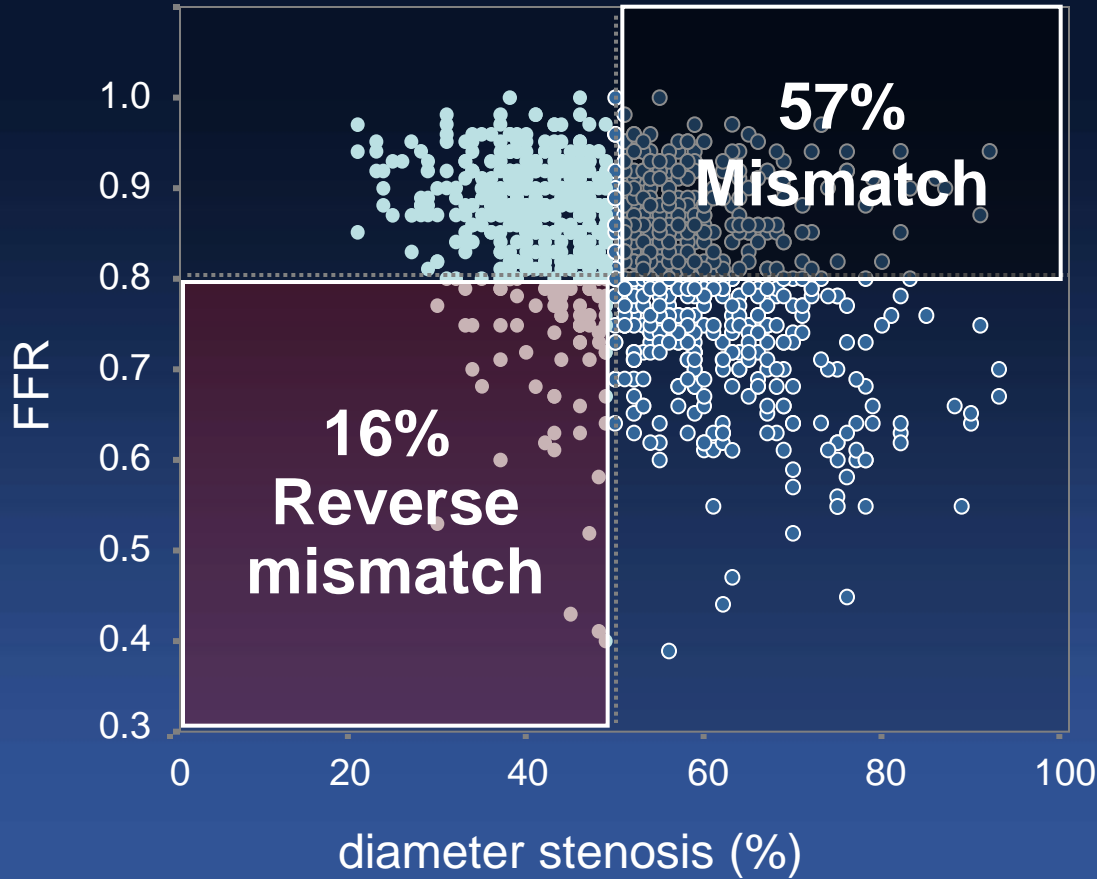
Ruptured
Vulnerable Plaque



Negative FFR
0.89



1066 Non-LM lesions, AMC data



Is Deferral ***Safe*** ?

For Visually Tight Stenosis and
Vulnerable Plaque.

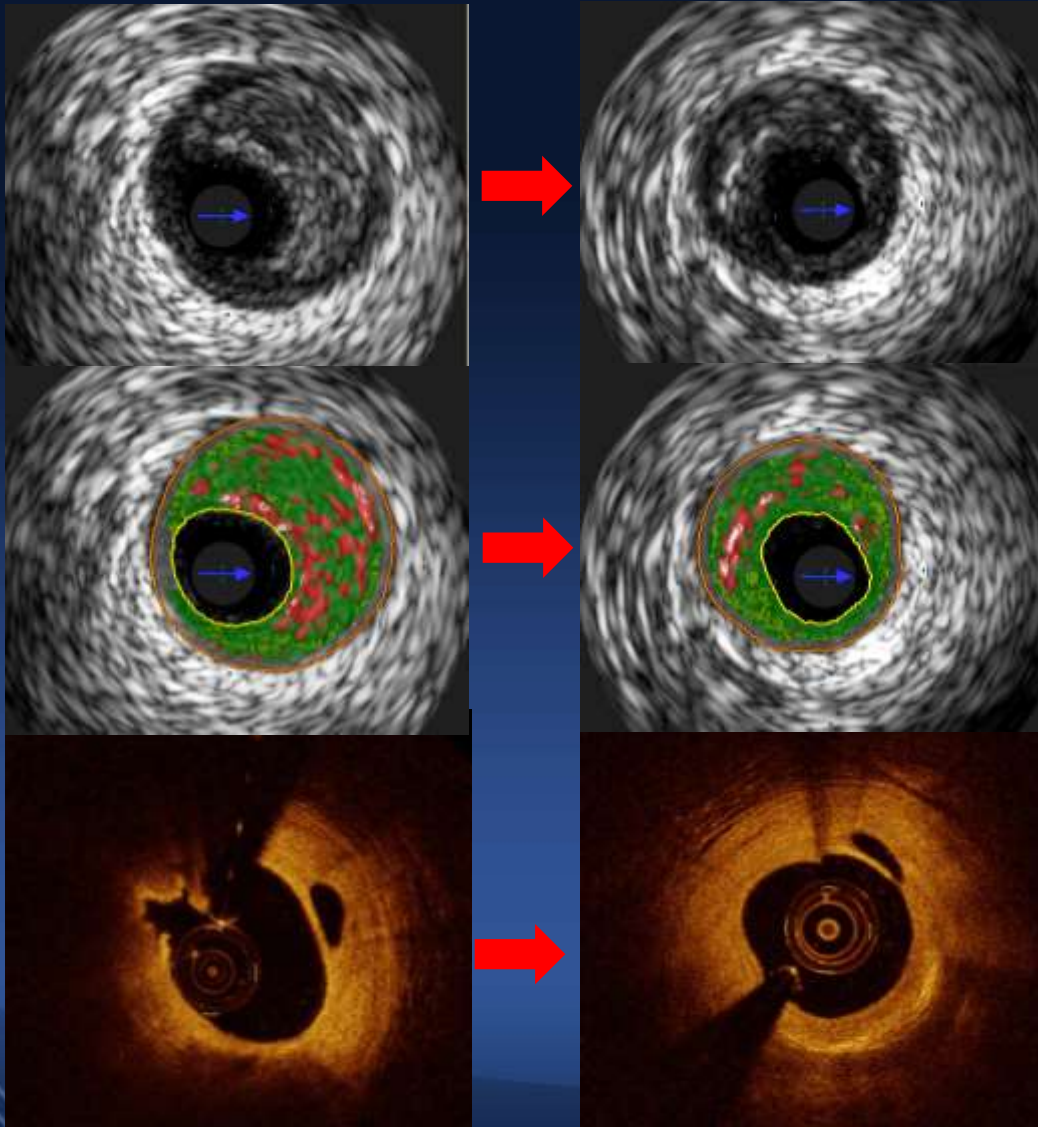
Normal, Non-Invasive Stress Testing **Whatever Angiographic Stenosis Is,**

Death/MI

Imaging Modality	n	NPV(%)	Event Rate (%)
MPI	8,008	98.8	0.45
Thallium	868	96.9	0.70
Sestamibi	1,802	98.7	0.34
Thallium/Sestamibi	4,938	99.2	0.45
Tetrofosmin	400	98.5	0.42
Echo	3,021	98.4	0.54

Shaw LJ, J Nucl Cardiol 2004;11:171-85 ,
Prognostic value of gated myocardial perfusion SPECT.
Very large meta-analysis. (n=39,173 patients)
Metz MD et al JACC 2007;49:227

Statin Therapy Can Make Plaque Regression and Stabilization



	Baseline	1 year
Lumen, mm ²	4.4	3.7
EEM, mm ²	19.0	14.0
Plaque, mm ²	14.6	10.3
VH-%NC	30%	15%
VH-TCFA	+	-
OCT-TCFA	+	-

STABLE Study (*ST*atin and *A*theroma *V*ulnera*Bi*Lity *E*valuation) Double-blinded, Randomized Trial, 2015 New Data



Death and MI /yr

Negative FFR (>0.80 or 0.75) or
Negative Non-Invasive Stress Tests:
(NUCLEAR studies, DEFER, FAME)

< 1 %

Stented Segment :
(DEFER, FAME, SYNTAX, and registries)

2-3 %

Untreated Positive FFR (<0.75 or 0.80) or
Positive Non-invasive Stress Tests:
(Registries, ACIP, etc)

5-10 %

Multicenter, Prospective Registry to Evaluate
The Natural History of FFR-Guided Coronary Intervention

IRIS **FFR** Registry

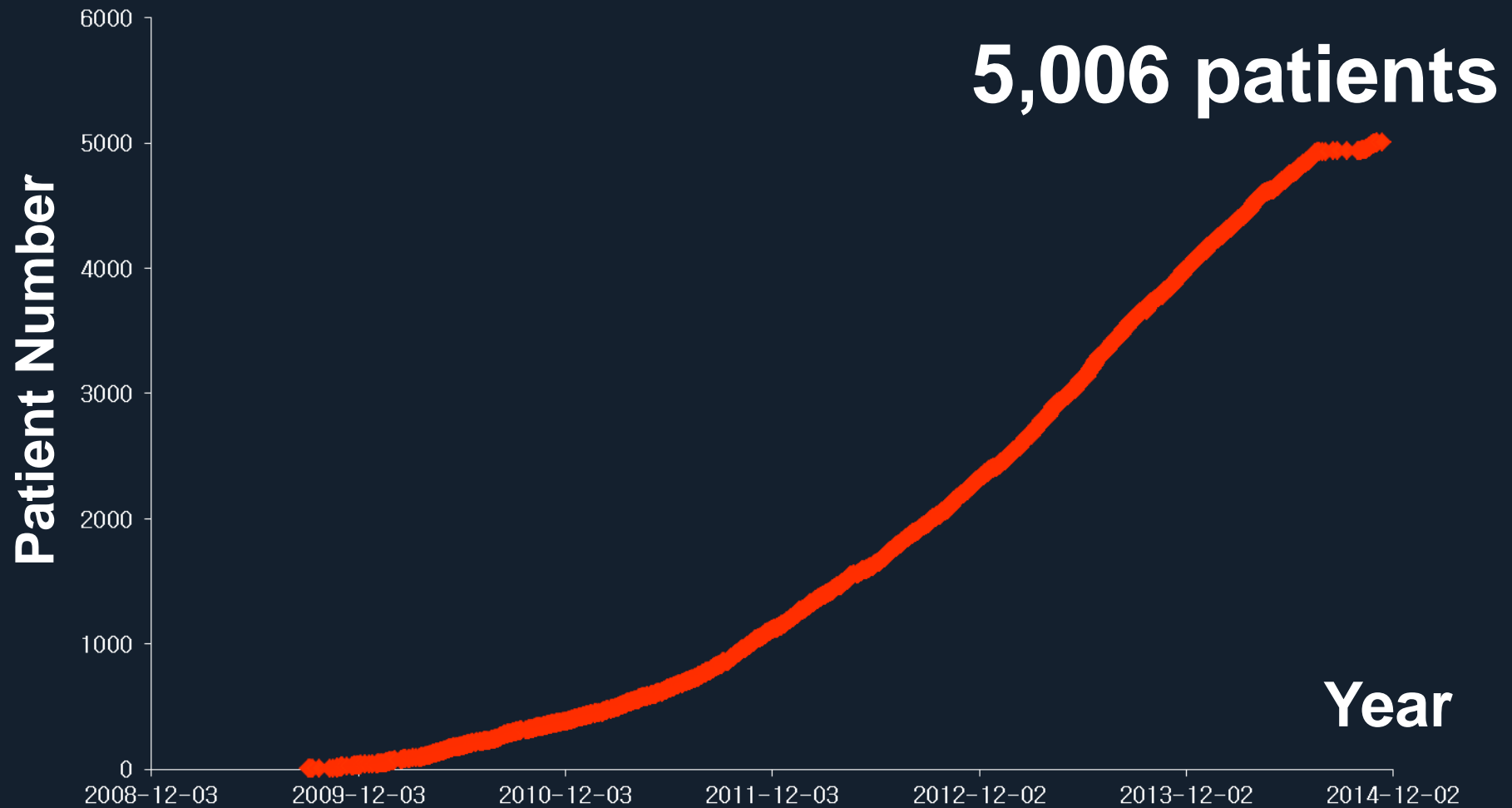
Patients (N=5,000) with ≥ 1 FFR evaluated Lesions
(DS>30% by visual estimation and FFR>0.80)

Primary Endpoint : TVF at 2 year
Target vessel related Cardiac Death, MI,
and Clinical driven TVR

* 2-year CAG & Imaging FU will be conducted after Completion of 2-year Clinical FU

Patient Enrollment

**Preliminary Analysis on 3639 Patients
With at Least 6 Months Follow-Up.**

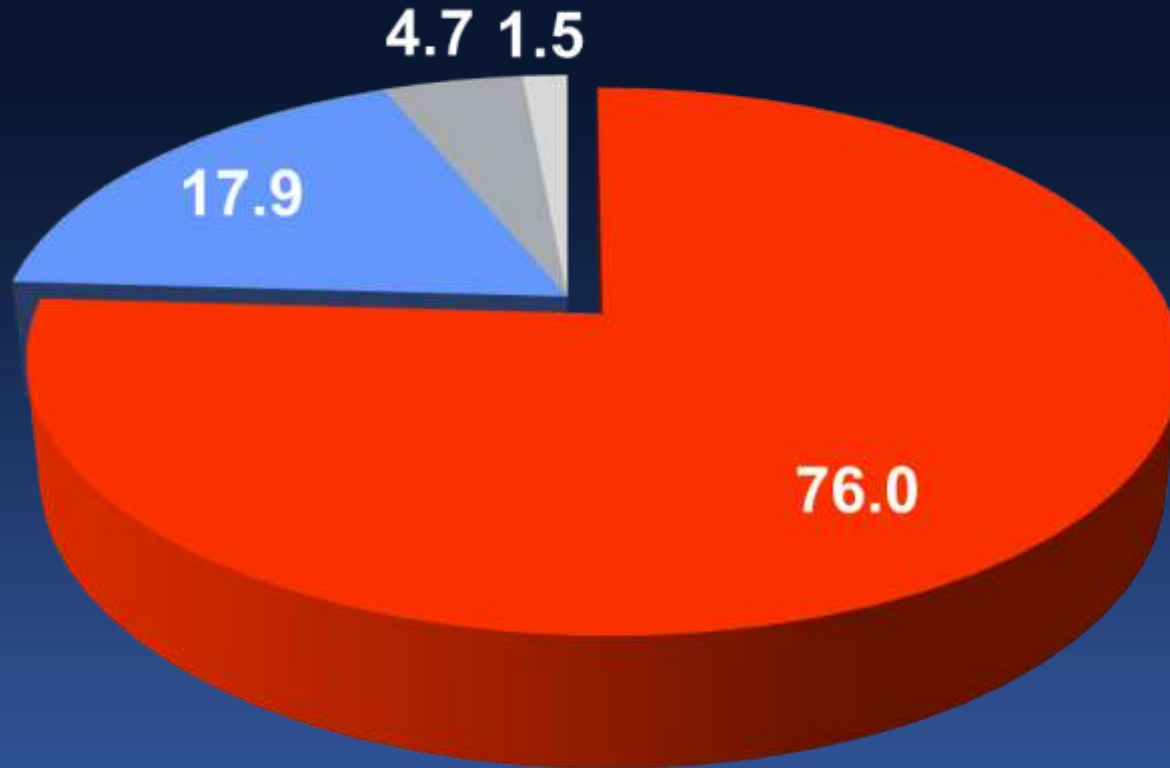


Patient Characteristics

Variables	N=3639
Age	63.9±9.7
Sex (men)	2591 (71%)
Body mass index, kg/m ²	24.8±2.9
Diabetes	1130 (31%)
Hypertension	2300 (63%)
Current smoker	890 (25%)
Hyperlipidemia	1679 (46%)
Previous myocardial infarction	233 (6%)
Previous stroke	212 (6%)
Chronic renal failiure	69 (2%)
Chronic lung disease	81 (2%)
Peripheral artery disease	110 (3%)
Family history	38 (1%)

Clinical Presentation

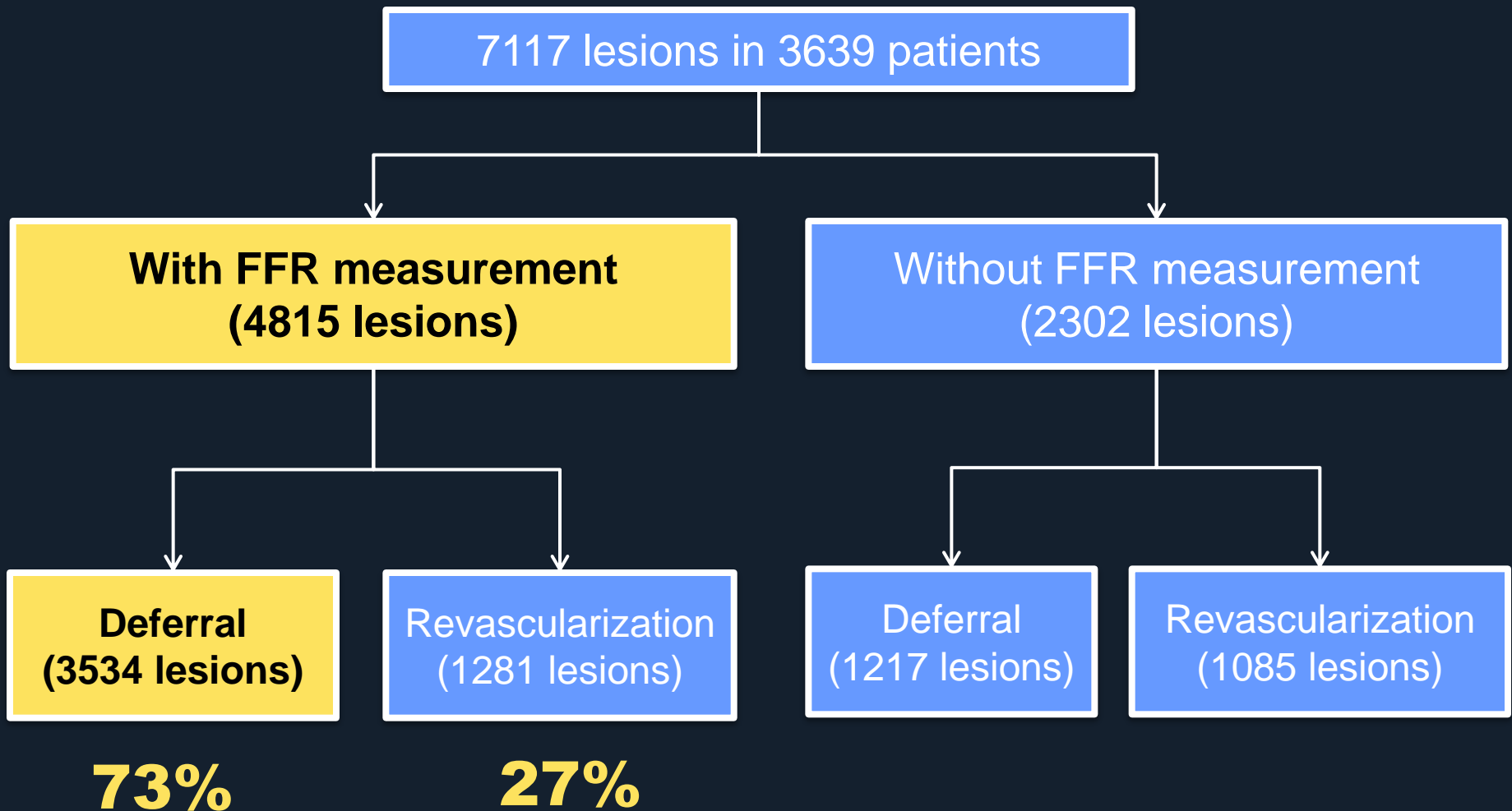
■ sAP or No symptom ■ uAP ■ NSTEMI ■ STEMI



Lesion Characteristics: All lesion

Variables	N=7117
Lesion territory	
Left main	276 (3.9%)
Left anterior descending artery	3154 (44%)
Left circumflex artery	1641 (23%)
Right coronary artery	1989 (28%)
ACC/AHA B2C lesion	4419 (62%)
Long lesion (>20mm)	3120 (44%)
Moderate to severe calcification	285 (4%)
Diameter stenosis	
30-50%	1244 (18%)
50-70%	3176 (45%)
70-99%	2285 (32%)
Total occlusion	353 (5%)

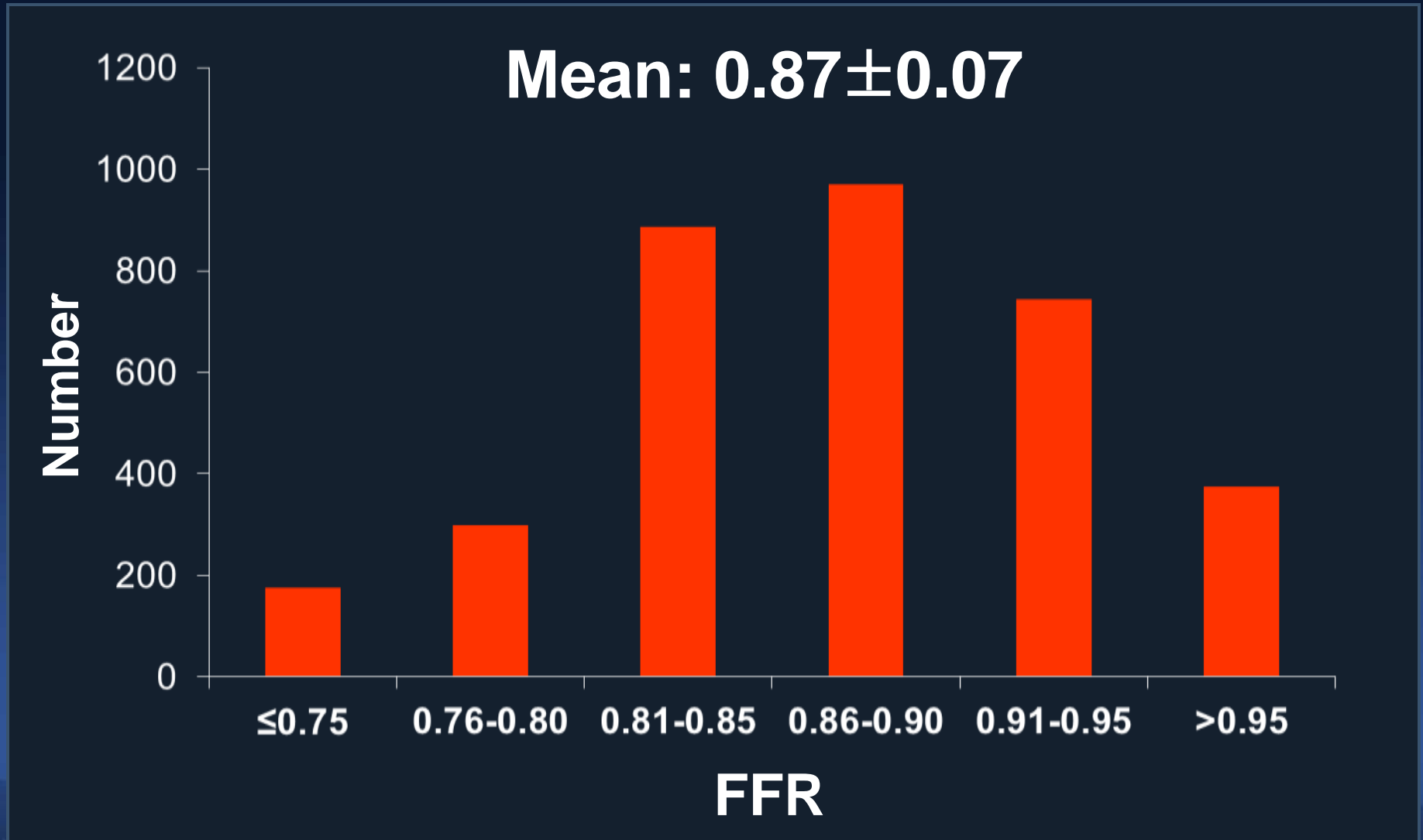
Lesion Treatment



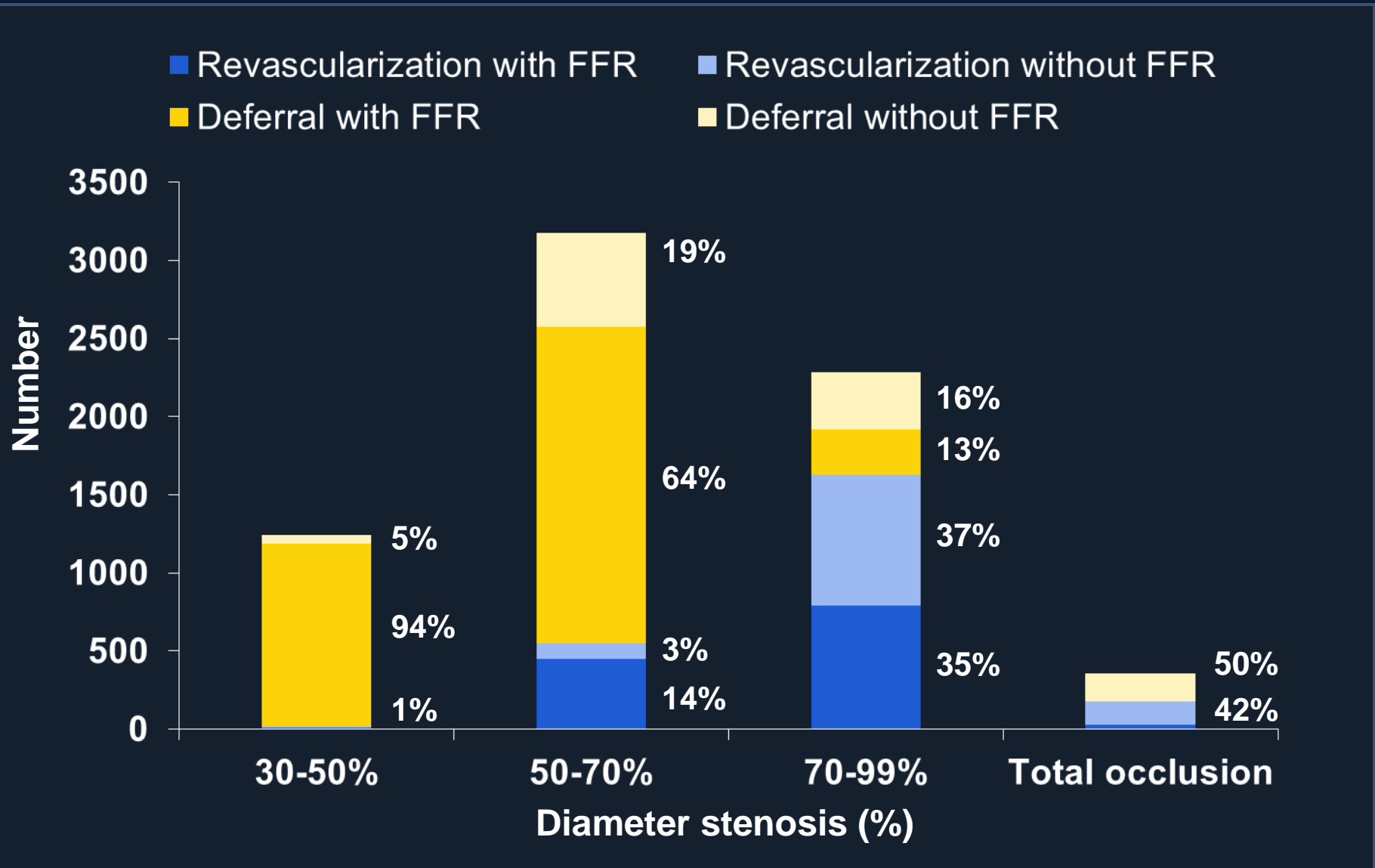
FFR guided DEFERred Lesion

Variables	3534 lesions
Lesion territory	
Left main	84 (2%)
Left anterior descending artery	1768 (50%)
Left circumflex artery	653 (19%)
Right coronary artery	1002 (28%)
Route of adenosine	
Intravenous	3205 (91%)
Intracoronary	311 (9%)
Fractional flow reserve	
Mean	0.87±0.07
<0.75	136 (4%)
0.75-0.80	337 (10%)
>0.80	2975 (84%)

FFR Distribution of Deferred Lesions



Lesion Treatment



Cardiac Death, MI, and Revascularization at 2 Years (2857 patients, 3534 DFERred lesions)

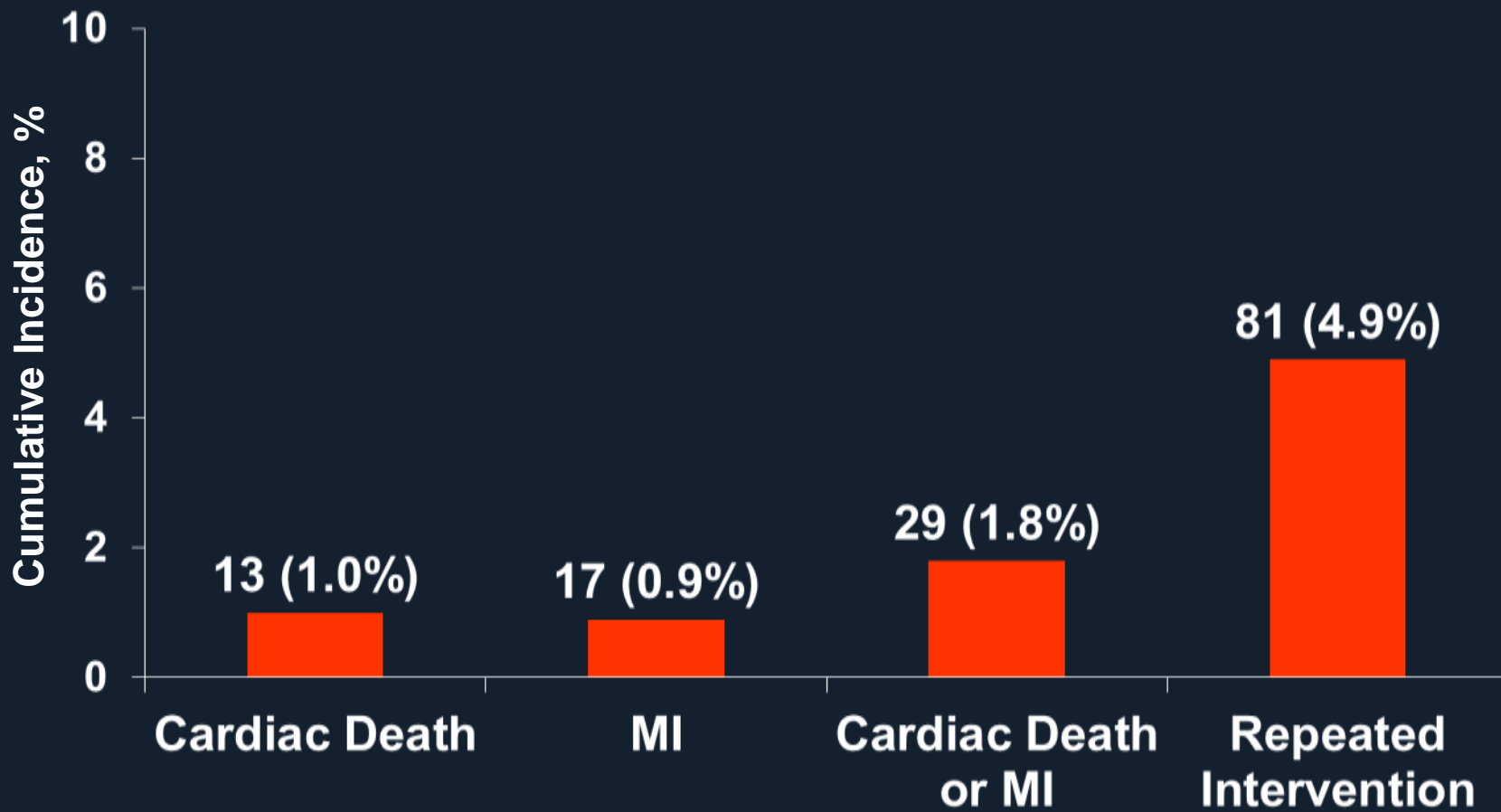


Cardiac Death and MI at 2 Years (2857 patients, 3534 DFERred lesions)



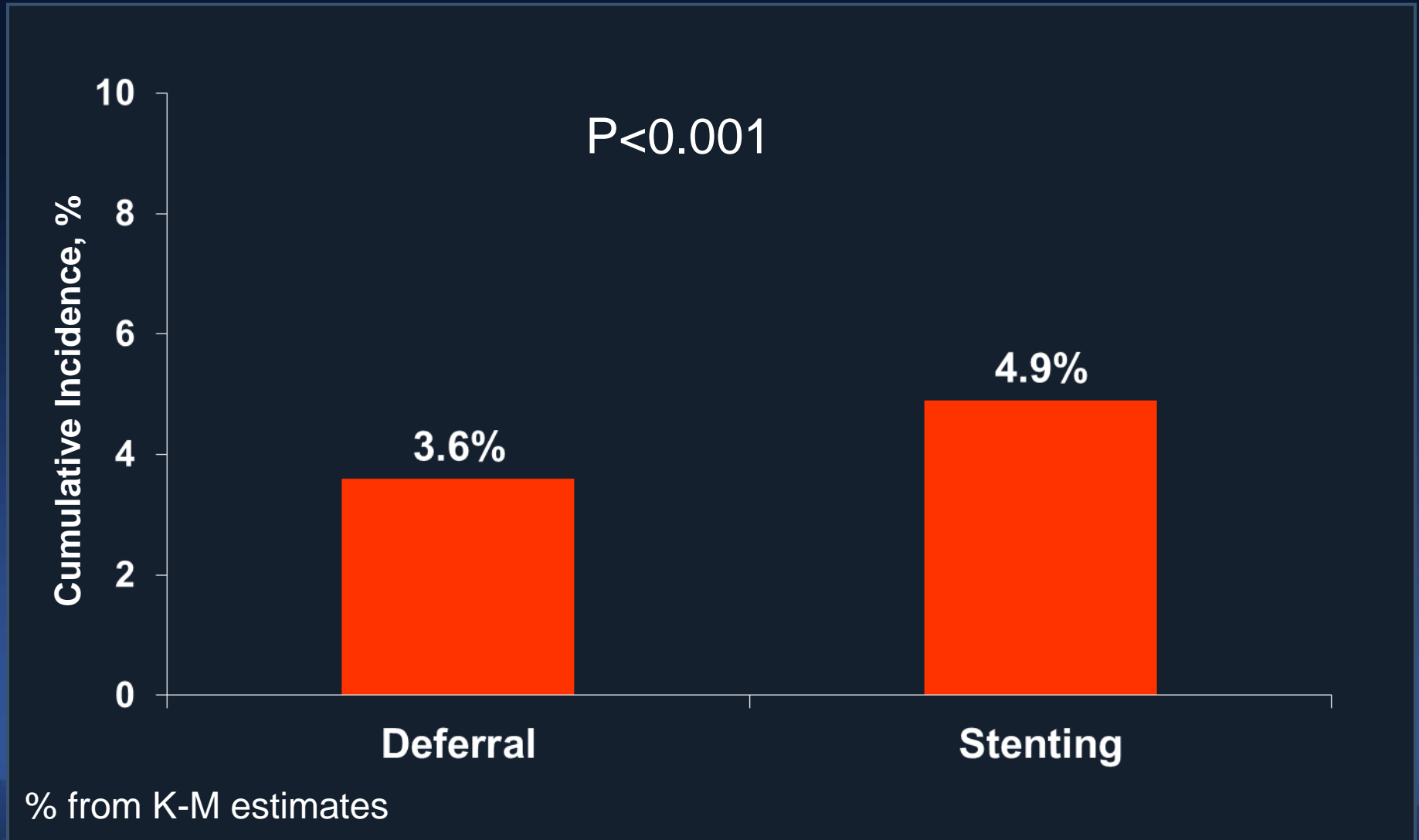
Outcomes at 2 Years

(2857 patients, 3534 DFERred lesions)



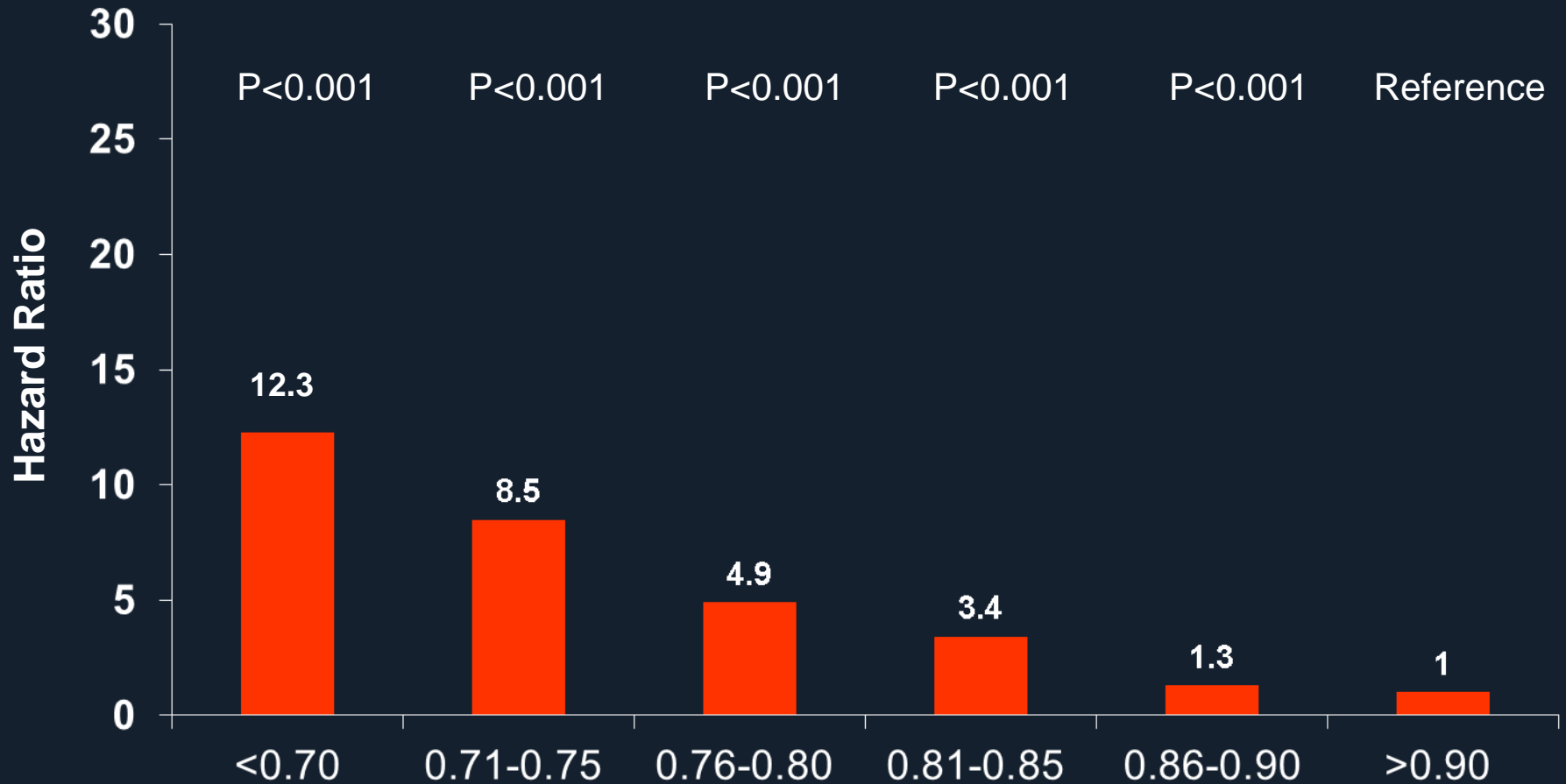
% from K-M estimates

Repeated Intervention at 2 Years (per vessel)

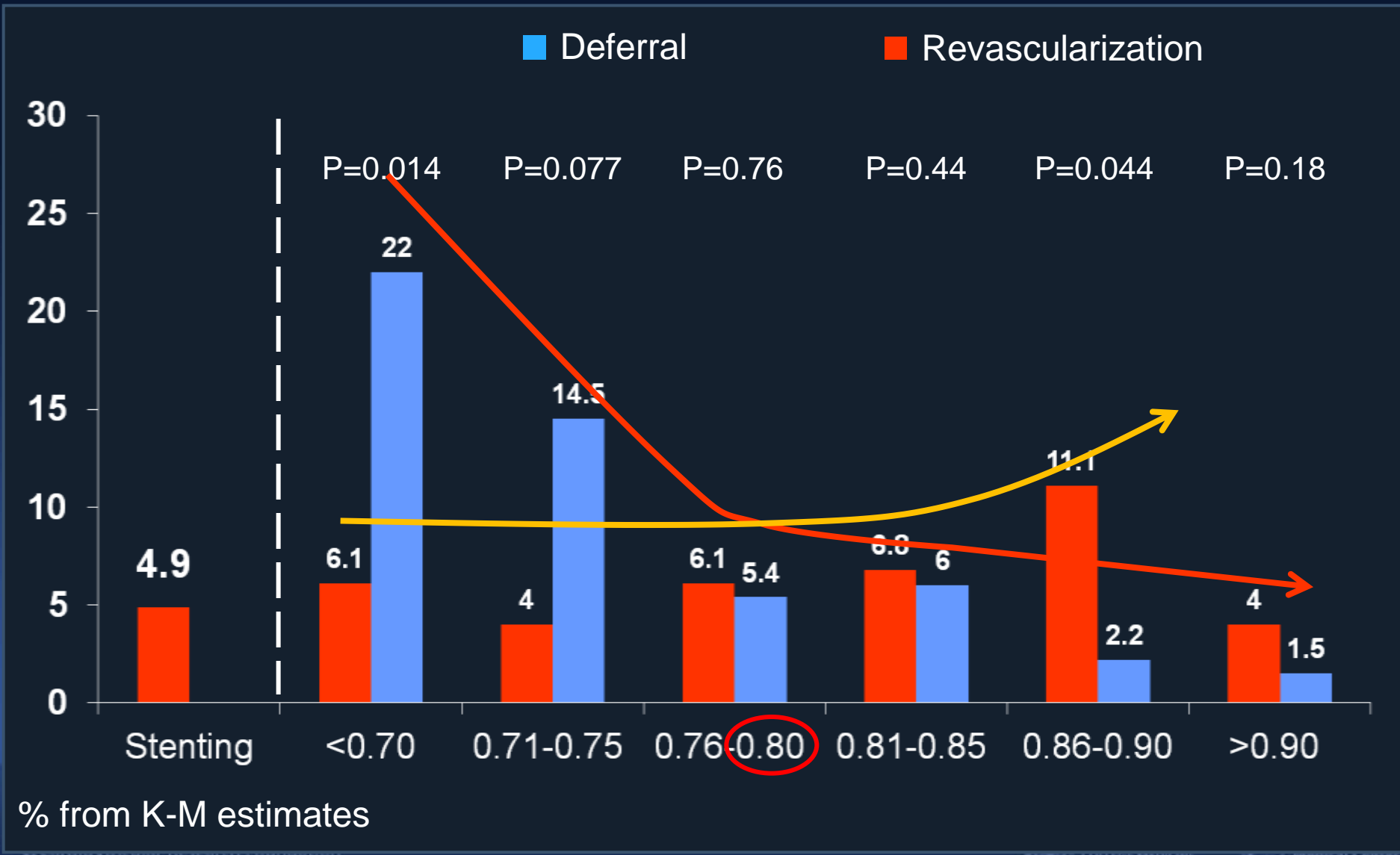


Repeated Intervention at 2 Years (per vessel)

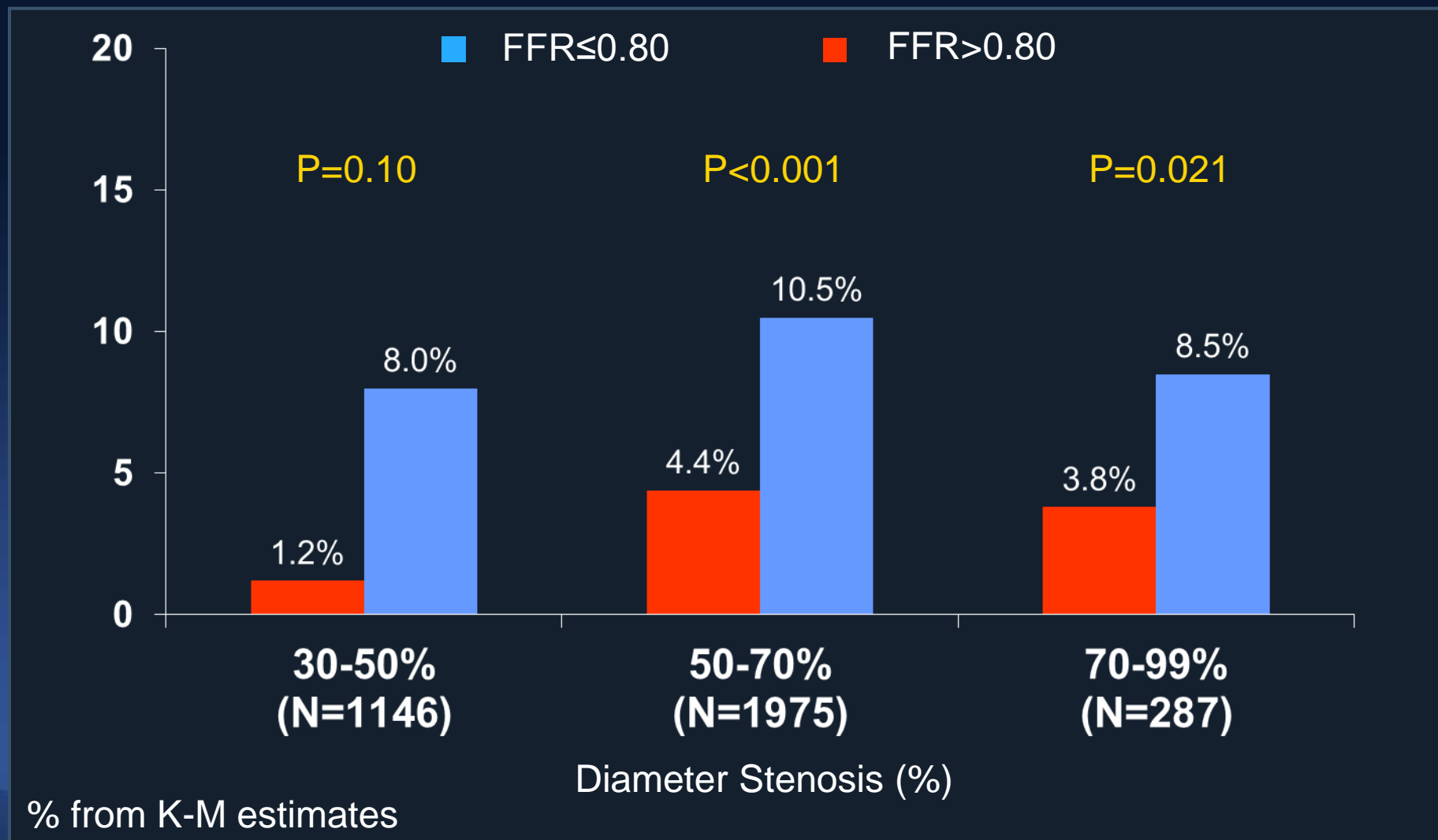
Hazard Ratio



Repeated Intervention at 2 Years (per vessel)



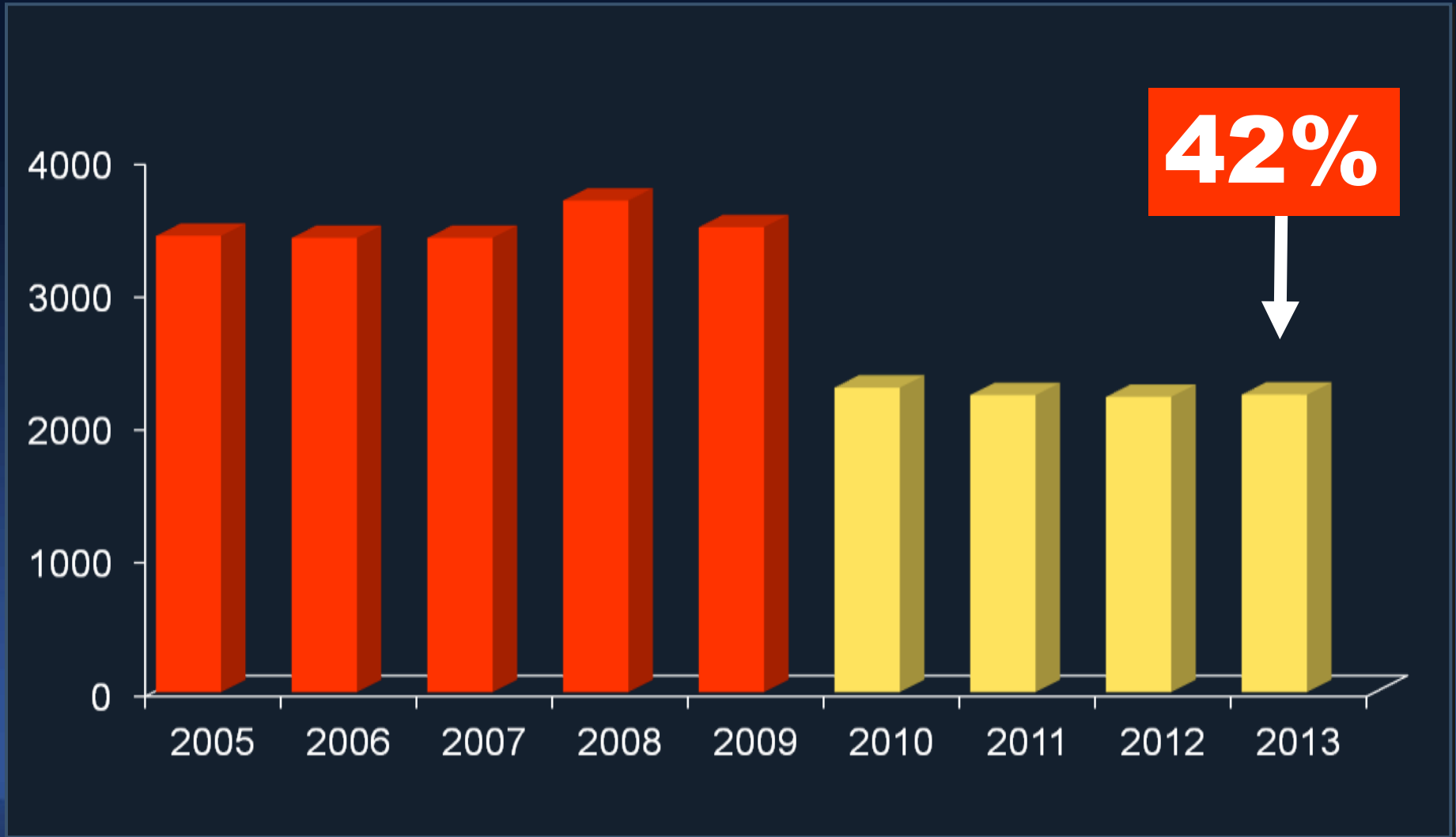
Deferred Lesion Intervention at 2 Years (per vessel)



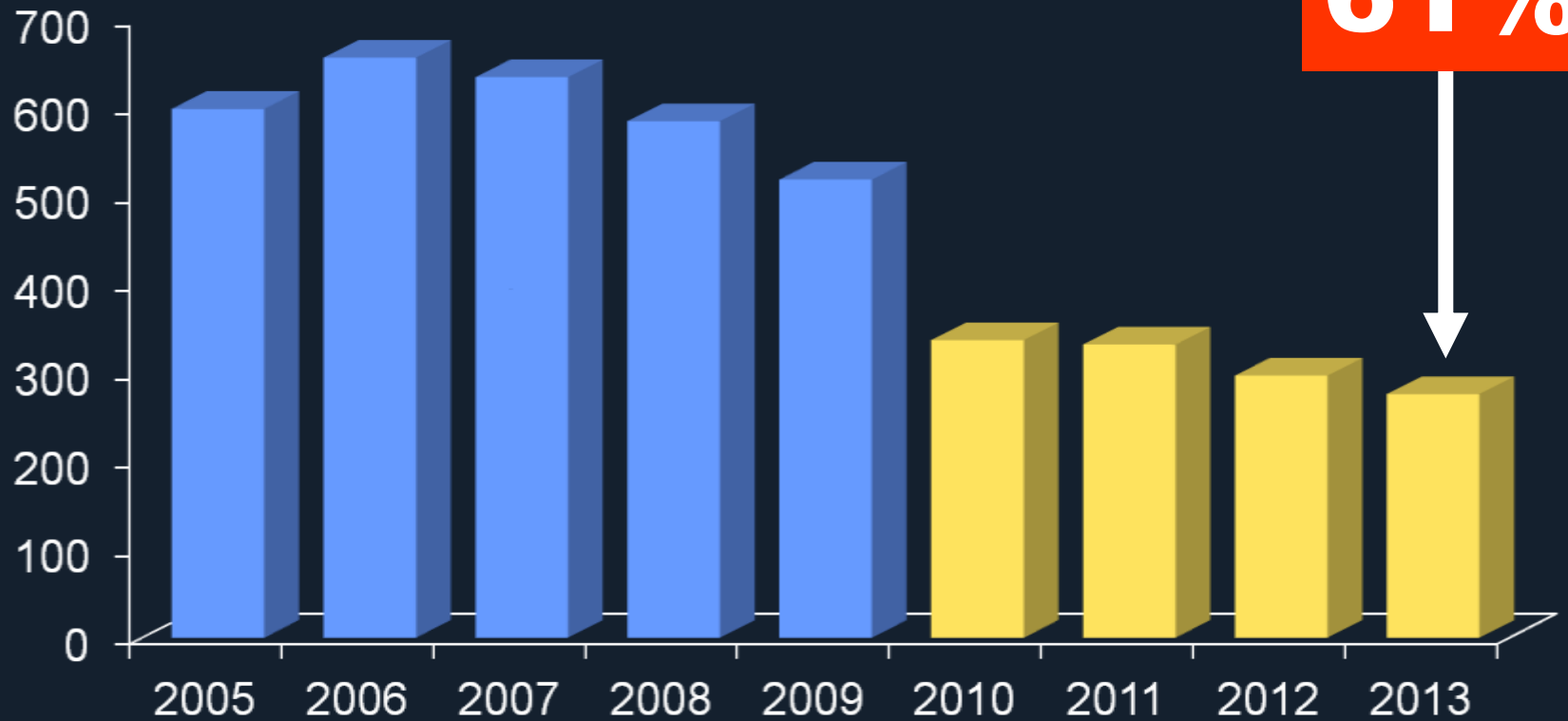
My Thought,

Any FFR >0.80 ,
Just Defer !

Number of Stent Decreased

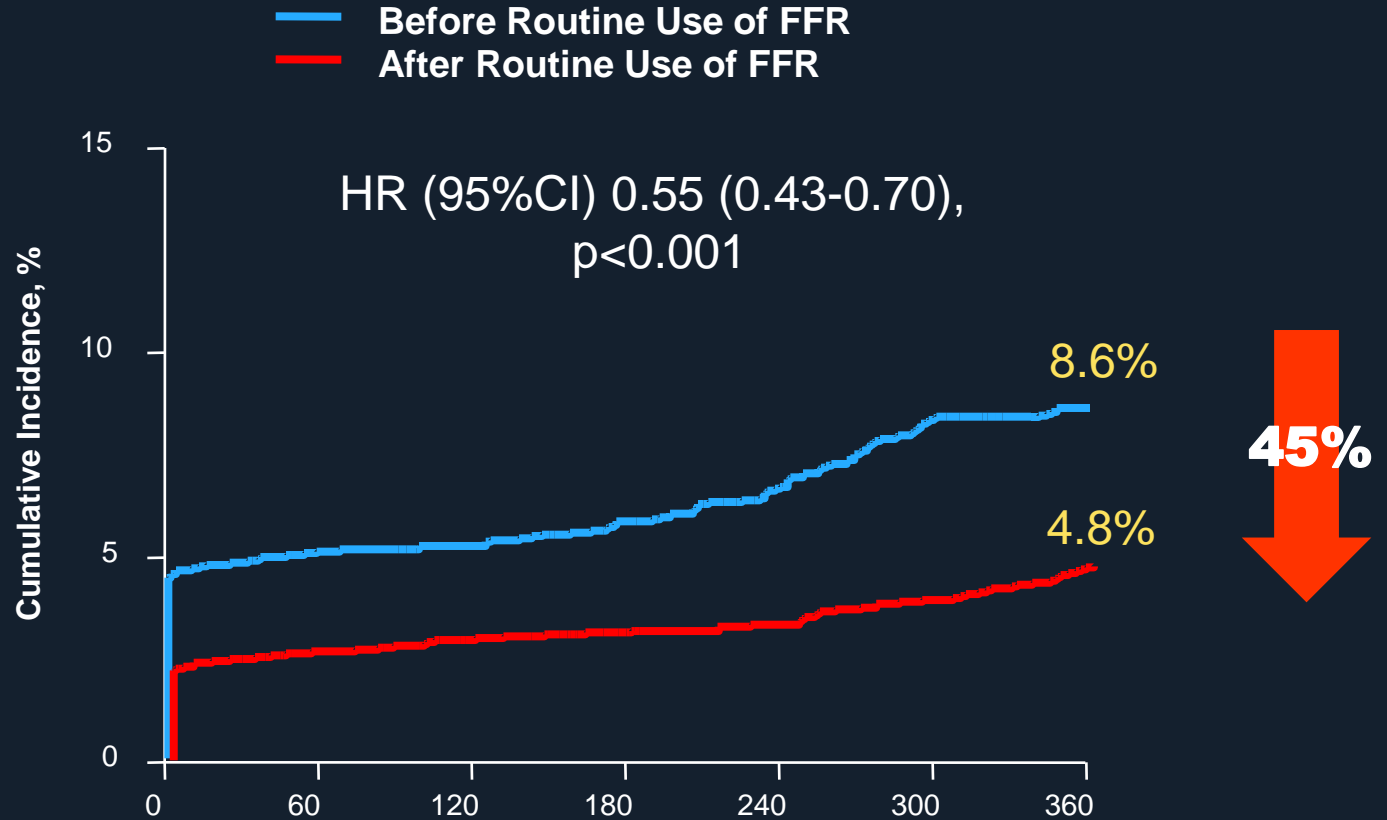


Number of CABG Decreased



Improved Outcome of PCI

Death, MI, or Repeat Revascularization

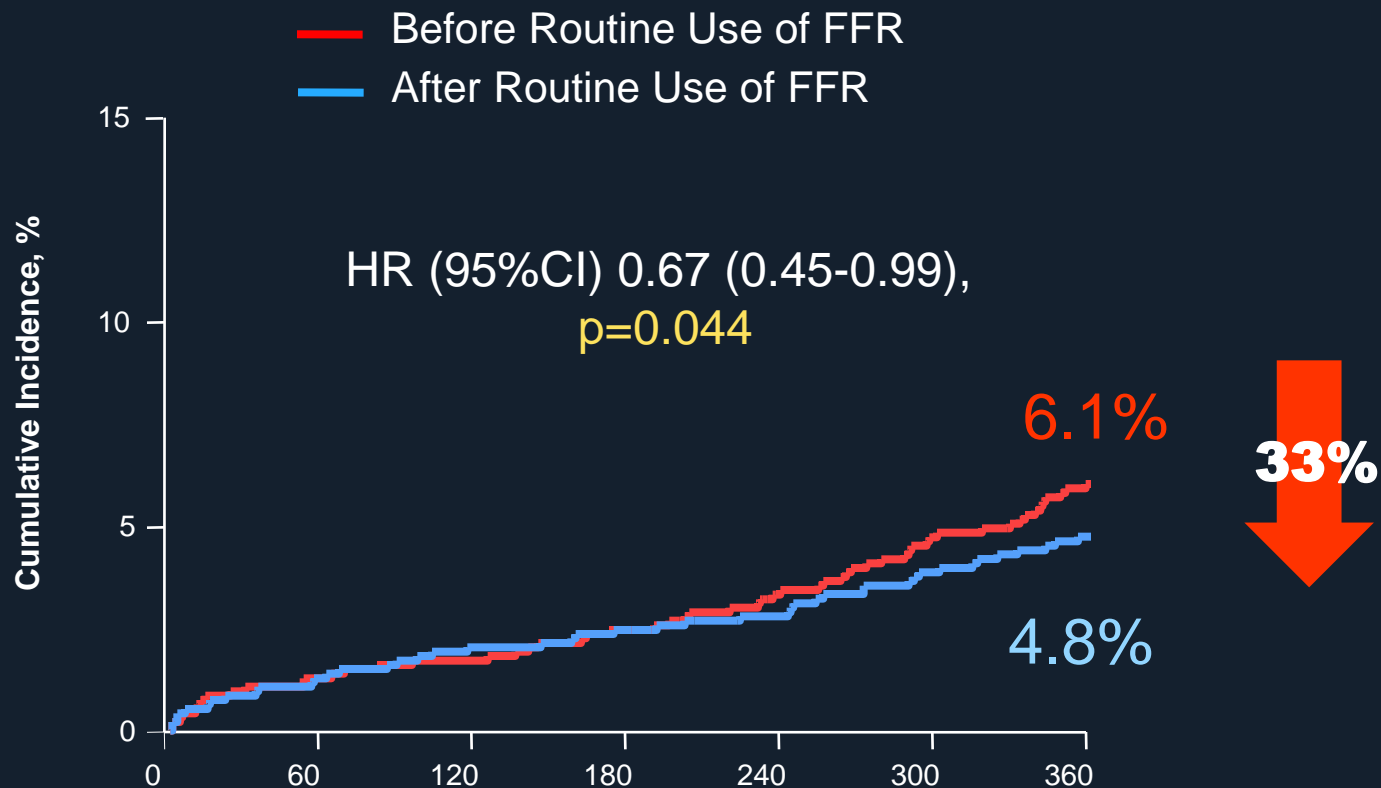


No. at Risk

	0	60	180	360
Before Routine Use	2178	2066	2011	1960
After Routine Use	2178	2092	2067	2037

Propensity Score Matched Population

Improved Outcome of LM and 3-VD Treatment Death, MI, Stroke or Repeat Revascularization



No. at Risk

	0	60	120	180	240	300	360
Before Routine Use	917	901	883	857			
After Routine Use	917	898	886	869			

My Thought,

**Any Defer Is,
*Safe and Good !***