

# **BETA BLOCKERS FOR ALL PATIENTS AFTER ST-ELEVATION MYOCARDIAL INFARCTION**

## **PROPONENT'S VIEW**

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**2013 ACCF/AHA Guideline for the Management of ST-Elevation Myocardial Infarction:  
Executive Summary : A Report of the American College of Cardiology  
Foundation/American Heart Association Task Force on Practice Guidelines**

**7. Routine Medical Therapies:  
Recommendations**

**7.1. Beta Blockers**

**Class I**

1. Oral beta blockers should be initiated in the first 24 hours in patients with STEMI who do not have any of the following: signs of HF, evidence of a low-output state, increased risk for cardiogenic shock,<sup>l</sup> or other contraindications to use of oral beta blockers (PR interval more than 0.24 seconds, second- or third-degree heart block, active asthma, or reactive airways disease).<sup>169-171</sup> (*Level of Evidence: B*)
2. Beta blockers should be continued during and after hospitalization for all patients with STEMI and with no contraindications to their use.<sup>172,173</sup> (*Level of Evidence: B*)
3. Patients with initial contraindications to the use of beta blockers in the first 24 hours after STEMI should be reevaluated to determine their subsequent eligibility. (*Level of Evidence: C*)

**Class IIa**

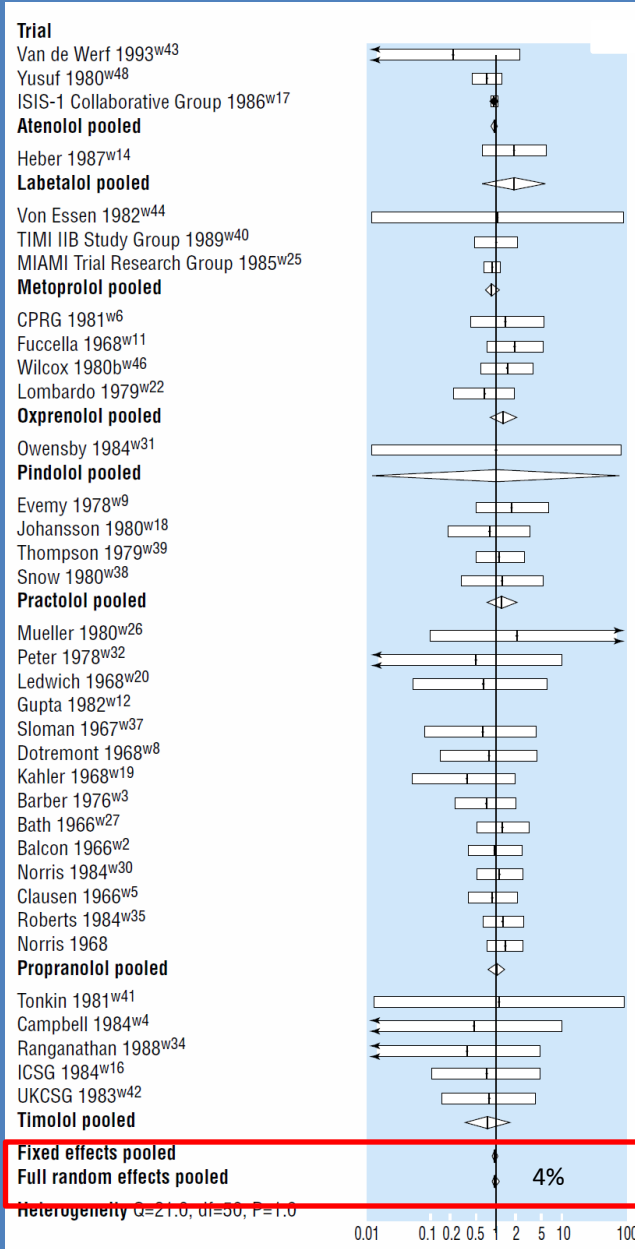
1. It is reasonable to administer intravenous beta blockers at the time of presentation to patients with STEMI and no contraindications to their use who are hypertensive or have ongoing ischemia.<sup>169-171</sup> (*Level of Evidence: B*)

# THE JOINT COMMISSION : AMI MEASURE SET

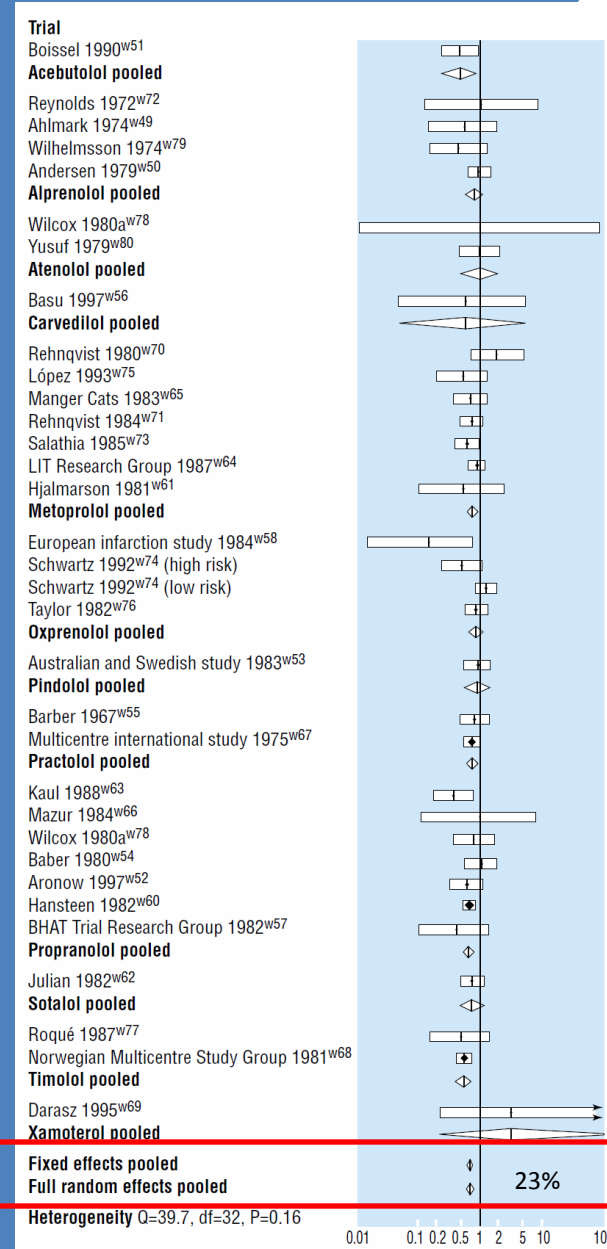
<b>Set Measure ID #</b>	<b>Measure Short Name</b>
<b>AMI-1</b>	Aspirin at Arrival
<b>AMI-2</b>	Aspirin Prescribed at Discharge
<b>AMI-3</b>	ACEI or ARB for LVSD
<b>AMI-4</b>	Adult Smoking Cessation Advice/Counseling*
<b>AMI-5</b>	Beta-Blocker Prescribed at Discharge
<b>AMI-7</b>	Median Time to Fibrinolysis
<b>AMI-7a</b>	Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival
<b>AMI-8</b>	Median Time to Primary PCI
<b>AMI-8a</b>	Primary PCI Received Within 90 Minutes of Hospital Arrival
<b>AMI-9</b>	Inpatient Mortality (retired effective 12/31/2010)
<b>AMI-10</b>	Statin Prescribed at Discharge <sup>®</sup>

# Beta Blockade After Myocardial Infarction : All Cause Mortality and Reinfarction

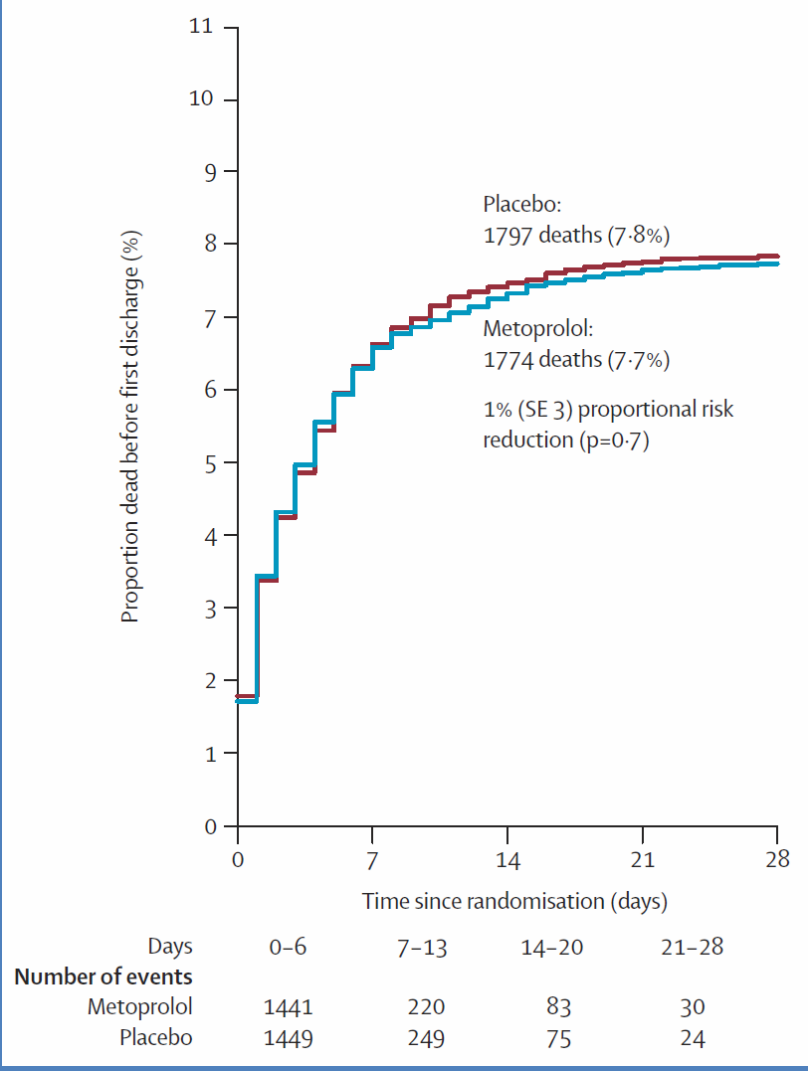
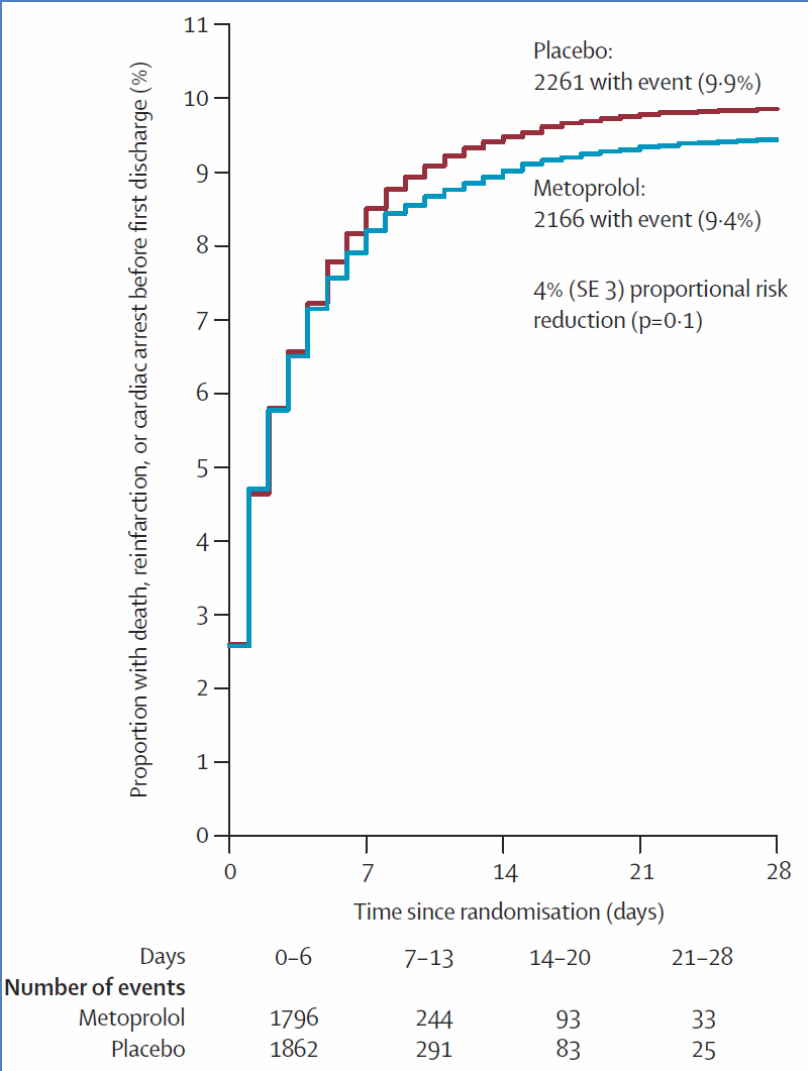
Short Term Trials



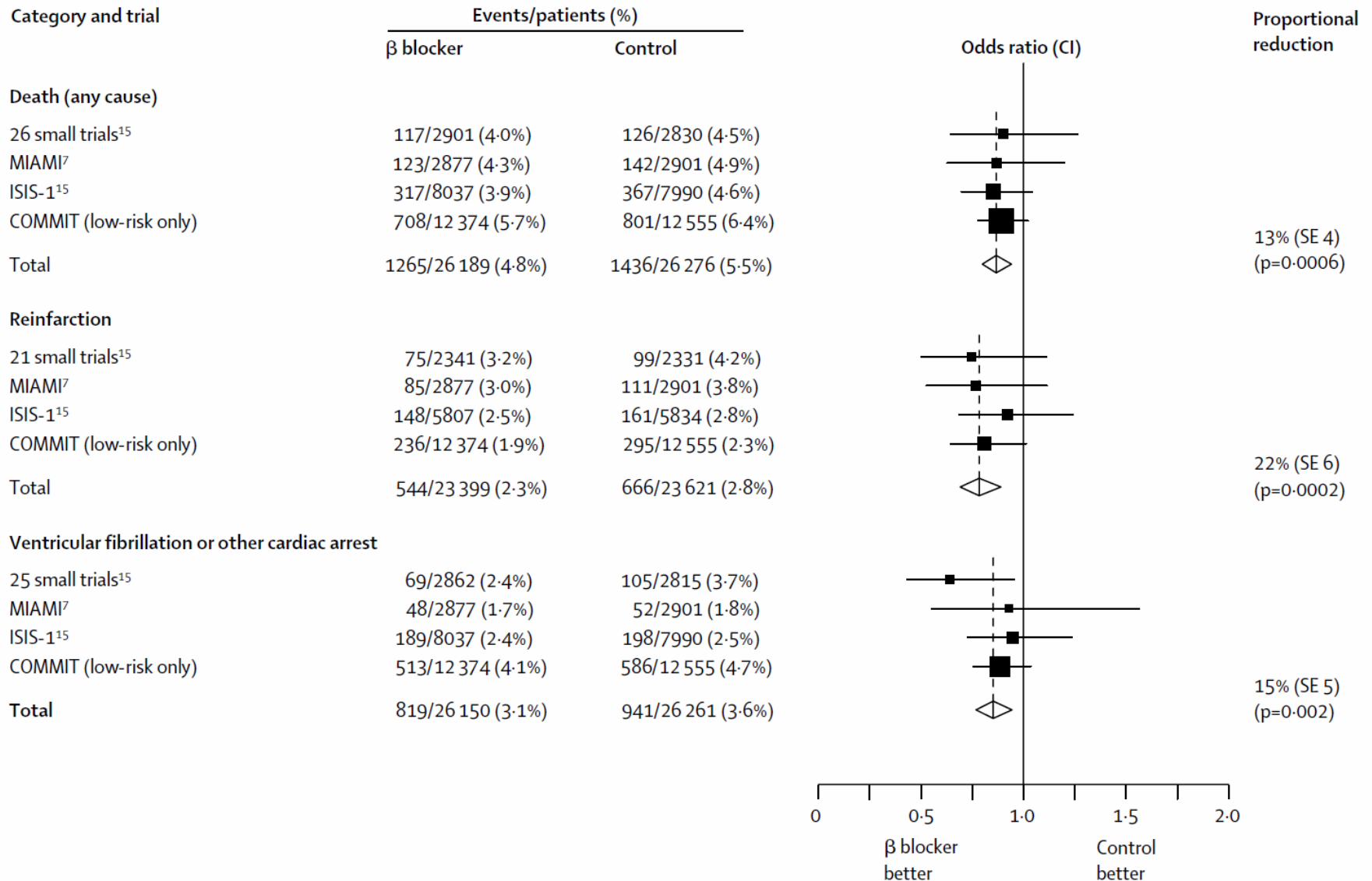
Long Term Trials



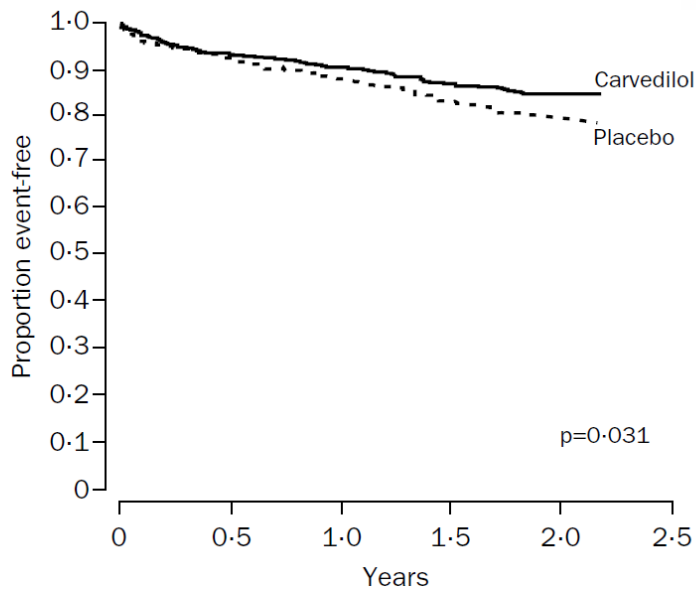
# COMMIT Trial: Intravenous then Oral Metoprolol in Patients with AMI



# Meta Analysis of Effects of Beta Blockers in Acute Myocardial Infarction



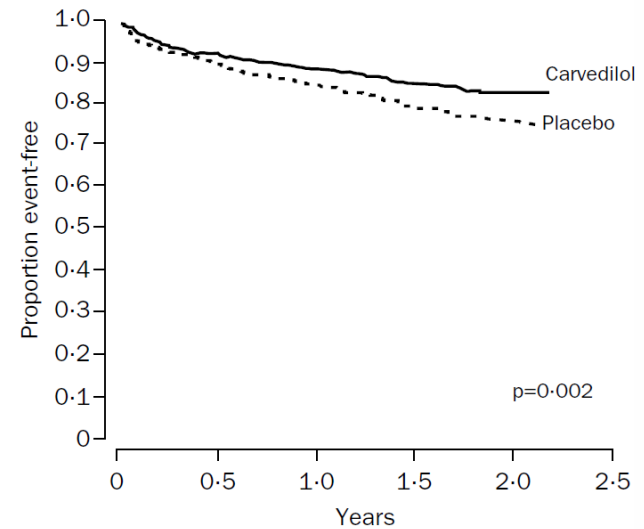
# CAPRICORN Trial: Effect of Carvedilol on Outcome After Myocardial Infarction in Patients with Left-Ventricular Dysfunction (LVEF < 40%)



#### Numbers at risk

Carvedilol	975	856	648	364	117	16
Placebo	984	861	638	358	123	8

#### Kaplan-Meier estimates of all-cause mortality

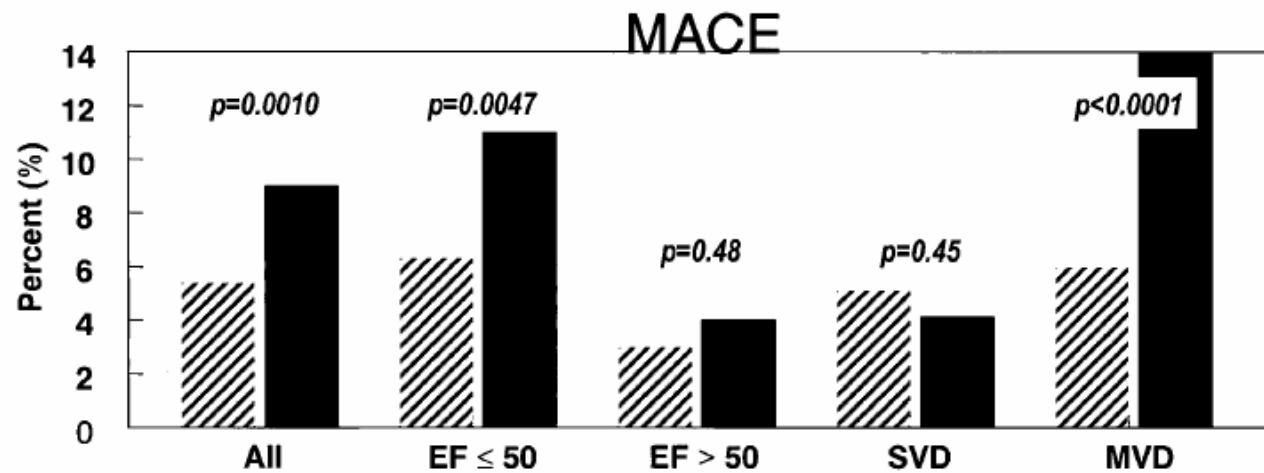
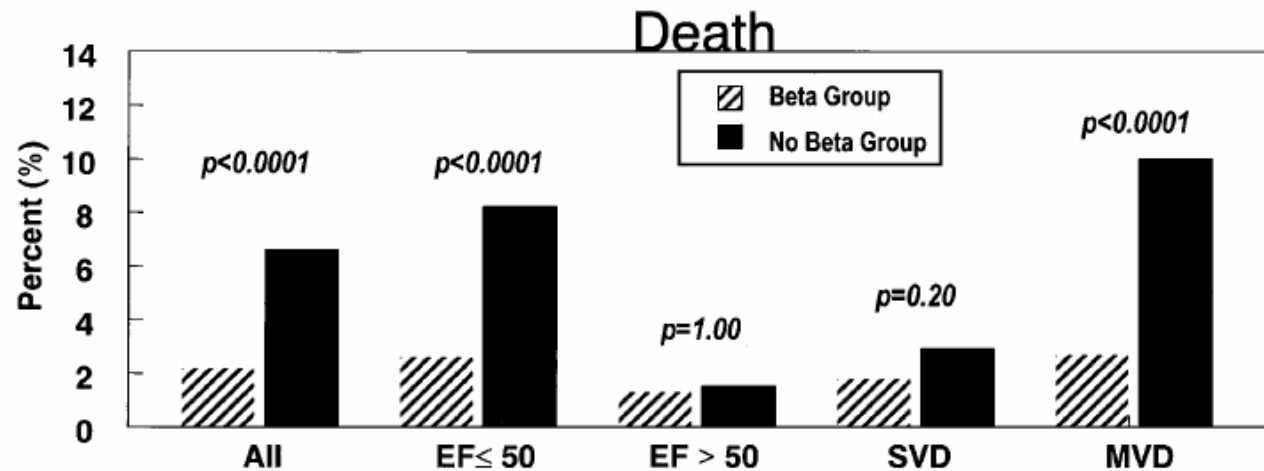


#### Numbers at risk

Carvedilol	975	842	634	355	108	15
Placebo	984	834	615	338	112	8

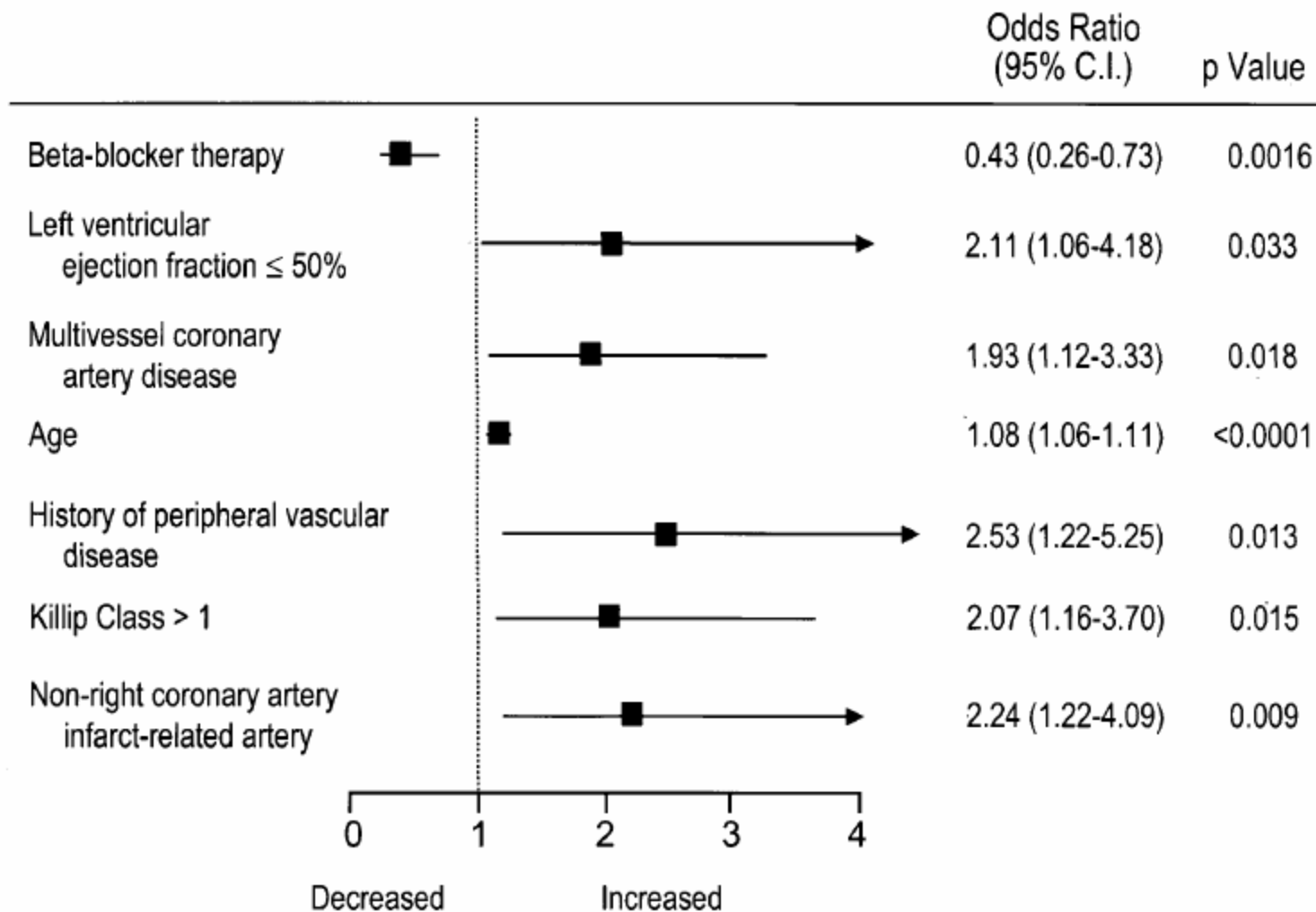
#### Kaplan-Meier estimates of all-cause mortality or non-fatal myocardial infarction

# PAMI Trials: Beta Blockers After Successful Angioplasty (N=2441, 6 Months Follow-up)

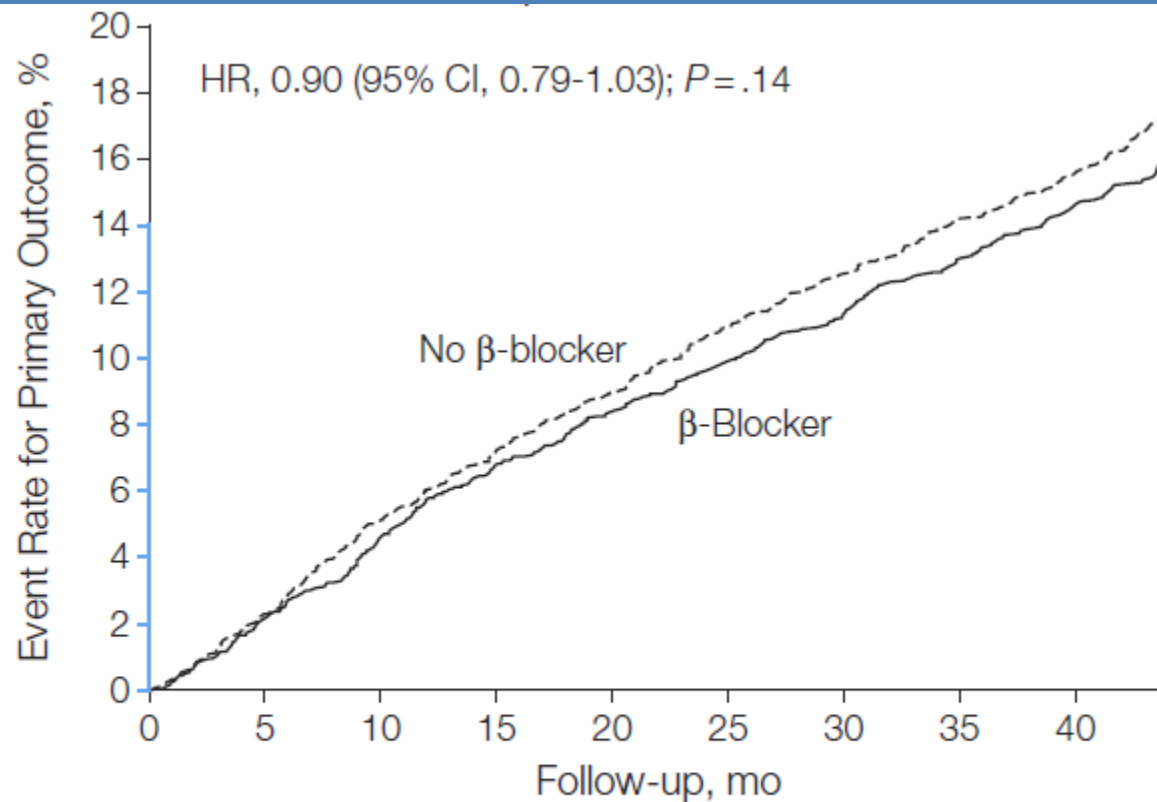




# PAMI Trials: Beta Blockers After Successful Angioplasty (N=2441, 6 Months Follow-up)

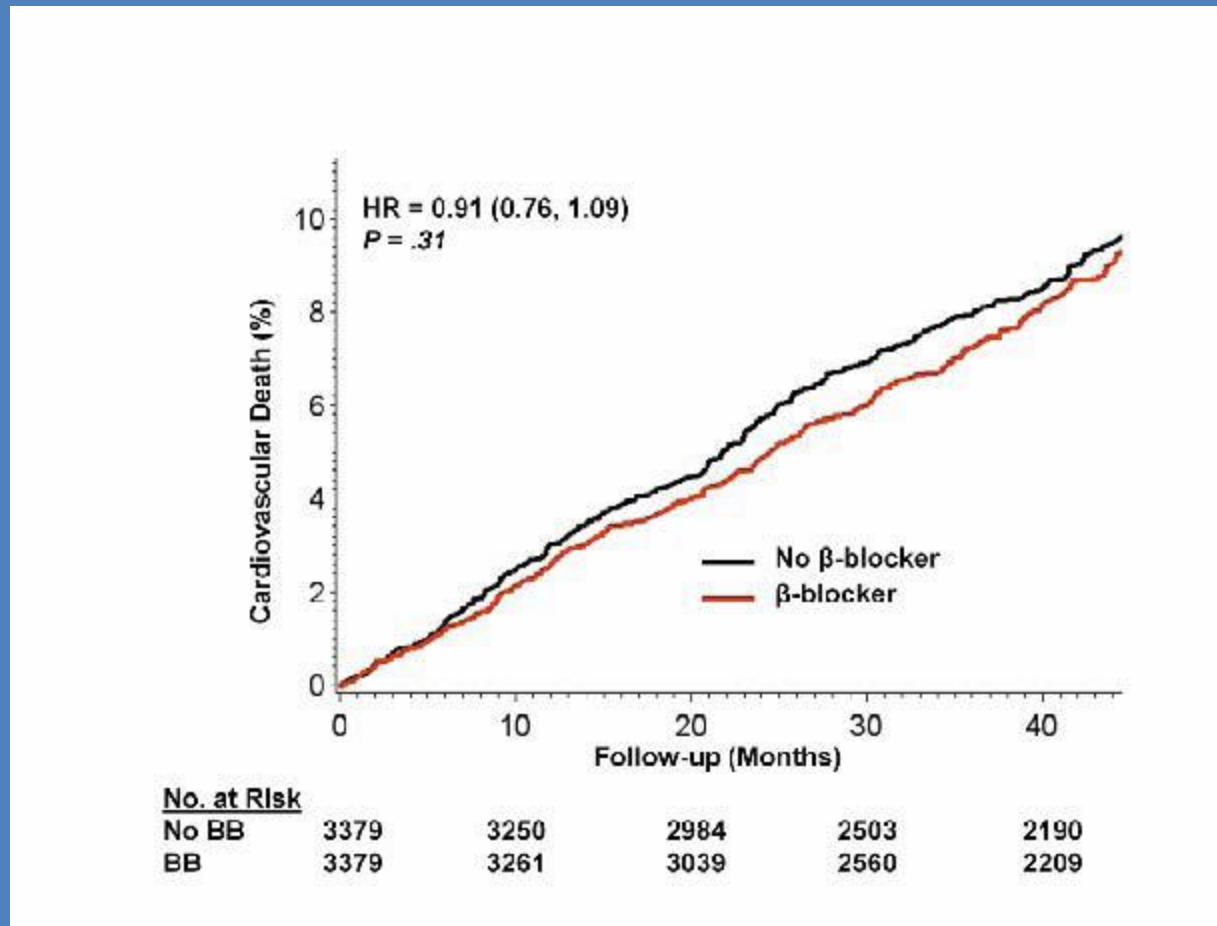


# REACH Registry: Beta Blocker Use and Clinical Outcomes In Stable Outpatients with Prior Myocardial Infarction (Cardiovascular Death, Nonfatal MI and Nonfatal Stroke)

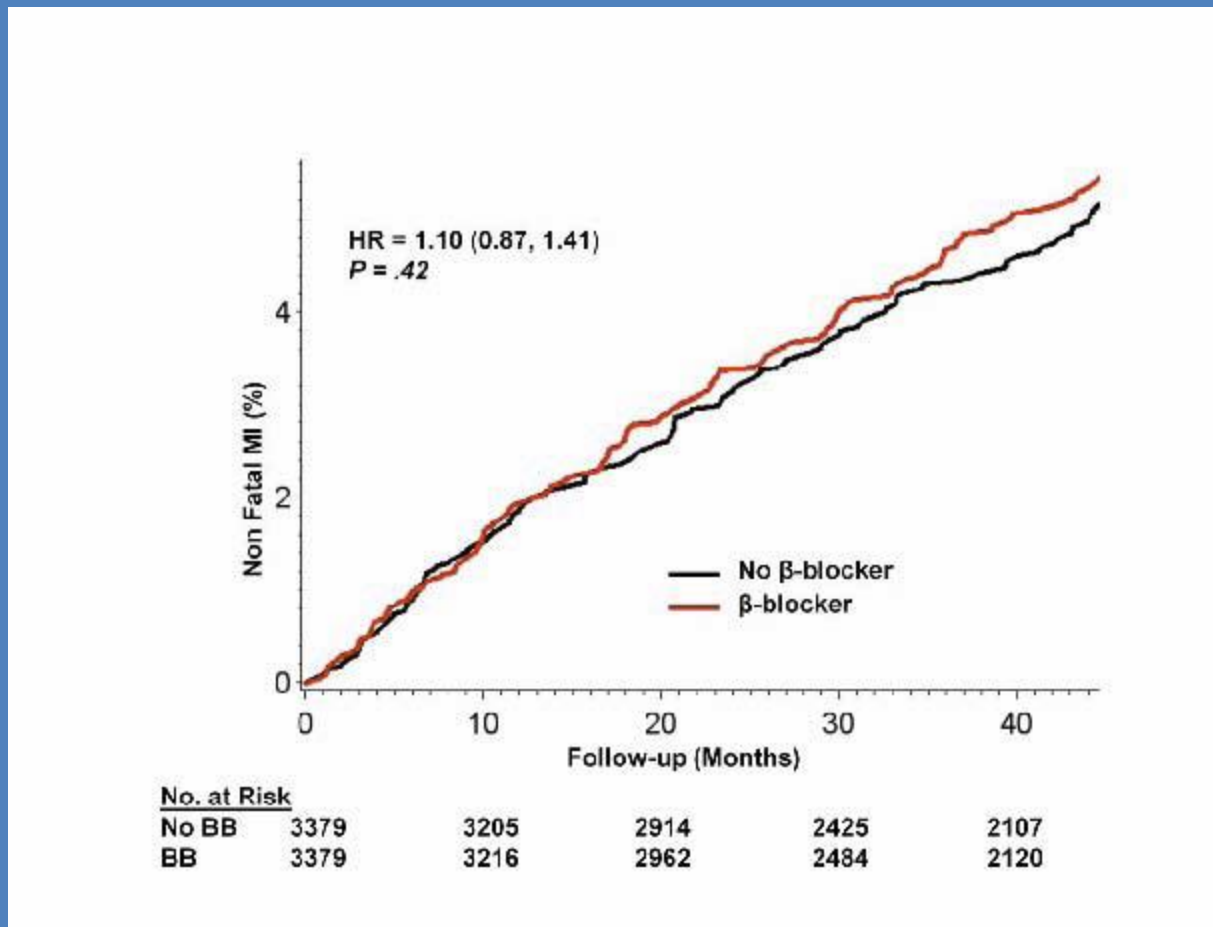


No. at risk					
No $\beta$ -blocker	3379	3165	2850	2357	2029
$\beta$ -Blocker	3379	3178	2899	2424	2061

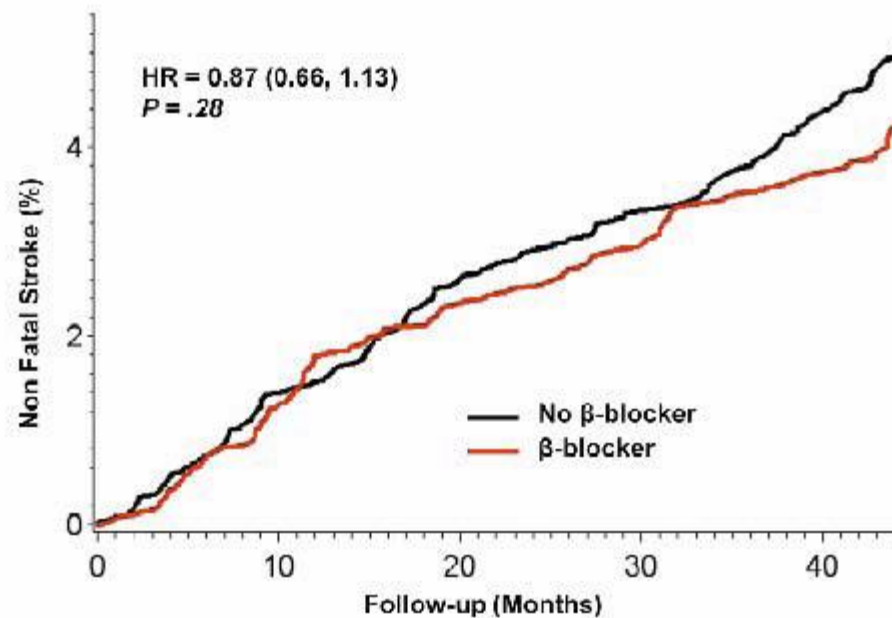
# REACH Registry: Beta Blocker Use and Clinical Outcomes In Stable Outpatients with Prior Myocardial Infarction



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# REACH Registry: Beta Blocker Use and Clinical Outcomes In Stable Outpatients with Prior Myocardial Infarction



<u>No. at Risk</u>						
No BB	3379	3208	2915	2430	2105	
BB	3379	3221	2971	2493	2140	

## REACH Registry: Beta Blocker Use and Clinical Outcomes In Stable Outpatients with Prior Myocardial Infarction

Primary Outcome	HR 0.90 (0.79-1.03)
Secondary Outcome	HR 0.91 (0.82-1.00)
Death	HR 0.93 (0.80-1.08)
Cardiovascular Death	HR 0.91 (0.76-1.09)
Nonfatal MI	HR 1.10 (0.87-1.41)
Nonfatal Stroke	HR 0.87 (0.66-1.13)
Hospitalization	HR 0.94 (0.84-1.05)

### **Cohort with Recent MI (<1 year) :**

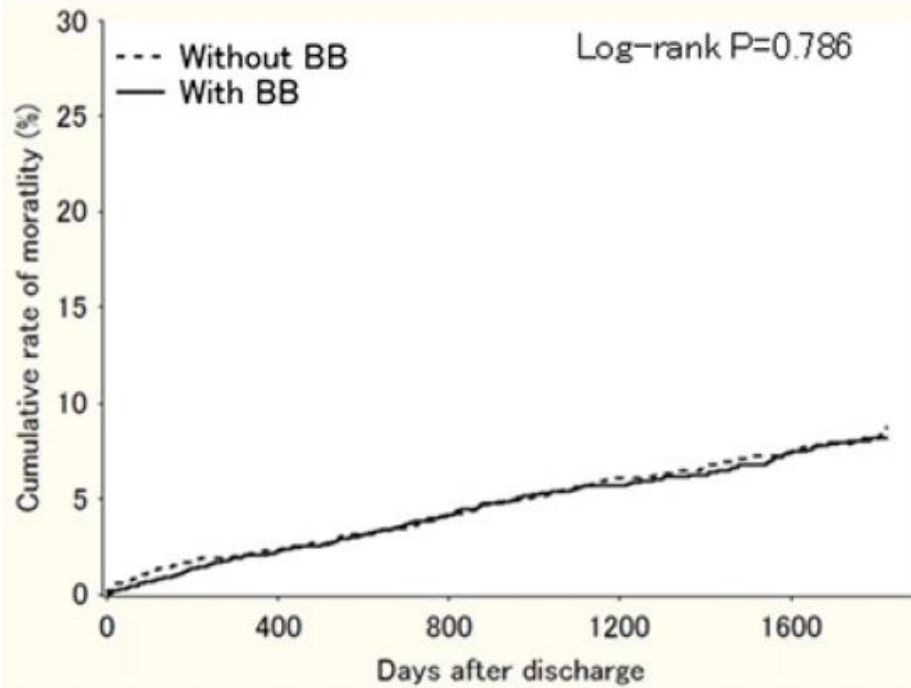
Primary Outcomes	HR 0.79 (0.60-1.04)
Secondary Outcomes	OR 0.77 (0.64-0.92)
Hospitalizations	OR 0.77 (0.62-0.95)

### **Cohort with Heart Failure:**

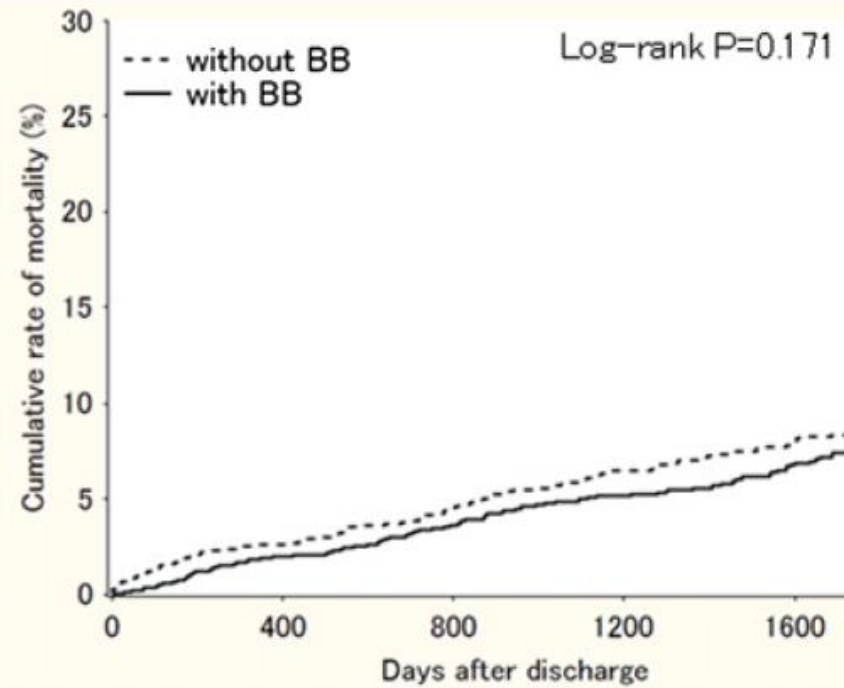
Primary Outcome	HR 0.89 (0.79-1.01)
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# OACIS Study: Impact of Beta Blockade on Long-Term Mortality After STEMI

Before propensity score matching



After propensity score matching

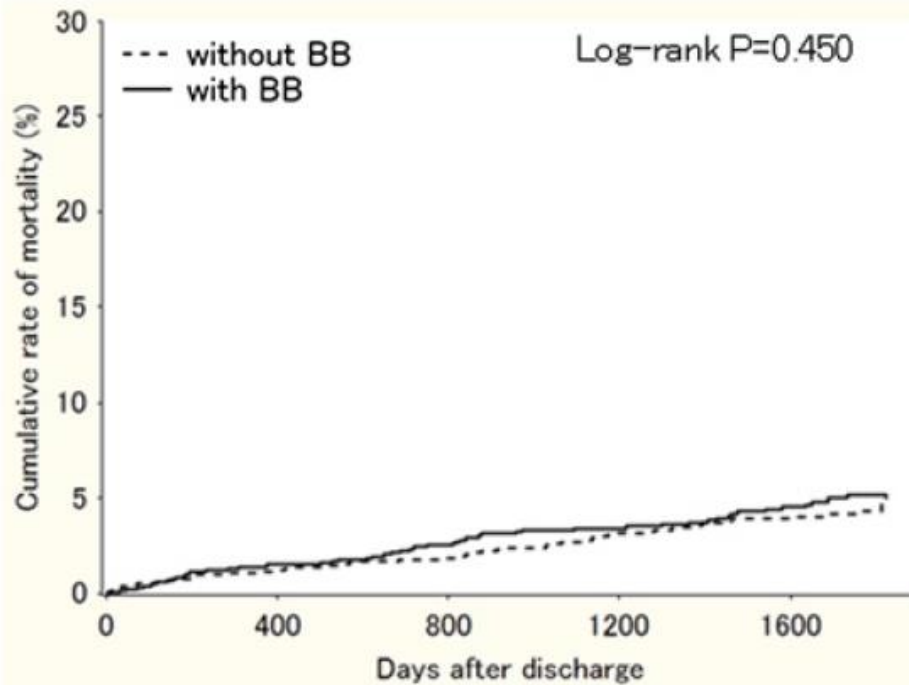


BB(-)	2748	2196	1941	1712	1387
BB(+)	2880	2083	1702	1370	1018

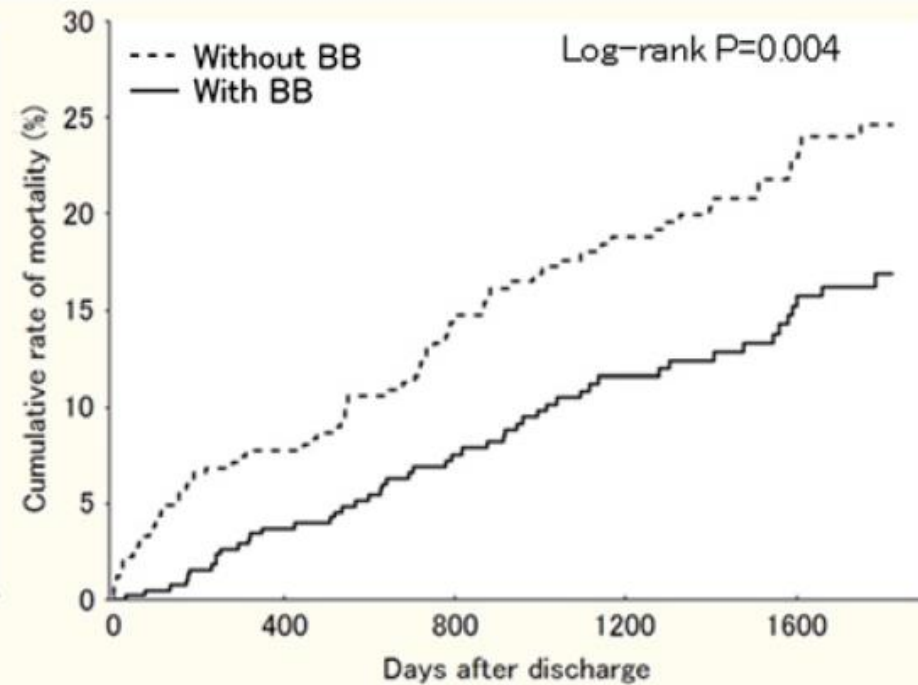
BB(-)	1923	1472	1276	1113	869
BB(+)	1923	1590	1406	1207	945

# OACIS Study: Impact of Beta Blockade on Long-Term Mortality After STEMI

Patients with GRACE risk score <121



Patients with GRACE risk score ≥121



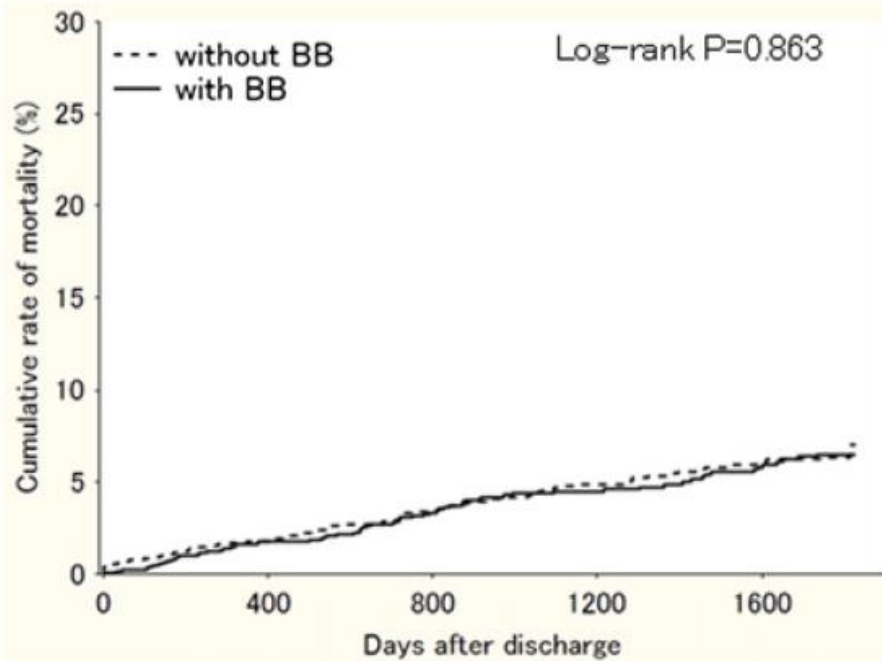
BB(-)	1455	1180	1034	907	731
BB(+)	1473	1249	1118	976	772

BB(-)	468	292	242	206	138
BB(+)	450	341	288	231	173

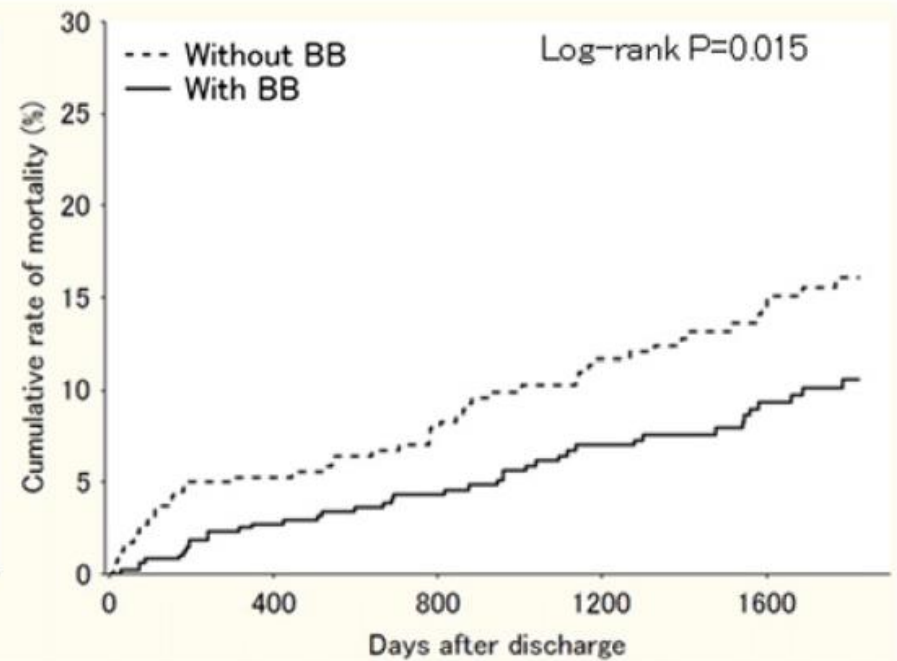


# OACIS Study: Impact of Beta Blockade on Long-Term Mortality After STEMI

Patients without diuretics



Patients with diuretics



BB(-) 1440  
BB(+) 1394

1140  
1151

992  
1029

865  
884

692  
693

BB(-) 483  
BB(+) 529

332  
439

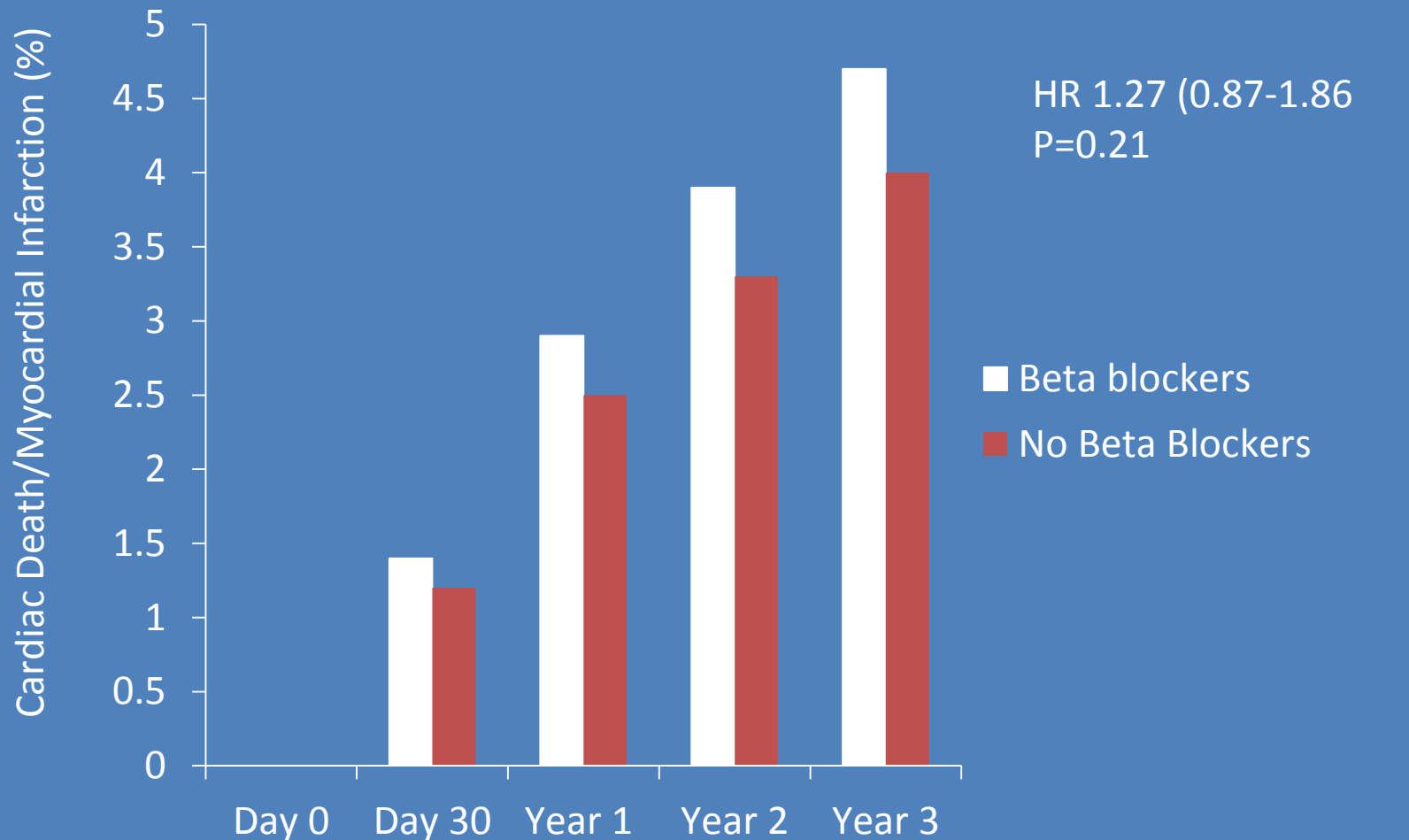
284  
377

248  
323

177  
252

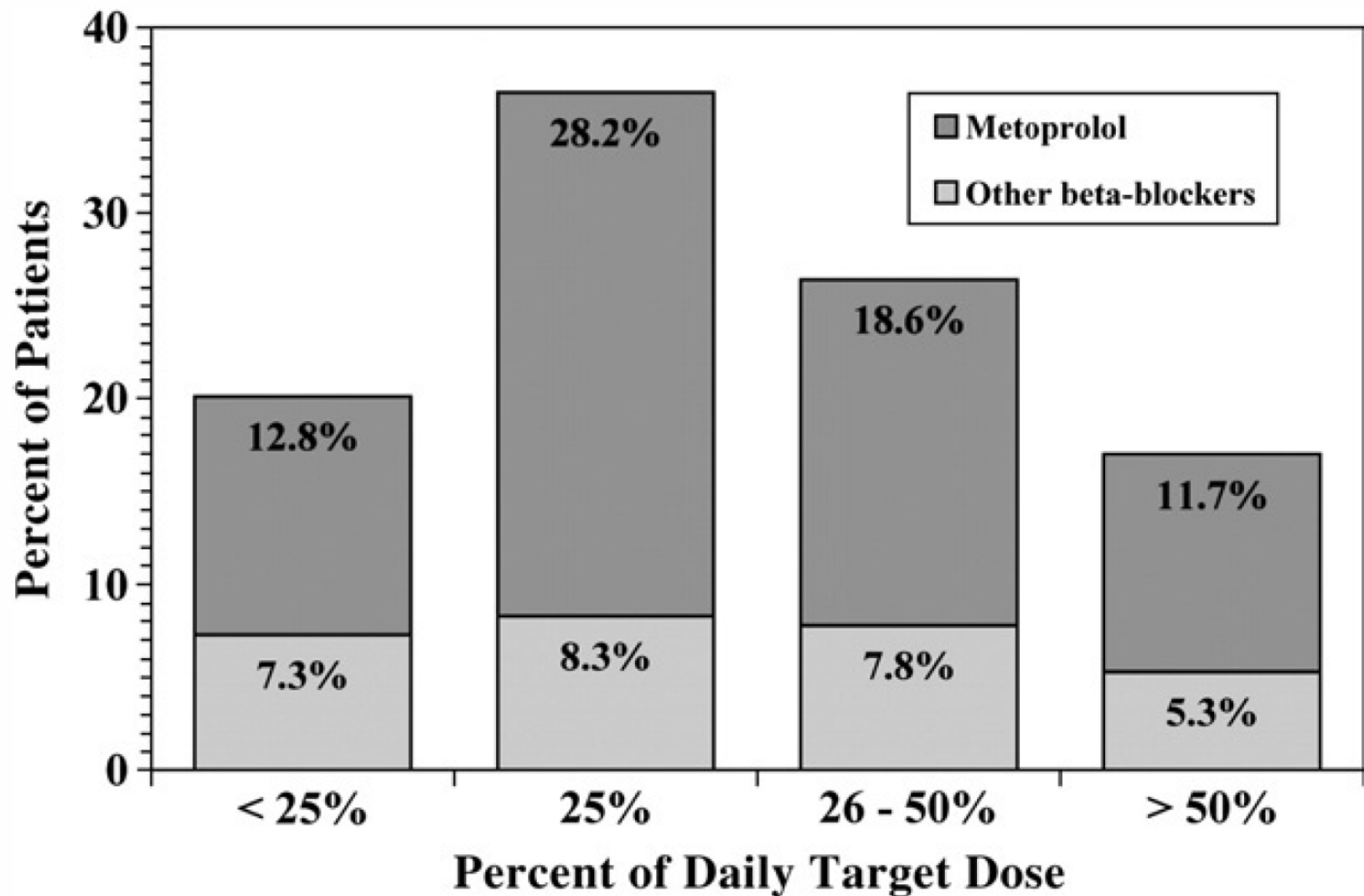
# Cardiovascular Outcomes After PCI for STEMI With Preserved LVEF

## Adjusted, N= 2494 from CREDO Kyoto Registry



# Beta-Blocker Use Following Myocardial Infarction

## Low Prevalence of Evidence Based Dosing



# THE ROUTINE USE OF BETA BLOCKERS IN STEMI PATIENTS

Data in **primary PCI era of STEMI treatment** suggest:

1. High risk patients (low EF, MVD, high risk index, use of diuretics) benefit from use of beta blockers (data from randomized study, registries)
2. Low risk patients: ? benefit, no harm (data from registries), but benefit early after MI (1 year) (data from 1 registry)  
Difficulty : assessment of LVEF vs congestion vs acuity index vs MVD?

**In conclusion:** we should use beta blockers routinely in patients with STEMI without contraindications. Randomized trial would be helpful, but unlikely.

A performance measure ? No



**JUST DO IT.**

(CAVEAT CONTRAINDICATIONS)

**Thank you !**

# Cardiovascular Outcomes After PCI for All STEMI Patients Adjusted, N= 3692 from CREDO Kyoto Registry

