

# LAD deferral is safer with iFR

## Background

### Title

Major Adverse Cardiac Events when an LAD lesion is deferred after physiological assessment by FFR or iFR: A sub-study of DEFINE FLAIR

### Reference

Sen et al. Clinical events after deferral of LAD revascularization following physiological coronary assessment. JACC 2019; 73(4):444-53.

### Methods

Within the DEFINE FLAIR population group (N=2492), LAD deferred patients (based on physiological assessment) were compared between iFR and FFR in this sub study. Outcomes are based on MACE at one year. Outcomes were adjusted for age and gender.

### Population

N= 872 (421 guided by FFR, 451 guided by iFR).

## Results

### LAD lesion deferral

	iFR group (n=451)	FFR group (n=421)	p value
<b>MACE</b> (Cardiovascular death, myocardial infarction, unplanned revascularization)	11 (2.44%)	23 (5.46%)	0.04
<b>All-cause death</b>	4 (0.89%)	5 (1.19%)	0.69
<b>Myocardial infarction</b>	2 (0.44%)	9 (2.14%)	0.06
<b>Unplanned revascularization</b>	10 (2.22%)	21 (4.99%)	0.03

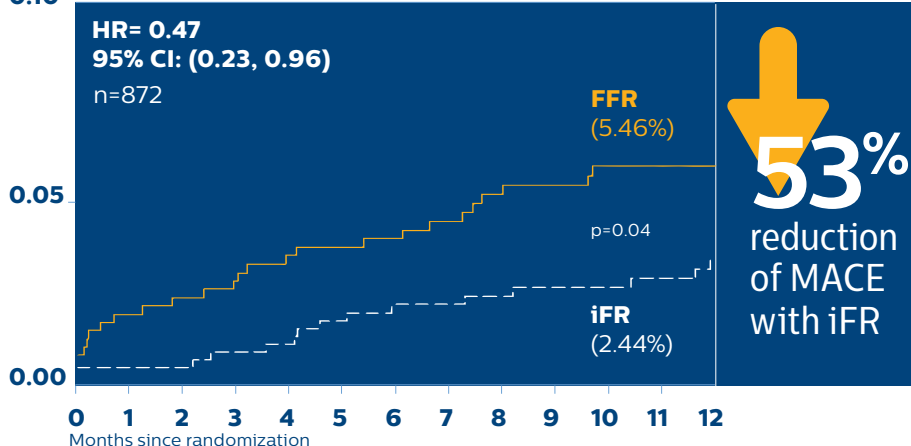
### Non-LAD lesion deferral

	iFR group (n=343)	FFR group (n=327)	p value
<b>MACE</b> (Cardiovascular death, myocardial infarction, unplanned revascularization)	18 (5.25%)	17 (5.20%)	0.63
<b>All-cause death</b>	5 (1.46%)	4 (1.22%)	0.72
<b>Myocardial infarction</b>	5 (1.46%)	6 (1.83%)	0.89
<b>Unplanned revascularization</b>	15 (4.37%)	16 (4.89%)	0.97

**Note:** MI includes target vessel, non-target vessel, and peri-procedural MI. Unplanned revascularization includes TVR and non-TVR.

### Proportion with MACE

0.10



This figure outlines the primary endpoint in patients with left anterior descending stenoses who were deferred according to intracoronary physiology. Adjusted hazard ratio: 0.46; 95% confidence interval: 0.22 to 0.95; p = 0.04.

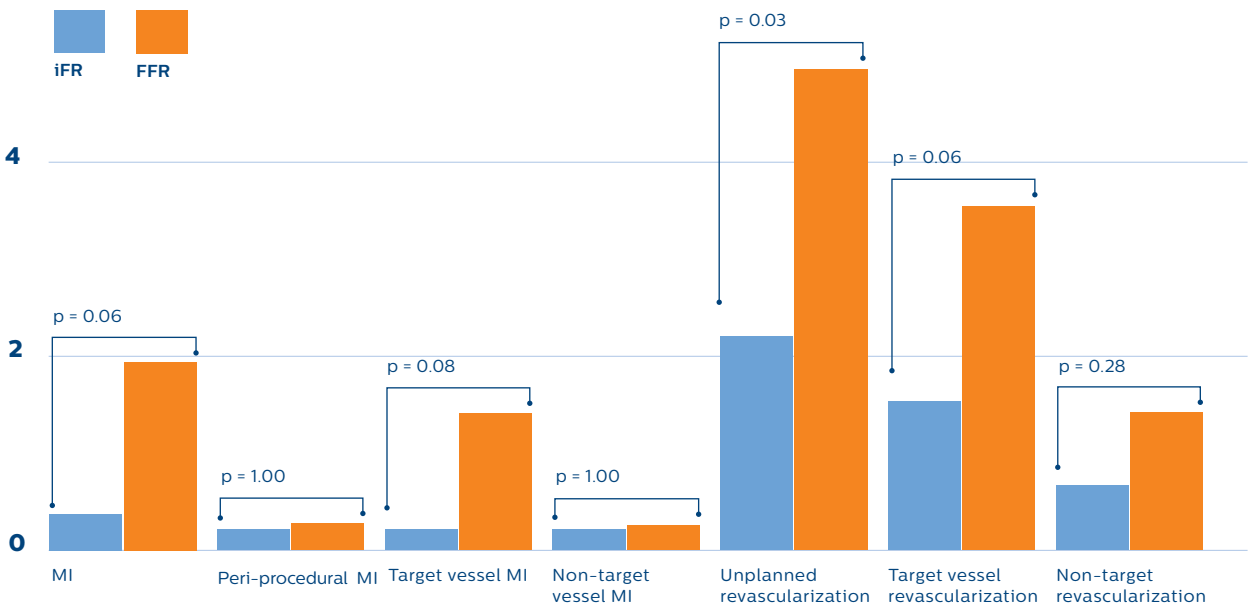
# Unplanned revascularization is 56% lower with iFR

Event rate (%)  
of LAD deferral

6

## Myocardial infarction

## Unplanned revascularization



## Explanation



**iFR and FFR:** FFR focuses on epicardial lesions

**CFR:** CFR examines the epicardial lesions and microvascular function

iFR and CFR agreement has been demonstrated to be significantly closer than that of FFR and CFR.<sup>1</sup> Therefore the proportion of patients in which iFR is normal and CFR abnormal is lower; possibly explaining the lower event rate in the iFR deferred patients.<sup>2</sup>

- CFR is the most powerful predictor of events<sup>3,4,5</sup>
- FFR and CFR discordance can be as high as 40%<sup>6</sup>
- CFR and iFR have a higher concordance<sup>1</sup>

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3. Miller DD, Donohue TJ, Younis LT, et al. Correlation of pharmacological 99mTc-sestamibi myocardial perfusion imaging with poststenotic coronary flow reserve in patients with angiographically intermediate coronary artery stenoses. *Circulation* 1994;89:2150–2160.
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