



# ACSIS PCI 2010

## Results of Interventional Cardiology in ACS A National Survey in Israel



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on behalf of the Israeli Working Groups in Interventional  
Cardiology and Intensive Cardiac Care Units,

The Israel Heart Society



Annual Meeting of the Israel Heart Society - May 4<sup>st</sup>, 2011



# Background



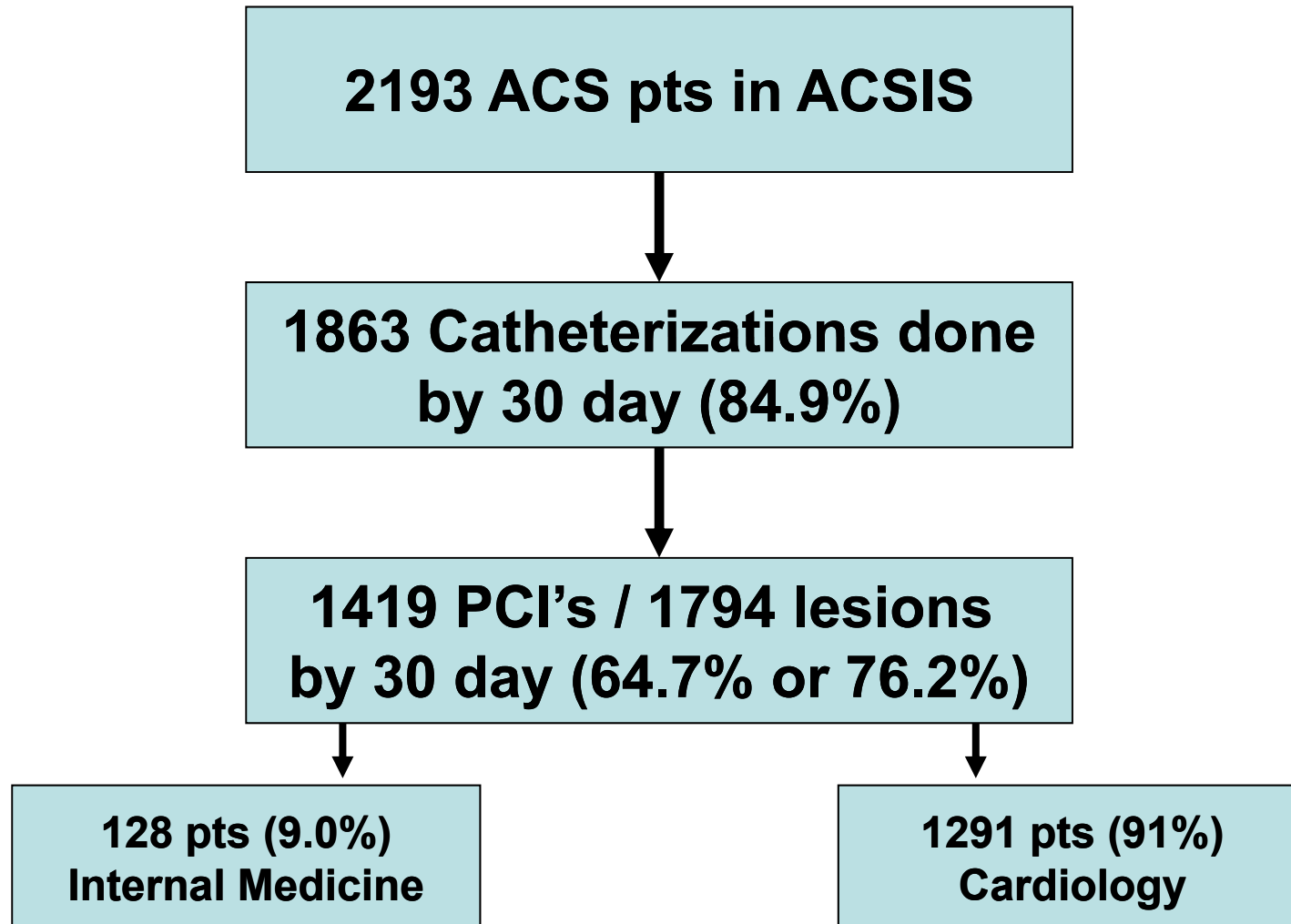
- ACS is a major cause of morbidity and mortality in Israel.
- Early PCI has become an established treatment for ACS patients.
- PCI techniques evolved over time (pharmacology and devices).

# Goal

- Using the ACSIS 2010 ACS registry platform, a national survey has been conducted to explore PCI treatment patterns and ACS outcomes in Israel.



# Coronary Angiography/PCI During Hospitalization



# Clinical Diagnosis

ECG (Admission)	Frequency (%)
Primary STEMI } Delayed STEMI }	517 (36.4) } 152 (10.7) }
Non STEMI	458 (32.3)
UAP or other diagnosis	292 (20.6)

# Clinical Characteristics

	Frequency (%)
Male	79.5
Age (yrs)	62.5 ± 11.9
Age > 75 y/o	16.1
DM	36.0
HTN	63.6
Smoker	40.4
Dyslipidemia	76.4
Post MI	29.1
Post PCI	32.6
Post CABG	8.8
PVD	6.2
Past CHF	7.4

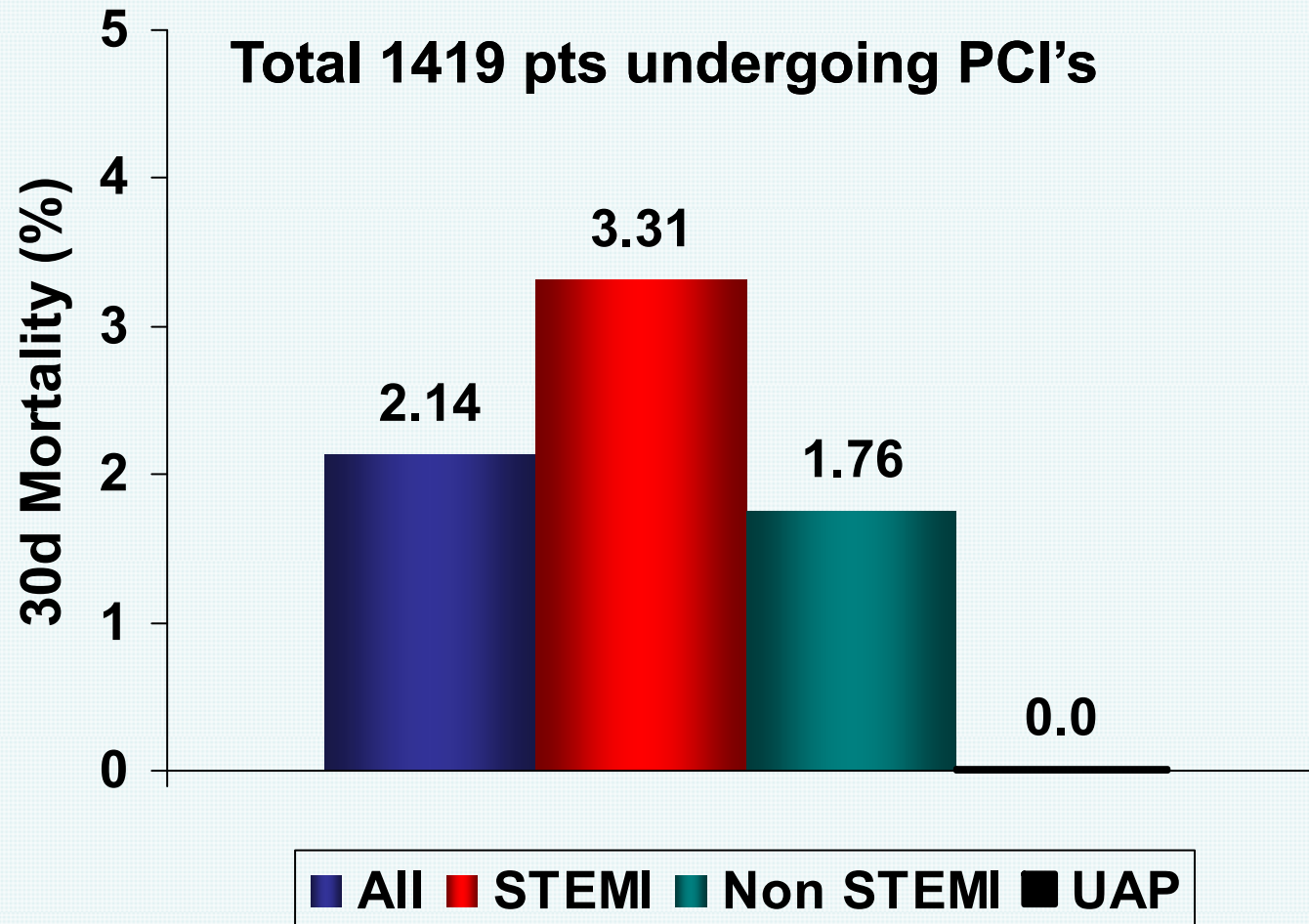
# Cardiac Failure Characteristics

<b>Killip <math>\geq 2</math></b>	9.8%
<b>Mean LVEF</b>	47.8 $\pm$ 11.4%
<b>Median LVEF</b>	50%
<b>EF &lt; 40%</b>	22.5%
<b>EF &lt; 40% in STEMI</b>	27.7%
<b>Cardiogenic shock (CS)</b>	2.7%
<b>CS - STEMI</b>	4.5%
<b>CS – Non-STEMI/UAP</b>	1.2%

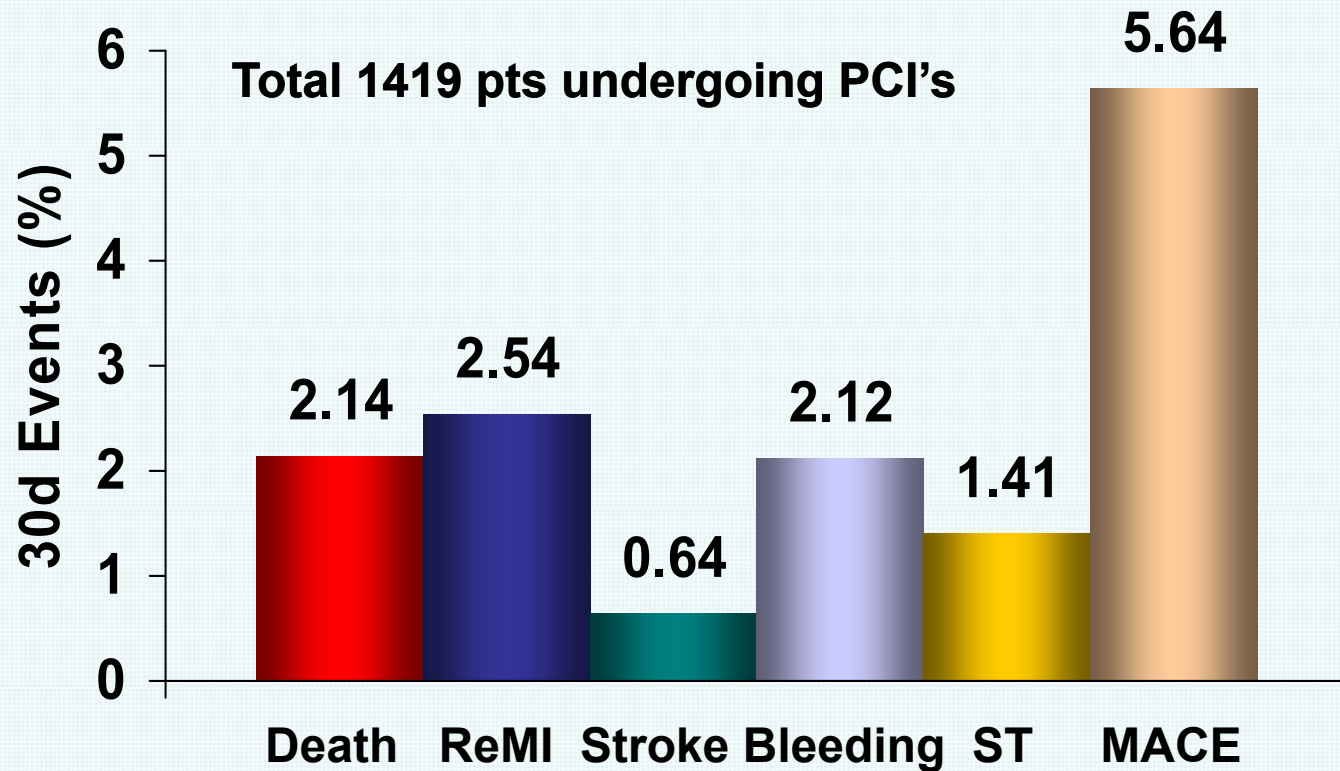
## Use of IABP (STEMI)

<b>+IABP</b>	5.7%
<b>-IABP</b>	94.3%

# Mortality following ACS-PCI



# Adverse Events following ACS PCI

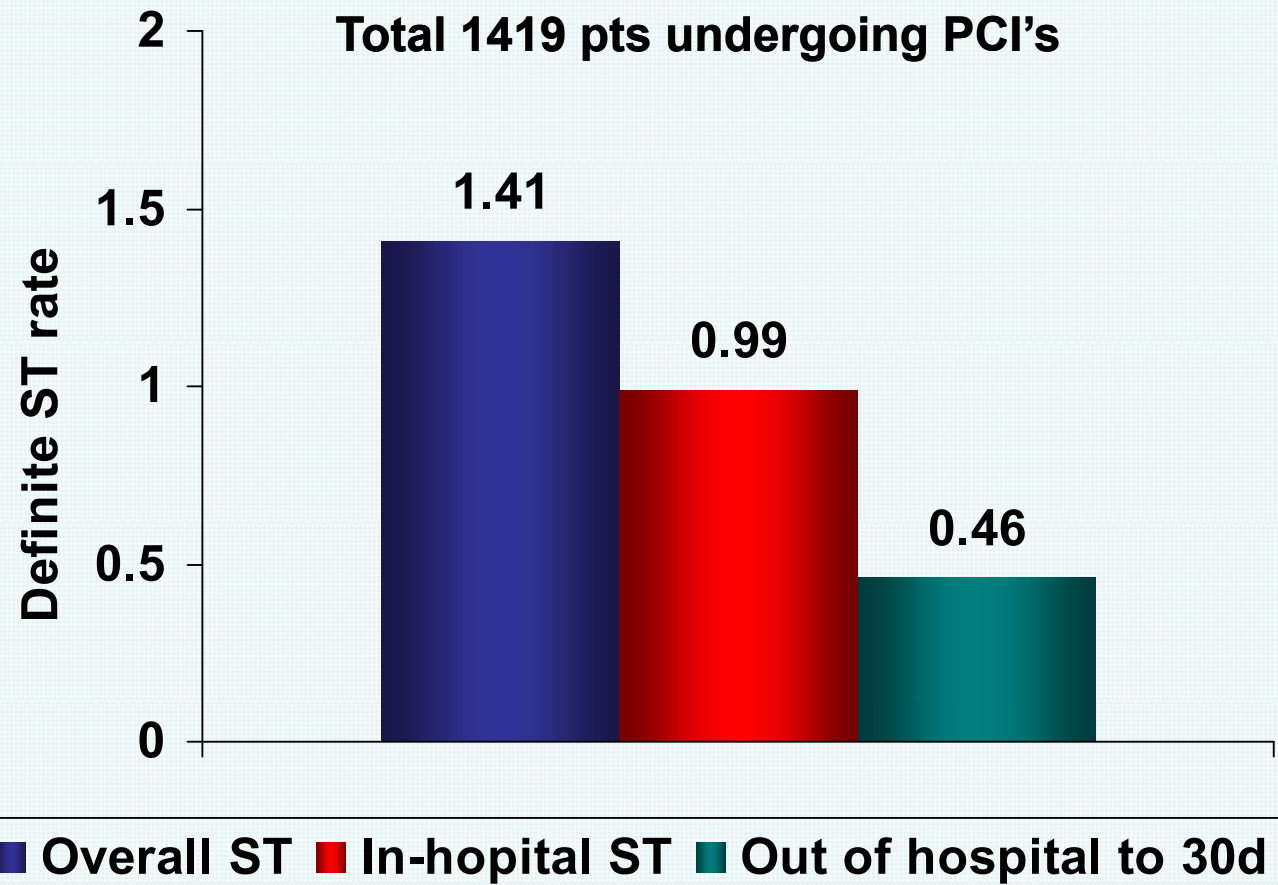


\*ST=Definite Stent thrombosis (acute & sub-acute)

MACE=Major adverse events (all composite) – death, reMI, stroke, stent thrombosis

Bleeding=Major bleeding

# Stent thrombosis details



\*One pt with 2 ST events – the events were counted twice

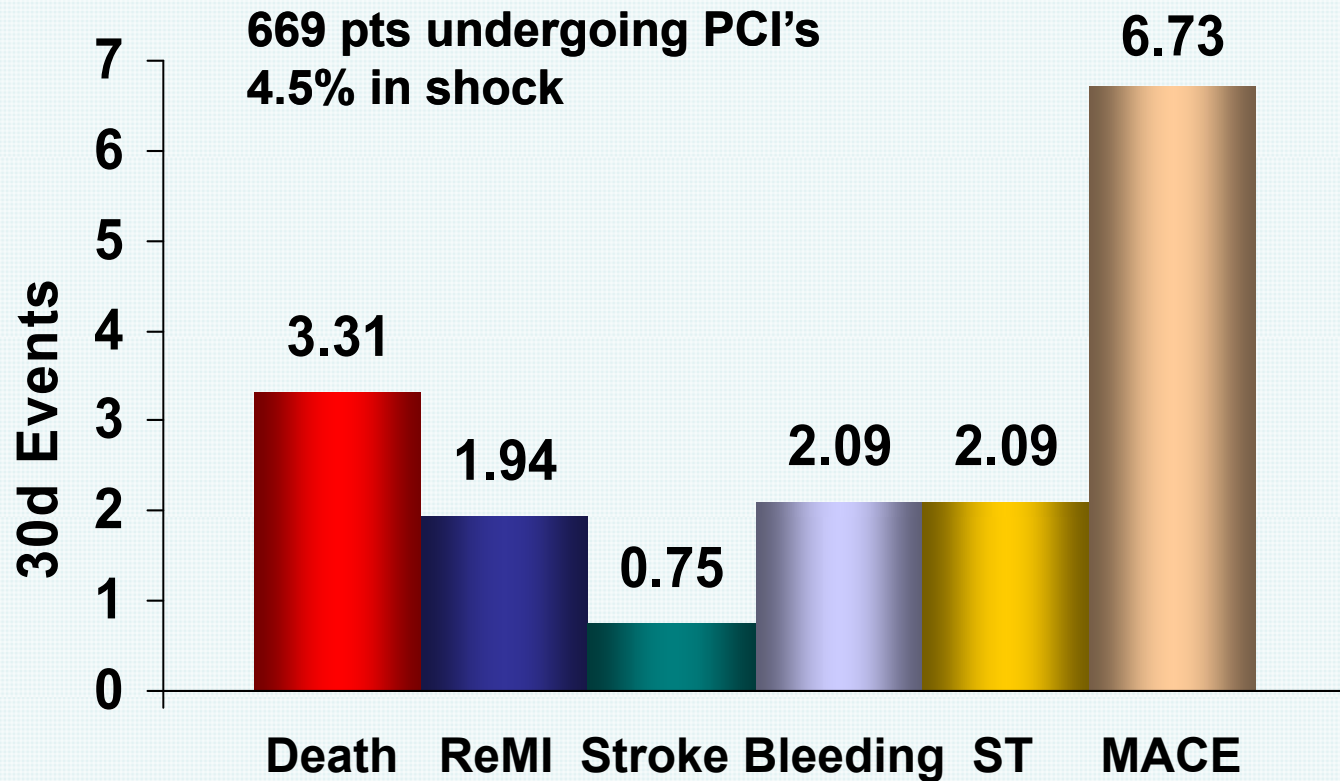
# Timing of PCI (STEMI)

●————→ Symptoms to balloon= $244\pm 156$ min (median 190min) —————→



●————→ Door to balloon= $89\pm 82$ min  
(median 68min)

# Results following STEMI PCI

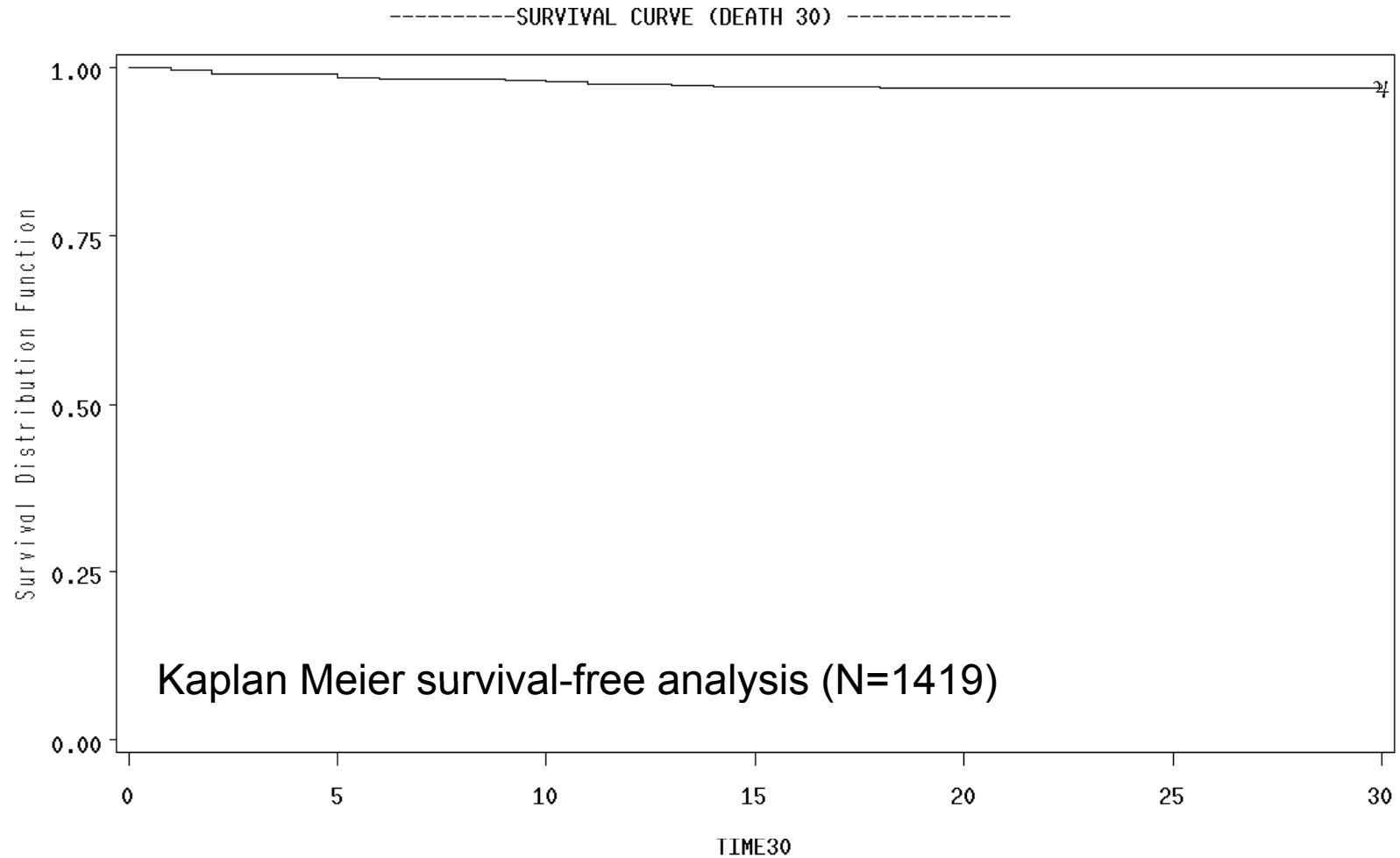


\*ST=Definite Stent thrombosis (acute & sub-acute)

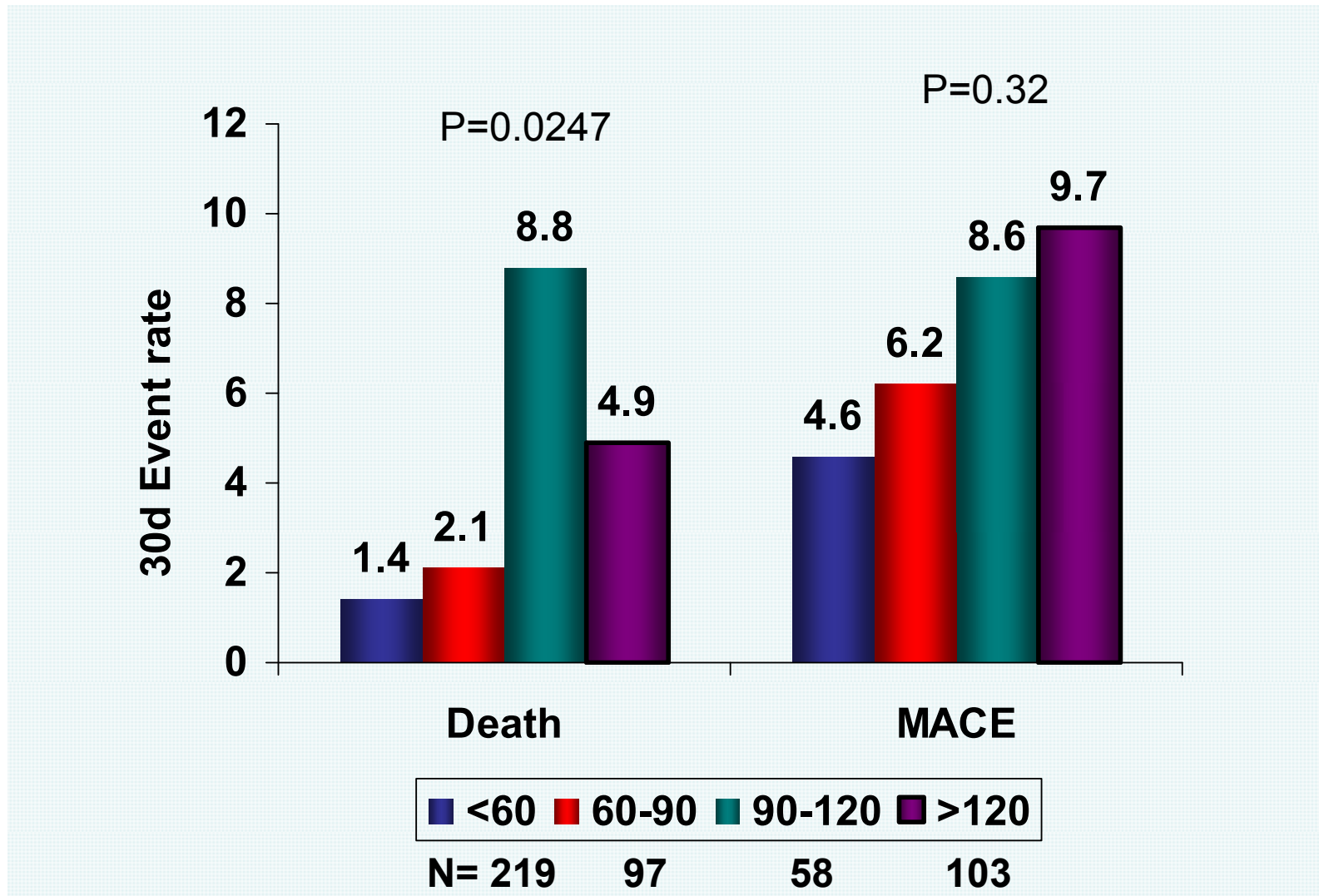
MACE=Major adverse events (all composite) – death, reMI, stroke, stent thrombosis

Bleeding=Major bleeding

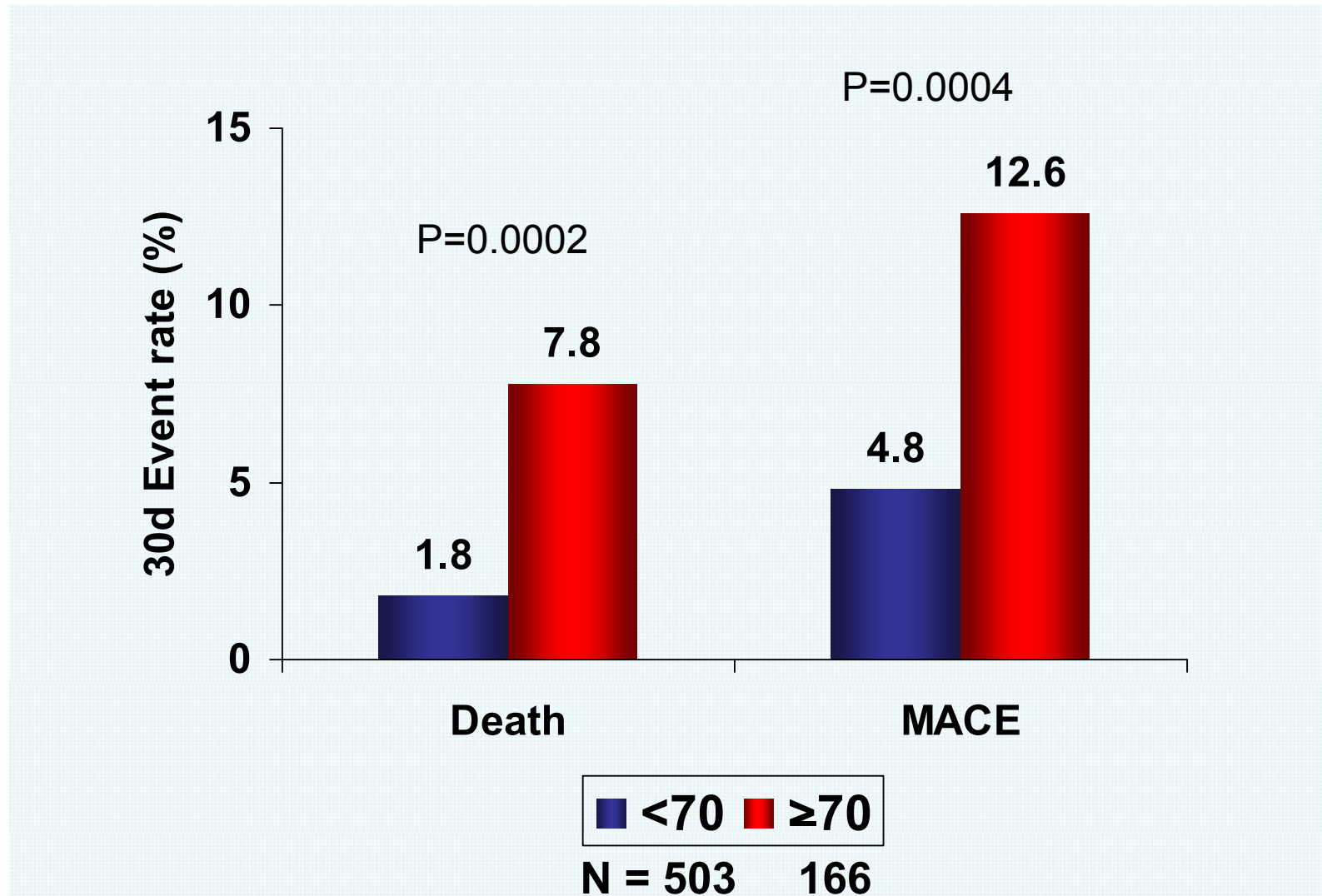
# Mortality following STEMI-PCI



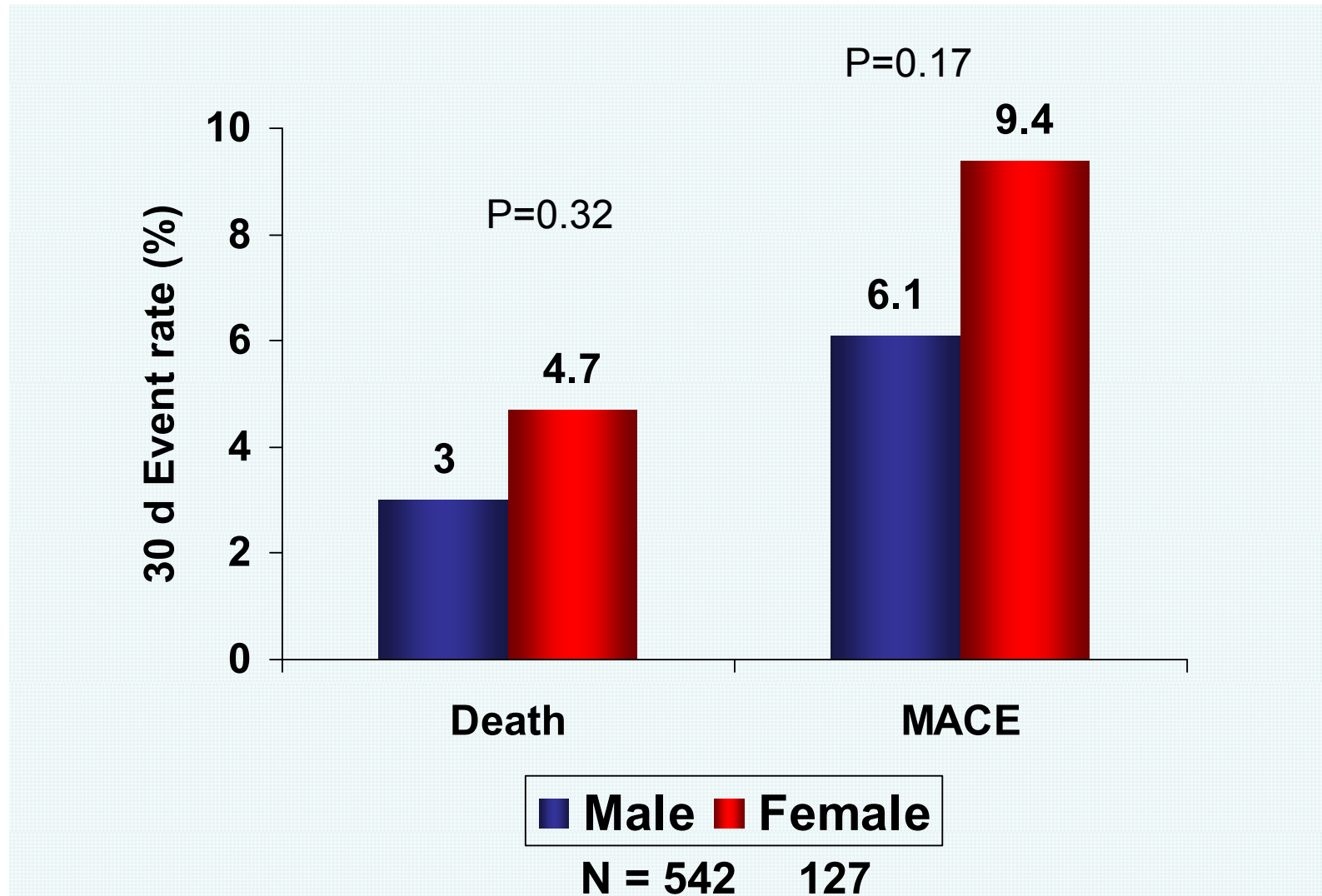
# Results of STEMI PCI by DTB



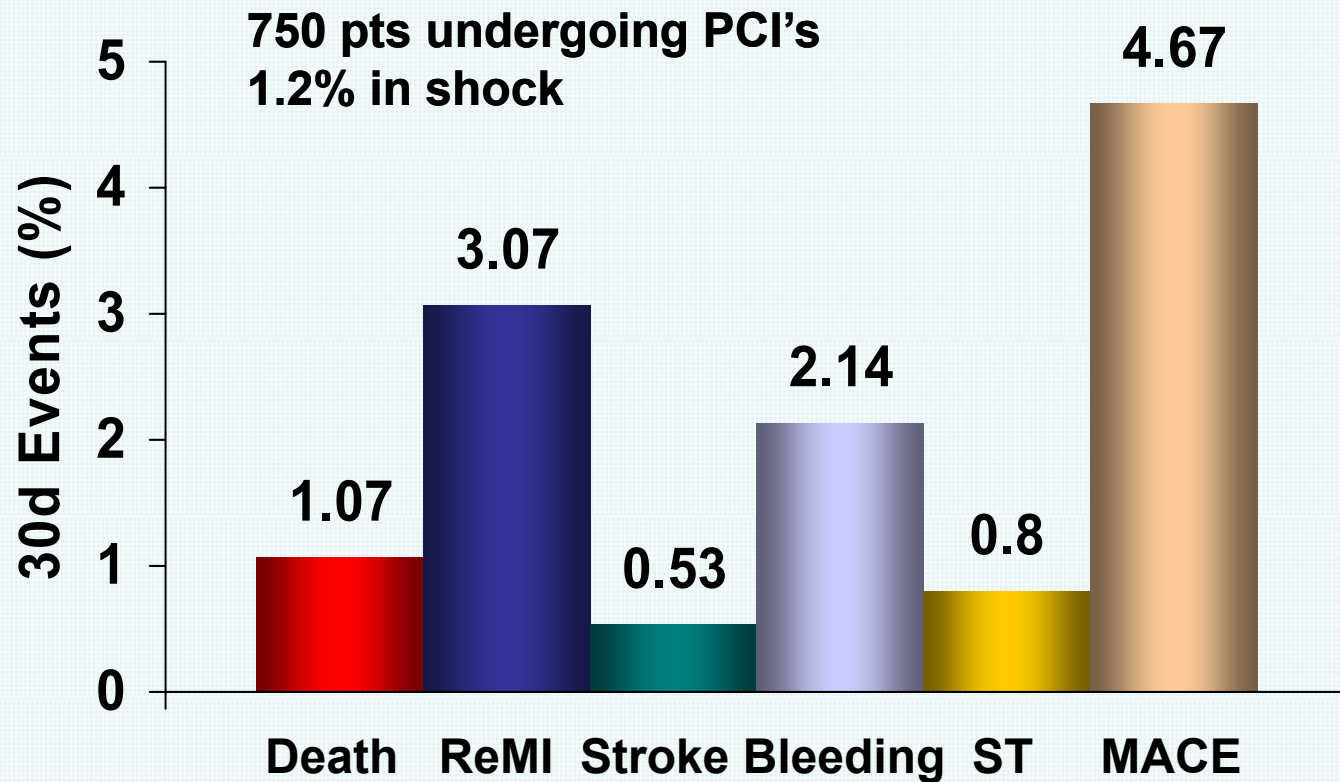
# Results of STEMI PCI by Age



# Results of STEMI PCI by Gender



# Results following Non-STEMI/UAP PCI

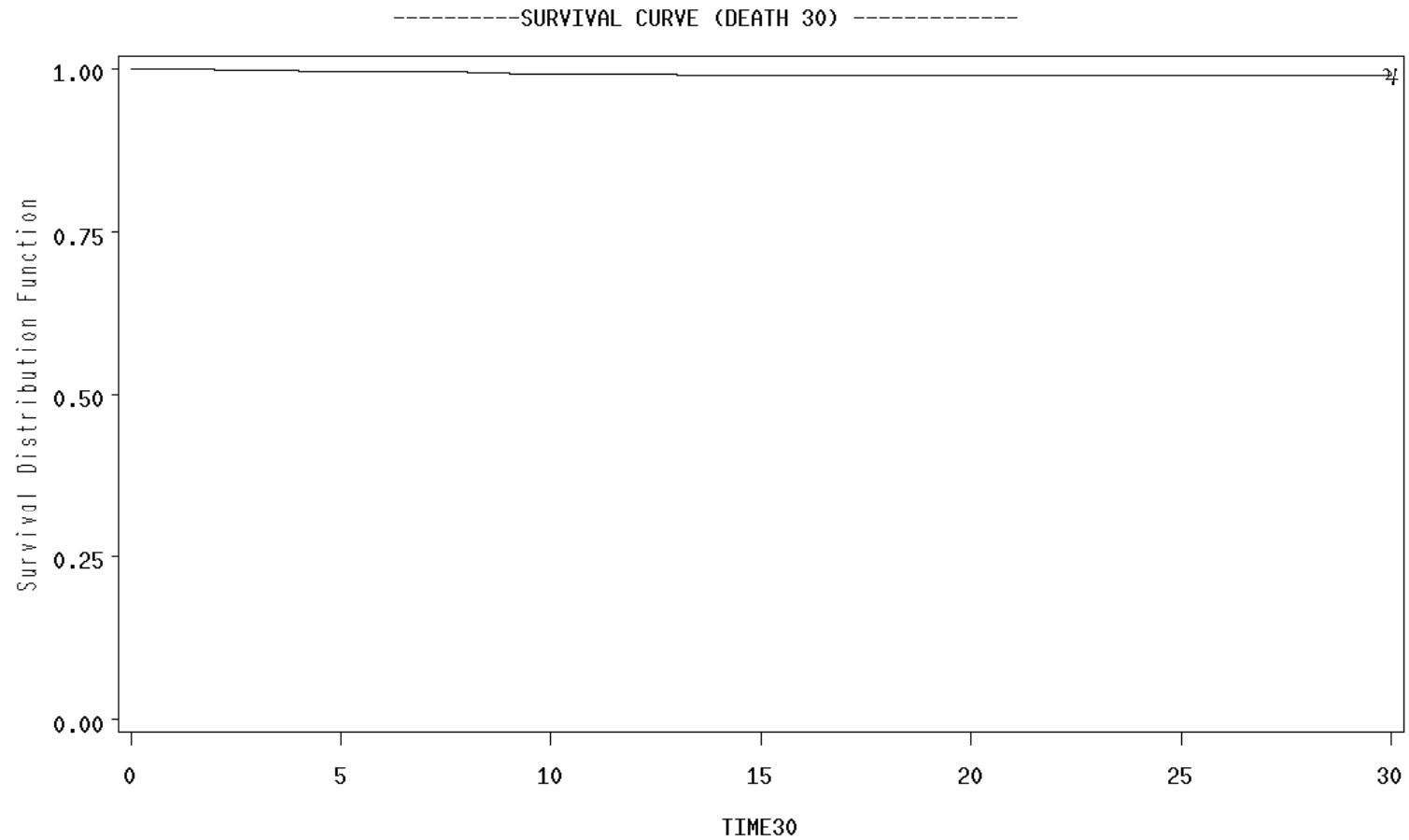


\*ST=Definite Stent thrombosis (acute & sub-acute)

MACE=Major adverse events (all composite) – death, reMI, stroke, stent thrombosis

Bleeding=Major bleeding

# Mortality - Non-STEMI/UAP PCI



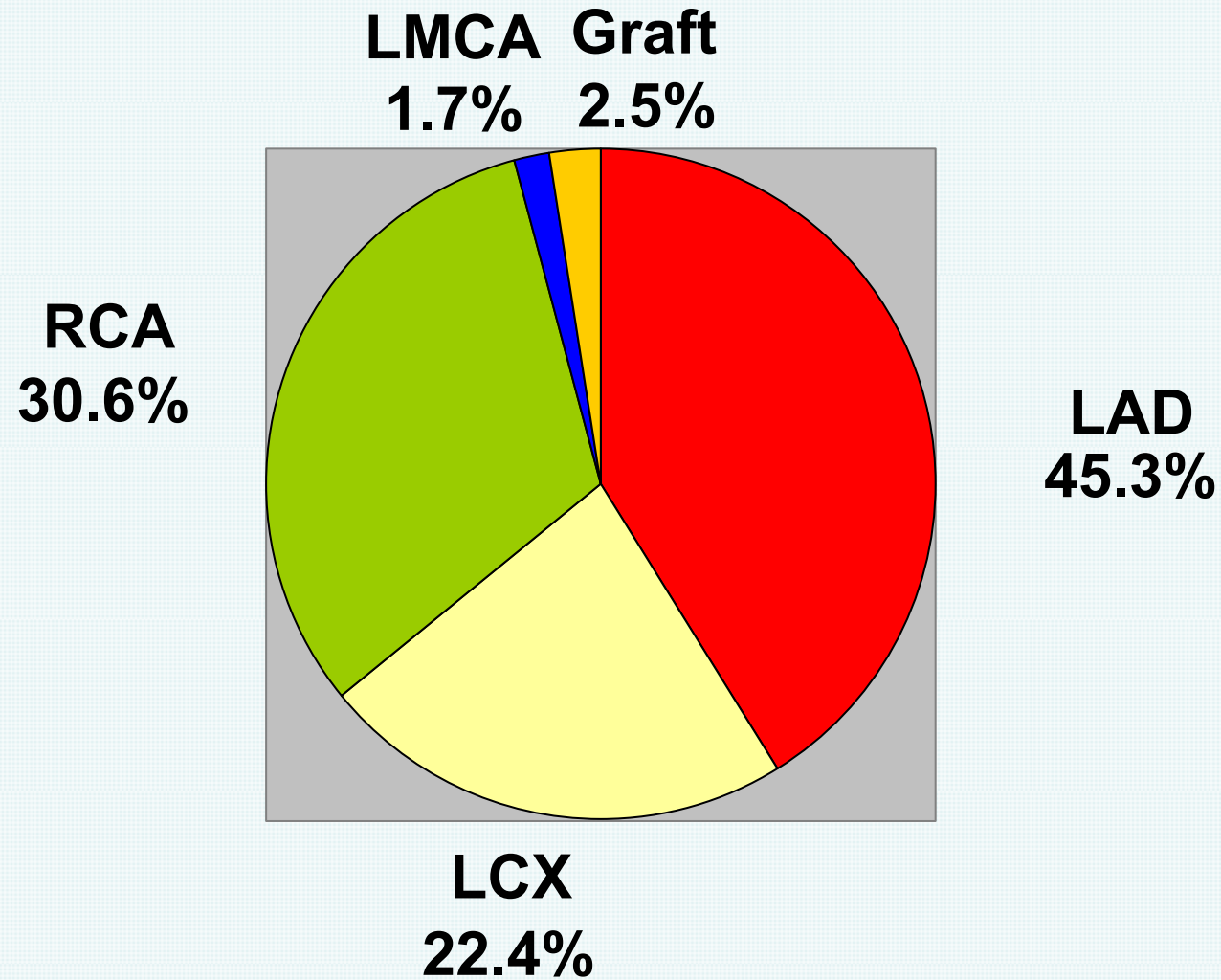
# Vascular Access Details

<b>Femoral</b>	67.8%
<b>Radial</b>	32.1%
<b>Brachial</b>	0.1%

## Pharmacology

<b>UFH/LMWH</b>	78.6%	
<b>Bivalirudin</b>	7.3%	
<b>Fondaparinux</b>	5.8%	
<b>GP IIb/IIIa</b>	33%	
<b>Plavix (pre)</b>	81.5%	} Overall 99.6%
<b>Plavix (post)</b>	18.1%	

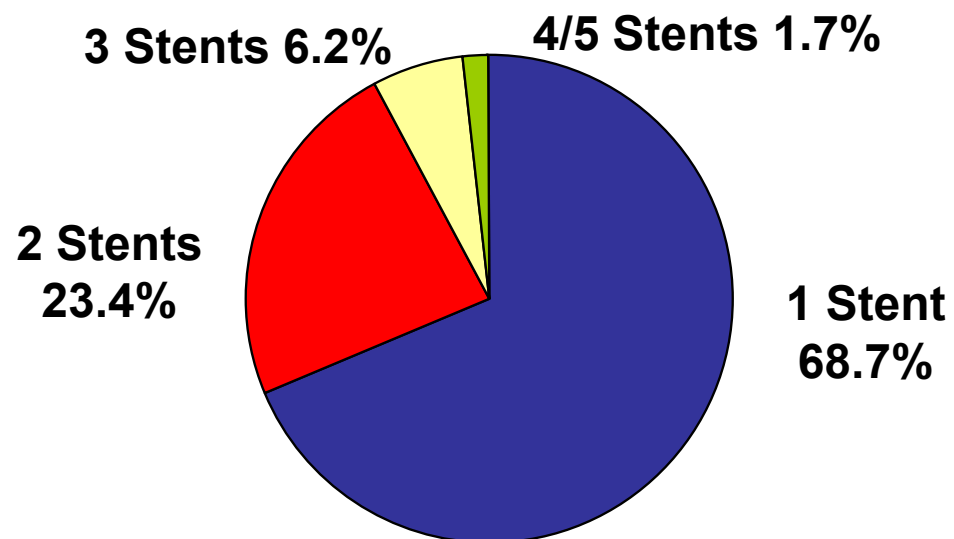
# Culprit Vessels Treated



# Stent Details

Overall stent rate	91.9%
At least 1 DES used	33.6%
At least 1 BMS used	72.7%
>1 stent	31.3%

**\*rate of DES use in STEMI = 25.9% and in others = 40.7%**



## Diagnostic Devices (All)

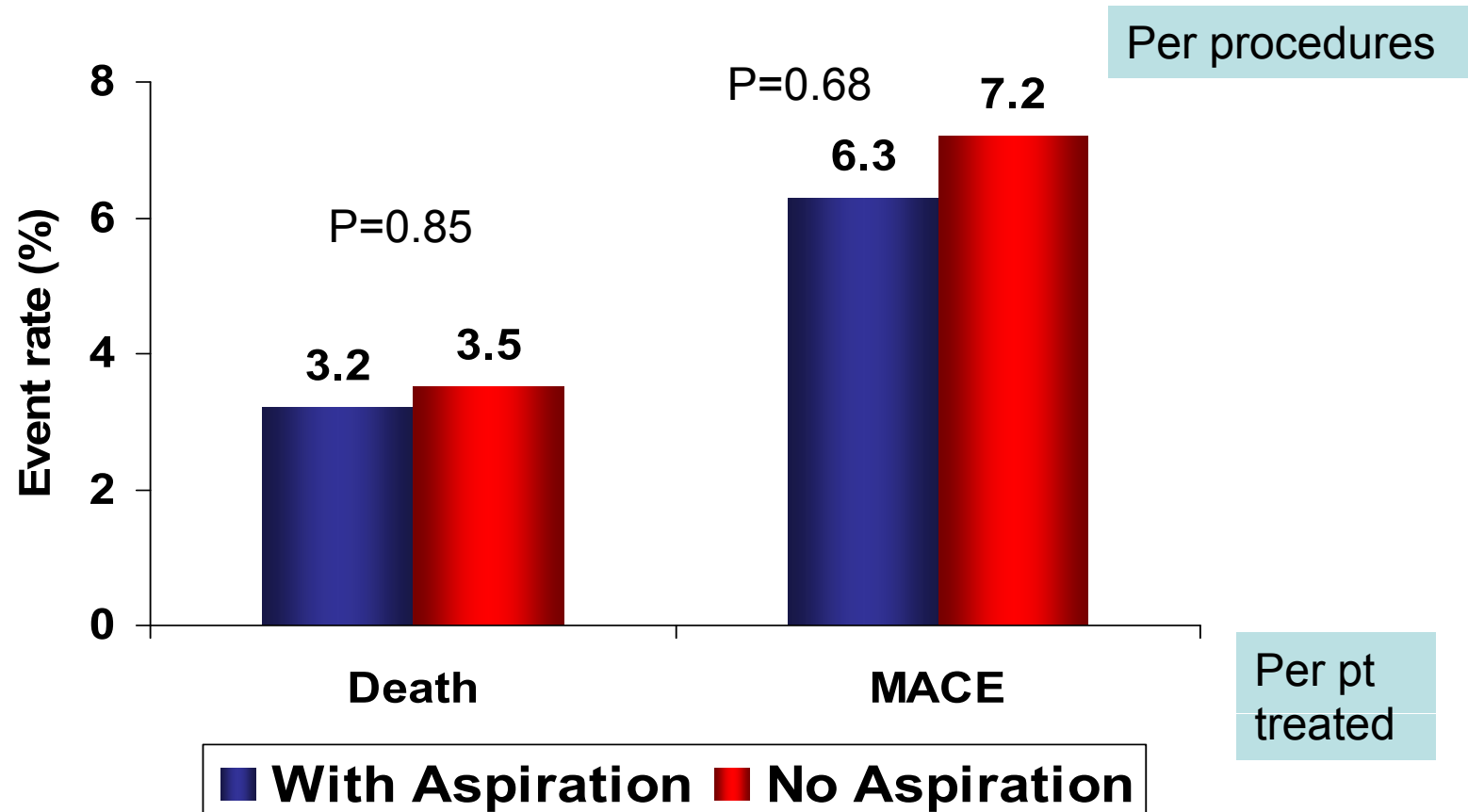
<b>IVUS</b>	0.6%
<b>FFR</b>	0.4%

## Distal Protection Devices (All)

<b>+Filter</b>	1.0%
<b>-Filter</b>	99%

# Aspiration device (STEMI)

<b>+Aspiration</b>	45.6%
<b>-Aspiration</b>	54.4%



# Vascular Closure Devices (All)

<b>None</b>	74.5%
<b>Angioseal</b>	19.1%
<b>Perclose</b>	0.6%
<b>Other</b>	5.8%

# Procedural Complications (All ACS)

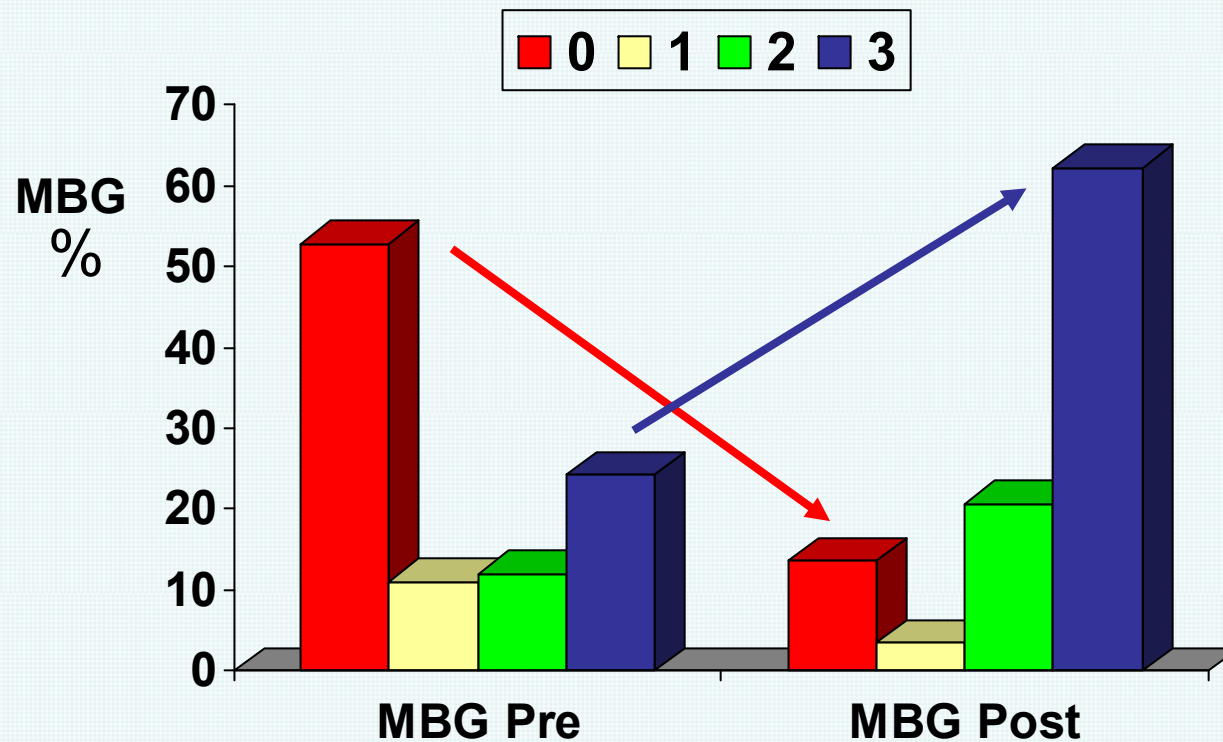
<b>No reflow</b>	3.1%
<b>Any dissection</b>	3.8%
<b>Dissection (final)</b>	0.7%
<b>Side-branch closure</b>	2.7%
<b>Coronary perforation</b>	0.3%
<b>CPR during PCI</b>	1.3%
<b>Urgent CABG</b>	0.4%

# Procedural Complications (STEMI)

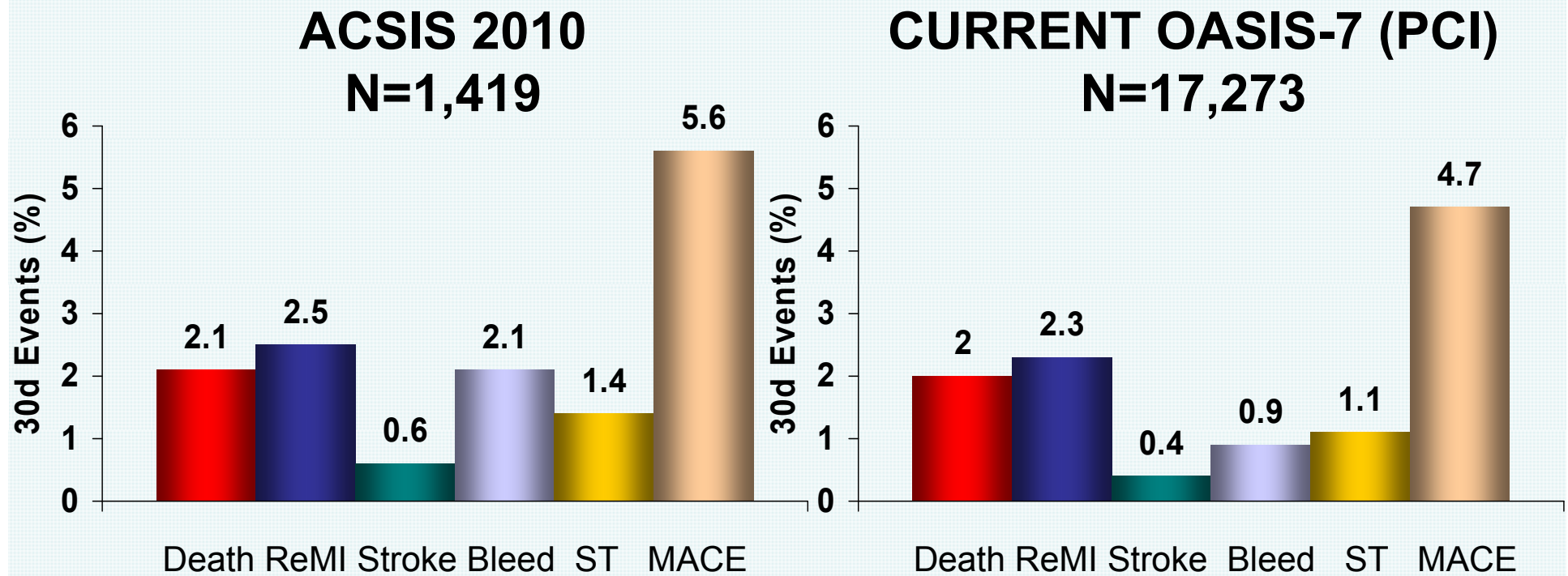
<b>No reflow</b>	<b>3.9%</b>
<b>Any dissection</b>	<b>3.9%</b>
<b>Dissection (final)</b>	<b>0.7%</b>
<b>Coronary perforation</b>	<b>0.1%</b>
<b>Side-branch closure</b>	<b>3.9%</b>
<b>CPR during PCI</b>	<b>2.0%</b>
<b>Urgent CABG</b>	<b>0.6%</b>

# TIMI Flow and Blush in STEMI

TIMI 2/3=27.4% → TIMI 2/3=95.9%



# ACSIS PCI 2010 vs. CURRENT OASIS-7 PCI



Mehta SR et al. Lancet 2010

# Multivariate model for STEMI

## Predicting 30 day Mortality

	<b>OR</b>	<b>CI</b>	<b>P value</b>
<b>Killip <math>\geq 2^*</math></b>	12.68	3.19-50.4	0.0003
<b>Prior MI</b>	9.65	2.45-38.0	0.0012
<b>↑Creatinine</b>	2.13	1.54-2.93	<0.0001
<b>Age (↑10 yrs)</b>	1.11	1.05-1.18	0.0005
<b>Admission HR</b>	1.03	1.01-1.06	0.0098
<b>↑Glucose**</b>	1.01	1.00-1.01	0.0018

\*Including cardiogenic shock

\*\*In-hospital measurements

# Multivariate model for STEMI

## Predicting 30 day MACE

	<b>OR</b>	<b>CI</b>	<b>P value</b>
<b>↑Creatinine</b>	1.44	1.09-1.89	0.009
<b>CPR/Shock</b>	6.94	2.28-21.1	0.0006
<b>Past MI</b>	2.82	1.32-6.02	0.007
<b>Age (↑10 yrs)</b>	1.53	1.13-2.07	0.006
<b>Admission SBP</b>	0.98	0.97-0.996	0.0089
<b>COPD/Asthma</b>	3.72	1.22-11.3	0.0208

# Multivariate model for Non-STEMI/UAP Predicting 30 day Mortality

	<b>OR</b>	<b>CI</b>	<b>P value</b>
<b>Renal failure</b>	6.19	1.35-28.4	0.0189
<b>Age (↑10 yrs)</b>	3.33	1.31-8.47	0.0116
<b>↑Glucose*</b>	1.01	1.00-1.02	0.0009

\*In-hospital measurements

# Multivariate model for Non-STEMI/UAP

## Predicting 30 day MACE

	<b>OR</b>	<b>CI</b>	<b>P value</b>
<b>Past MI</b>	2.57	1.22-5.45	0.0133
<b>Prior Amiodarone thx</b>	9.48	2.02-44.3	0.0042
<b>Typical AP</b>	0.35	0.16-0.75	0.0074
<b>Age (↑10 yrs)</b>	1.42	1.02-1.99	0.0396

# ACSIS PCI 2010 - Summary

- PCI has been utilized most frequently to treat ACS patients in Israel.
- Successful revascularization was achieved in the vast majority of patients, causing improved flow and perfusion (e.g. STEMI) with very low procedural complication rate.

# ACSIS PCI 2010 – Summary (cont.)

- In ACSIS 2010, short-term survival rate (@one month) following ACS-PCI was 97.9% and the overall MACE rate was 5.6%.
- Following STEMI PCI, one month survival was 96.7% and overall MACE rate was 6.7%.
- Following Non-STEMI/UAP PCI, one month survival was 98.9% and overall MACE rate was 4.7%.
- Sub-group of patients (in shock, elderly, renal failure) are still in much higher risk for mortality and MACE and thus should obtain a careful attention and/or clinical management

סקר העשור



ACSIS 2010

Acute Coronary Syndrome Israeli Survey



*Yes we can!*

# Many Thanks

מס' סד'	שם המרכז	רכז/ת	רכז/ת
1	העמק	ד"ר אולגה ברודנר	ד"ר אהוד רוזנר , גב' סנדרה סגס
2	אסף	אנג'לה אלנברג	ד"ר ריקרדו קרקובר
3	ברזילי	ד"ר ויטלי שקלובסקי	ד"ר ג'מל ג'עפרי
4	ביקור חולים	ד"ר בני מזוז	פר" שמואל גוטליב, ד"ר פביו קוזניץ
5	כרמל	ד"ר יעקב גולדשטיין	ד"ר לנה רוזנבלום
6	השרון	אלישבע יורוביץ	ד"ר אלי לב, ד"ר אלדד רחביה
7	הילל יפה	ד"ר לובה וסילנקו	ד"ר אהרון פרימרמן
8	הדסה ע. כרם	לריסה בוגוסלבסקי	פר" חיים דננברג, פר" חים לוטן
10	איכילוב	מירי רביברי, רפי מסצ'י	פר" שמוליק בנאי, ד"ר אריק פינקלשטיין
11	קפלן	ד"ר גנדלמן גרה	ד"ר עודד אייזנברג
12	לניאדו	שושי זמיר	ד"ר גיא שינמן, ד"ר יצחק הרץ
13	בלינסון	מרינה קופרשמידט, נורית שור	פר" עבד עסלי, ד"ר חנה וקנין
14	מאיר	מיכל סגל	ד"ר עזרי רוזנבאום, פר" מוריס מוסרי
15	נהריה	ד"ר מרק גלרמן	ד"ר מרק ברזינס
18	פוריה	איהב זועבי	פר" יונתן חסין, ד"ר מנחם נהיר
19	רמב"ם	ד"ר מיקי ברגר	ד"ר אריאל רוגין
20	בני-ציון	ד"ר אלה לובוביץ	פר" אורי רוזנשיין, ד"ר אריה שפר
21	סורוקה	ענת חדד	אירית מלכה, ד"ר קרלוס כפרי
22	שערי צדק	כרמית בן-עמי	ד"ר ירון אלמגור, ד"ר דויד מירקין
23	תה"ש	ד"ר פול פפר	ד"ר עמית שגב, ד"ר ויקטור גויטה
24	וולפסון	יצחק מאירוביץ	ד"ר ישראל תמרי, פר" יוסף רוזנמן
26	רבקה-זיו	ד"ר אירנה נורדקין	ד"ר אלכסנדר גולדנברג

