

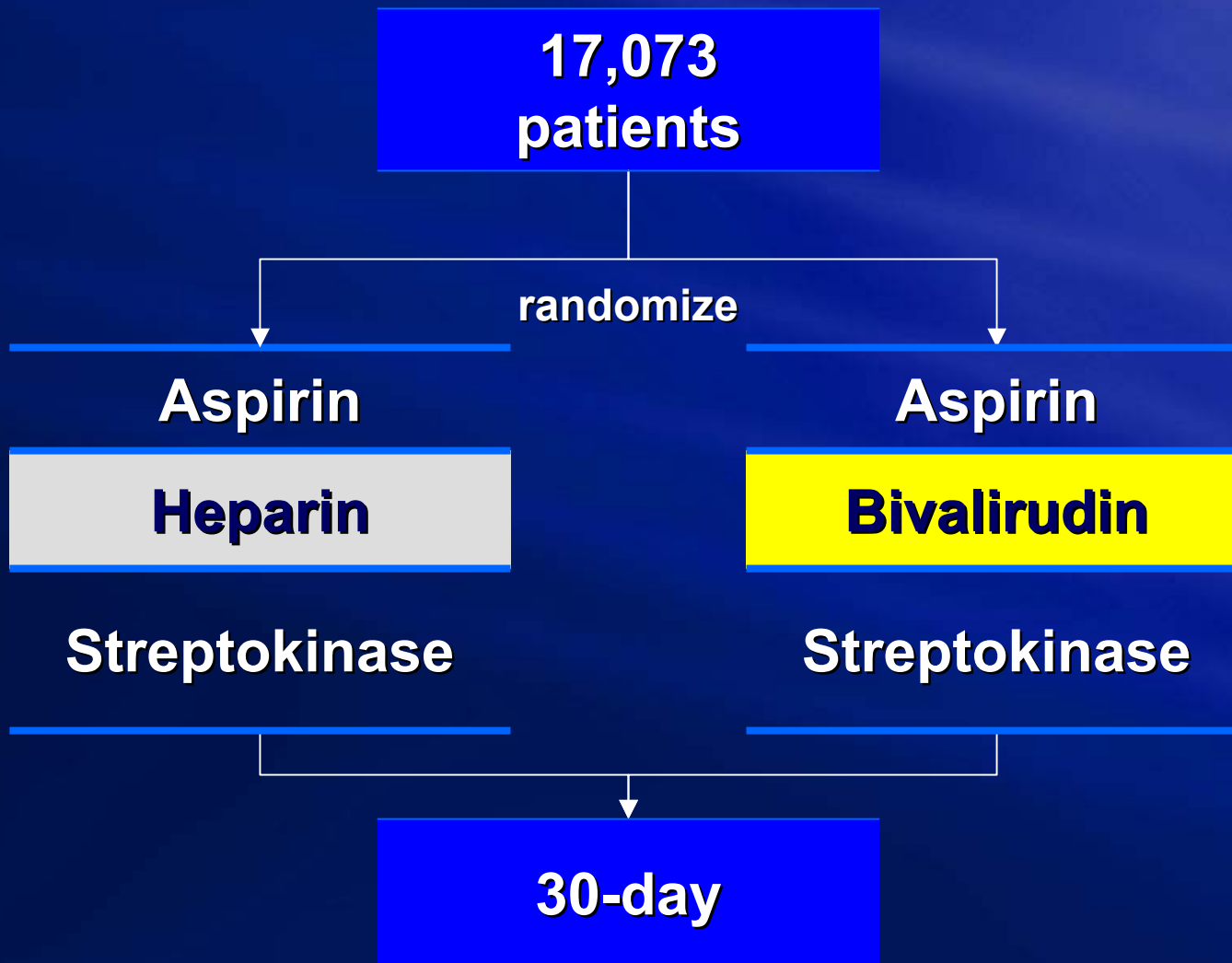


# ***The HERO-2 Trial - Results***

***Hirulog Early Reperfusion Occlusion***

***Thrombin-specific anticoagulation  
in acute myocardial infarction***

# Trial Design



# Treatment



## Heparin

- Bolus  
5000 units i.v.
- Infusion  
800-1000U/h      48-hr
- aPTT target (12, 24-hr)  
50 – 75 sec

## Bivalirudin

0.25 mg/kg i.v.

0.5 mg/kg/h      12-hr  
0.25 mg/kg/h      36-hr

- No reduction at 12-hrs unless bleeding or aPTT >150 sec

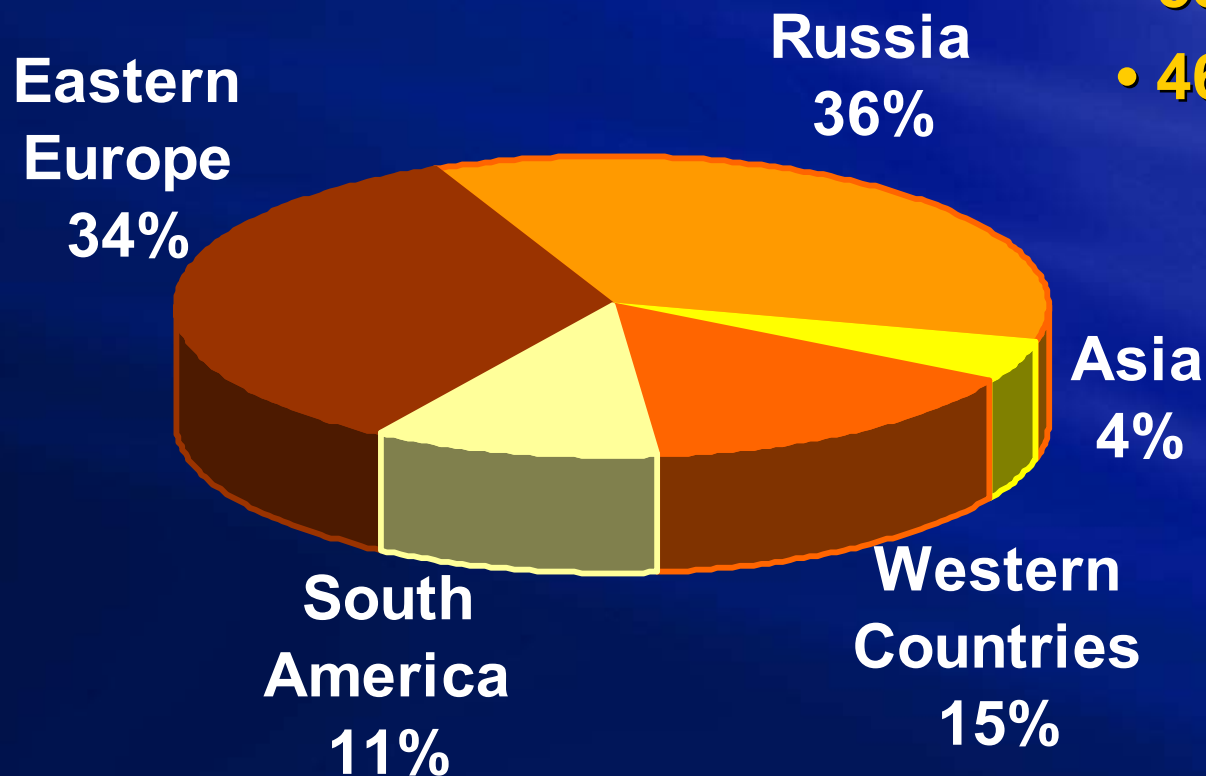
# Patient Enrolment



**17,073 patients**

**• 539 centers**

**• 46 countries**



# Baseline Characteristics



	<b>Bivalirudin</b> <i>n</i> = 8516	<b>Heparin</b> <i>n</i> = 8557
<b>Age &lt; 55</b>	<b>33%</b>	<b>33%</b>
<b>55 – 64</b>	<b>26%</b>	<b>26%</b>
<b>65 – 74</b>	<b>28%</b>	<b>28%</b>
<b>75 +</b>	<b>13%</b>	<b>12%</b>
<b>Female *</b>	<b>29%</b>	<b>27%</b>
<b>Hours from symptom onset</b>		
<b>0 – 2</b>	<b>21%</b>	<b>21%</b>
<b>2 – 4</b>	<b>49%</b>	<b>51%</b>
<b>&gt; 4</b>	<b>29%</b>	<b>28%</b>

**\* Treatment imbalance:  $p=0.003$**

# Mortality results



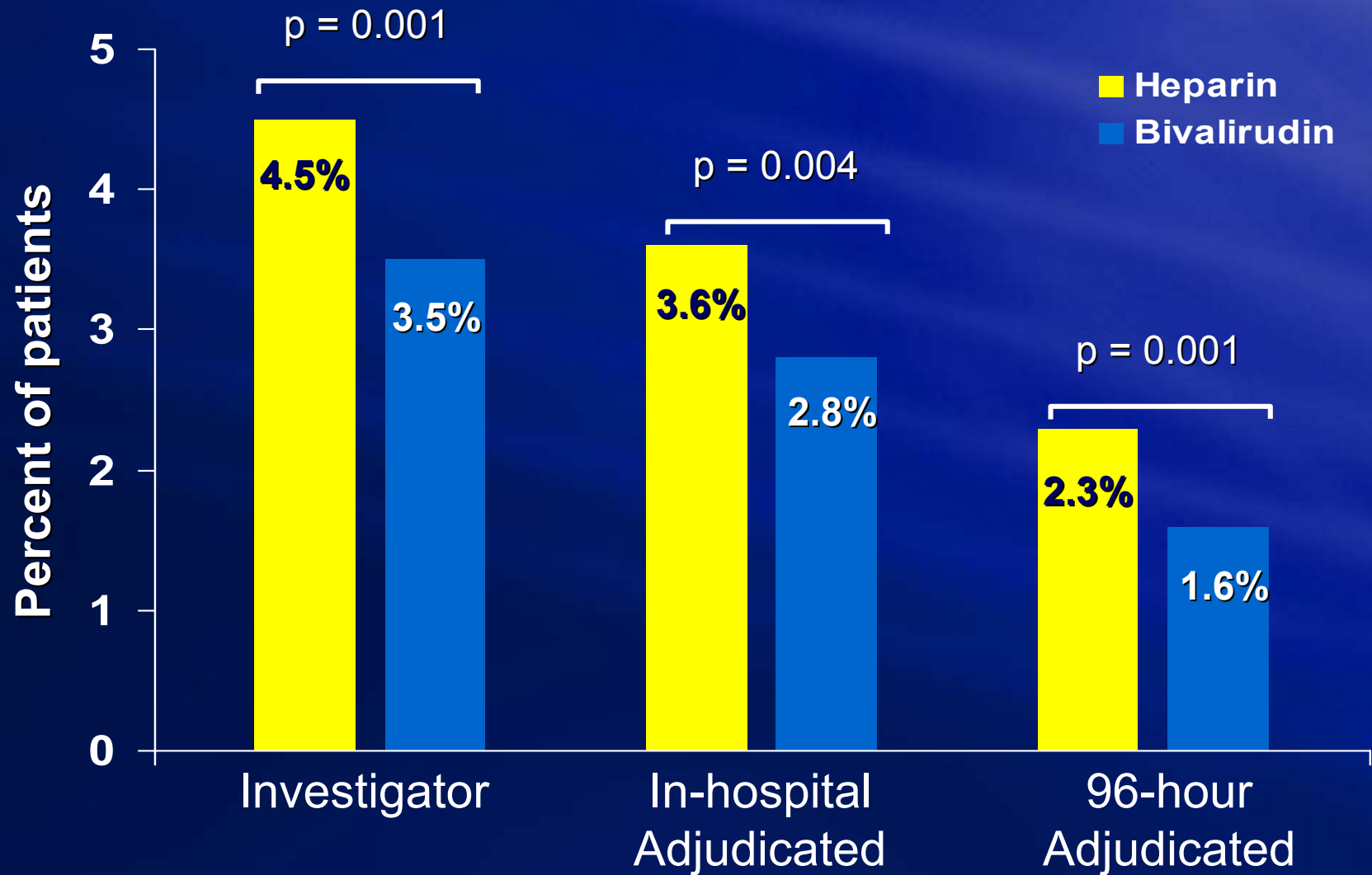
	<b>Bivalirudin</b> (n = 8516)	<b>Heparin</b> (n = 8557)	Odds ratio	P-value
<b>30-days</b>	<b>10.8%</b>	<b>10.9%</b>	<b>0.99</b>	<b>0.876</b>
<b>(West)</b>	<b>6.6%</b>	<b>6.7%</b>	<b>0.99</b>	<b>0.924</b>
<b>30-days (adjusted)</b>	<b>10.5%</b>	<b>10.9%</b>	<b>0.96</b>	<b>0.443</b>

# 30-Day Death/MI

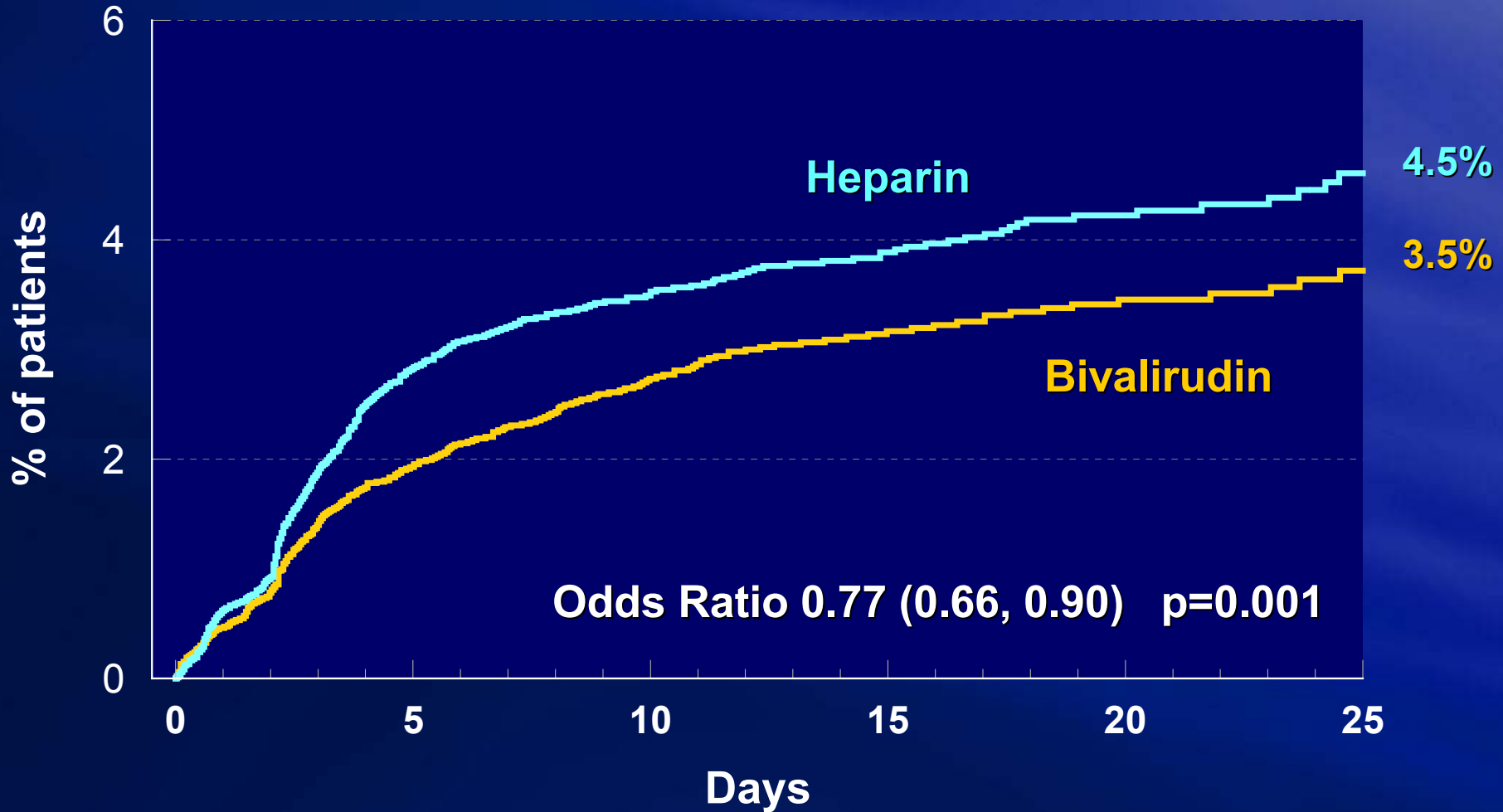


	<b>Bivalirudin</b> (n = 8516)	<b>Heparin</b> (n = 8557)	Odds ratio	P-value
<b>Investigator</b>	<b>12.9%</b>	<b>14.2%</b>	<b>0.90</b>	<b>0.023</b>
<b>Adjudicated</b>	<b>12.6%</b>	<b>13.6%</b>	<b>0.92</b>	<b>0.067</b>

# Reinfarction at 30-Days



# In-hospital ReMI



# Stroke Results



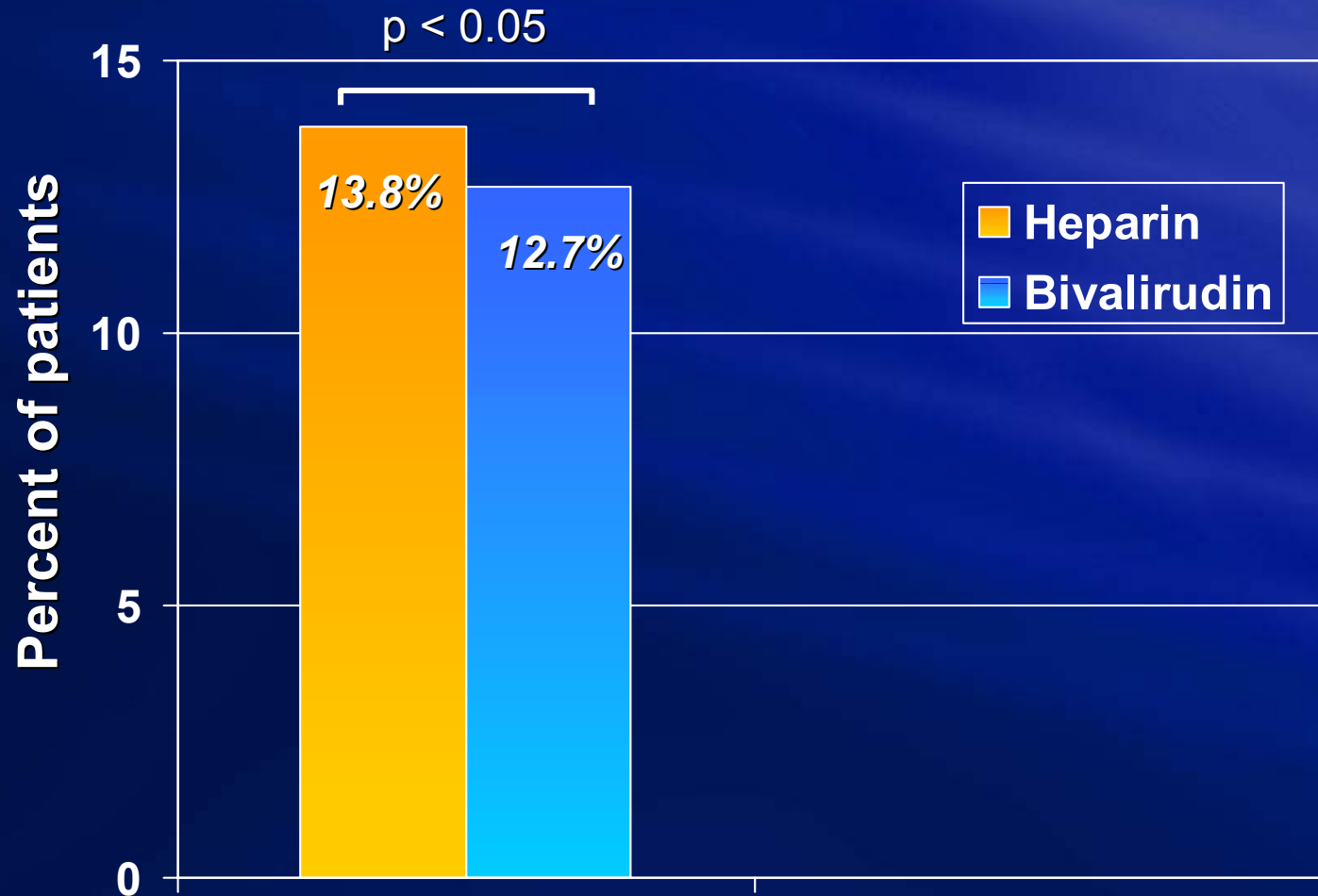
	<b>Bivalirudin</b> (n = 8516)	<b>Heparin</b> (n = 8557)	p-value
<b>Total Stroke</b>	<b>1.25%</b>	<b>0.96%</b>	0.07
<b>Non-hemorrhagic</b>	<b>0.50%</b>	<b>0.40%</b>	0.36
<b>Hemorrhagic</b>	<b>0.55%</b>	<b>0.37%</b>	0.09
<b>Age <math>\geq 75</math> yrs</b>	<b>1.00%</b>	<b>0.50%</b>	0.16
<b>Nonfatal Disabling</b>	<b>0.20%</b>	<b>0.30%</b>	ns

# Non-cerebral Bleeding

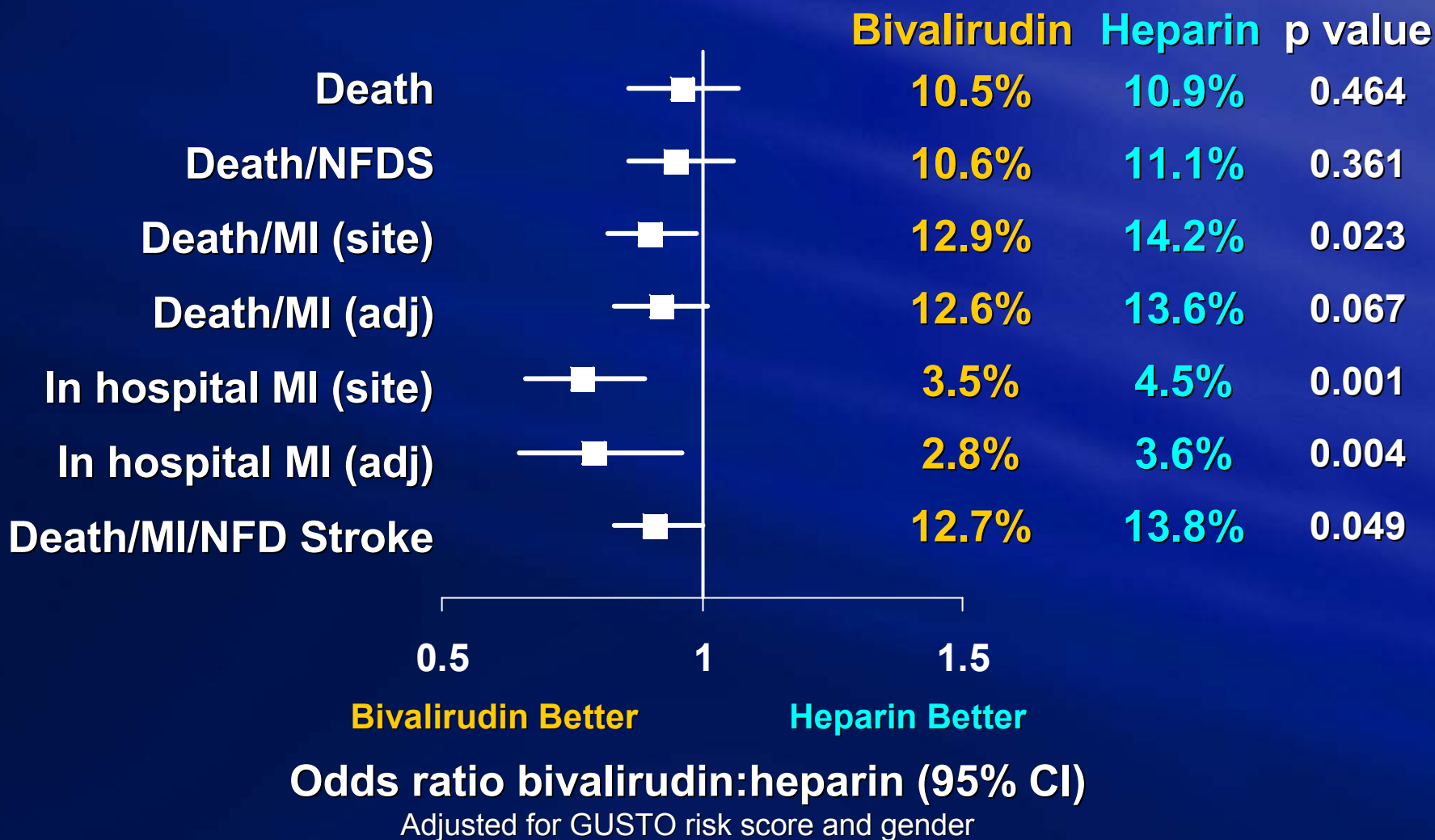


<b>Bleed</b>	<b>Bivalirudin</b> <i>n = 8516</i>	<b>Heparin</b> <i>n = 8557</i>	<b>Odds Ratio</b>	<b>p-value</b>
	(%)	(%)		
<b>Severe</b>	<b>0.7</b>	<b>0.5</b>	<b>1.45</b>	<b>0.08</b>
<b>Moderate</b>	<b>1.4</b>	<b>1.0</b>	<b>1.33</b>	<b>0.05</b>
<b>Mild</b>	<b>12.6</b>	<b>8.9</b>	<b>1.48</b>	<b>&lt;0.0001</b>
<b>Transfusion</b>	<b>1.4</b>	<b>1.1</b>	<b>1.25</b>	<b>0.11</b>

# Composite of Death / reMI / Non-Fatal Disabling Stroke



# Key results



# Summary & Conclusions



- Compared with **heparin**, for patients receiving thrombolysis for MI, **bivalirudin** provides:
  - No significant reduction in mortality at 30 days
  - 30% reduction in re-infarction at 96 hrs
  - No increase in ICH or major bleeds despite high-risk patient profile
  - Increased moderate and minor bleeding (explained by aPTT)
  - Exploratory analysis suggests improved net clinical benefit (reduced death, re-MI and non-fatal disabling stroke)

# Summary & Conclusions



- Confirms the importance of thrombin
- The risk / benefit relationship of **bivalirudin** is favorable compared to **heparin**
  - significant reduction in MI (8 fewer adjudicated MIs at 30 days [ $p=0.004$ ]) and 3 extra transfusions ( $p=0.11$ ) per 1,000 patients treated
- **Bivalirudin** provides an improved foundation anti-thrombin therapy in AMI
- Further studies of **bivalirudin** in AMI – including catheter-based treatments – are warranted

# Summary of Net Benefit



For each 1000 patients treated with **bivalirudin** the estimated effect was:

- 11 fewer of the composite of death/NFDS/re-MI ( $p < 0.05$ )
  - 4 fewer deaths
  - 6 fewer non-fatal re-MIs
  - 1 fewer non-fatal disabling stroke
- 3 additional transfusions ( $p = 0.11$ )

# Web Address



*To view more HERO-2 Results slides  
visit the GLCC website @*

[www.glcc.org.nz](http://www.glcc.org.nz)