

Managing Quality of ACS Care in VHA The IDH Guideline – Key Points and Metrics

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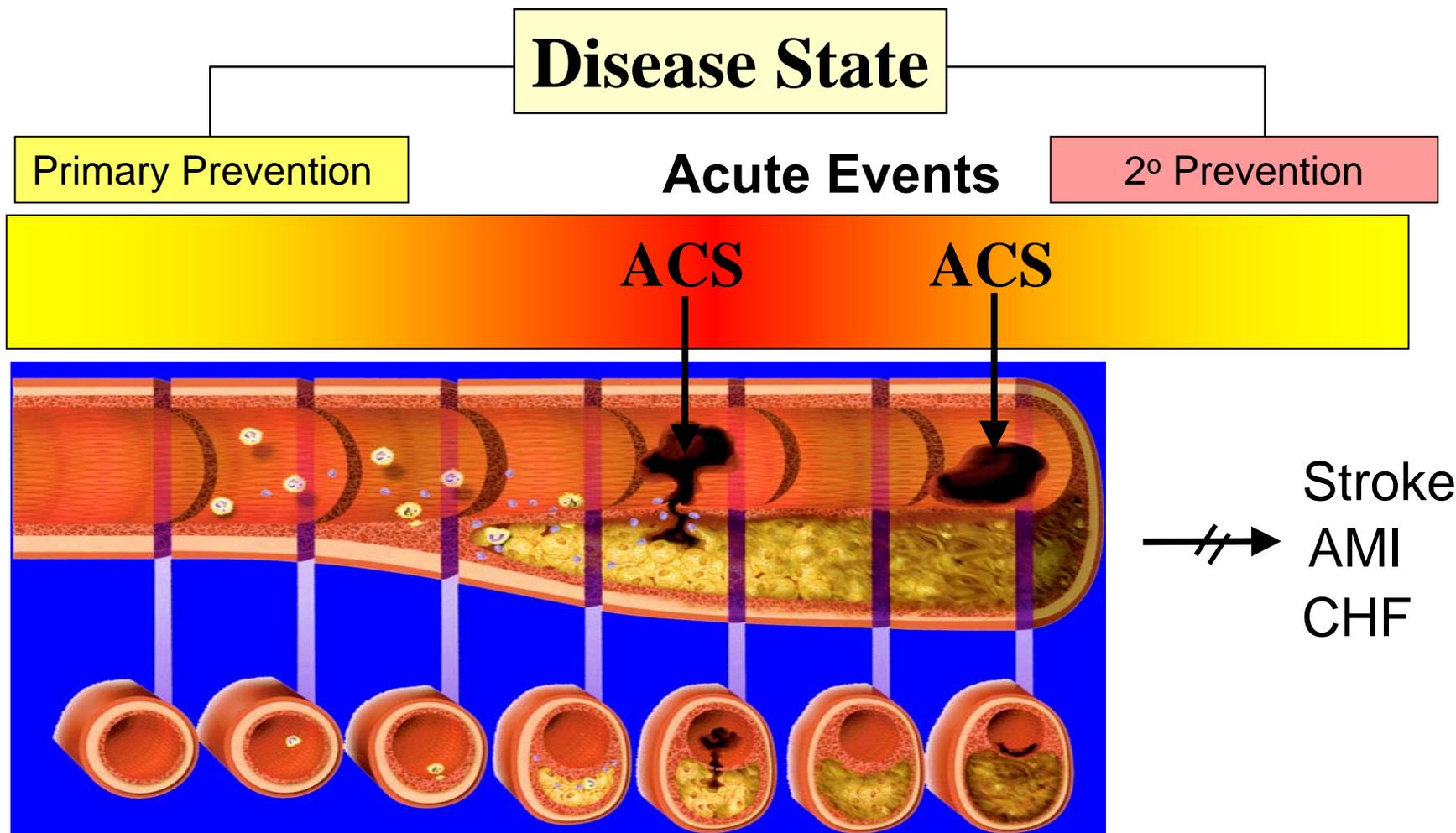
Managing Quality of ACS Care in VHA The IDH Guideline – Key Points and Metrics

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Ischemic Heart Disease Champion

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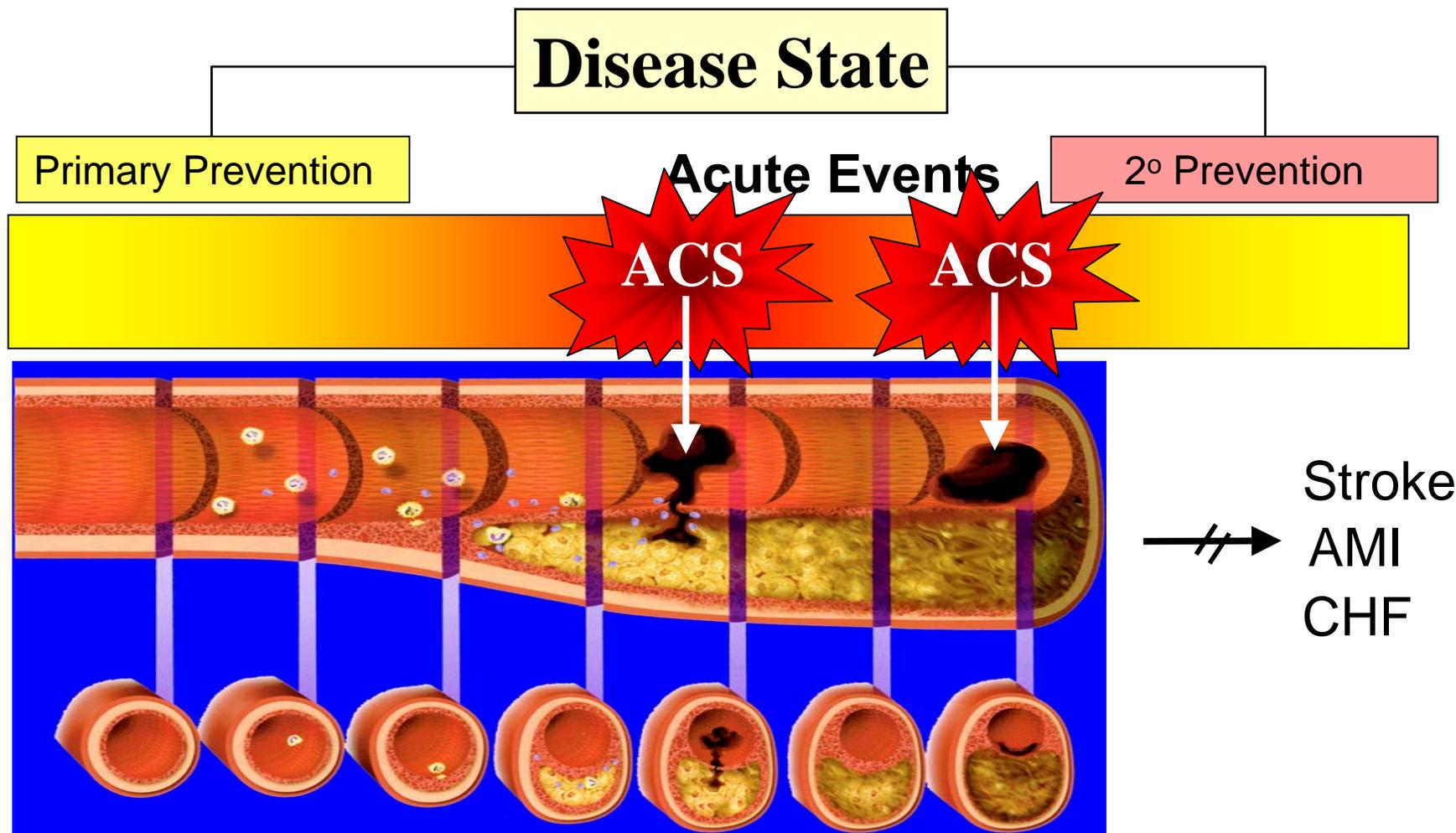
Inflammatory Atherothrombotic Coronary Artery Disease



Modified from Libby, Circ 104:365,2001

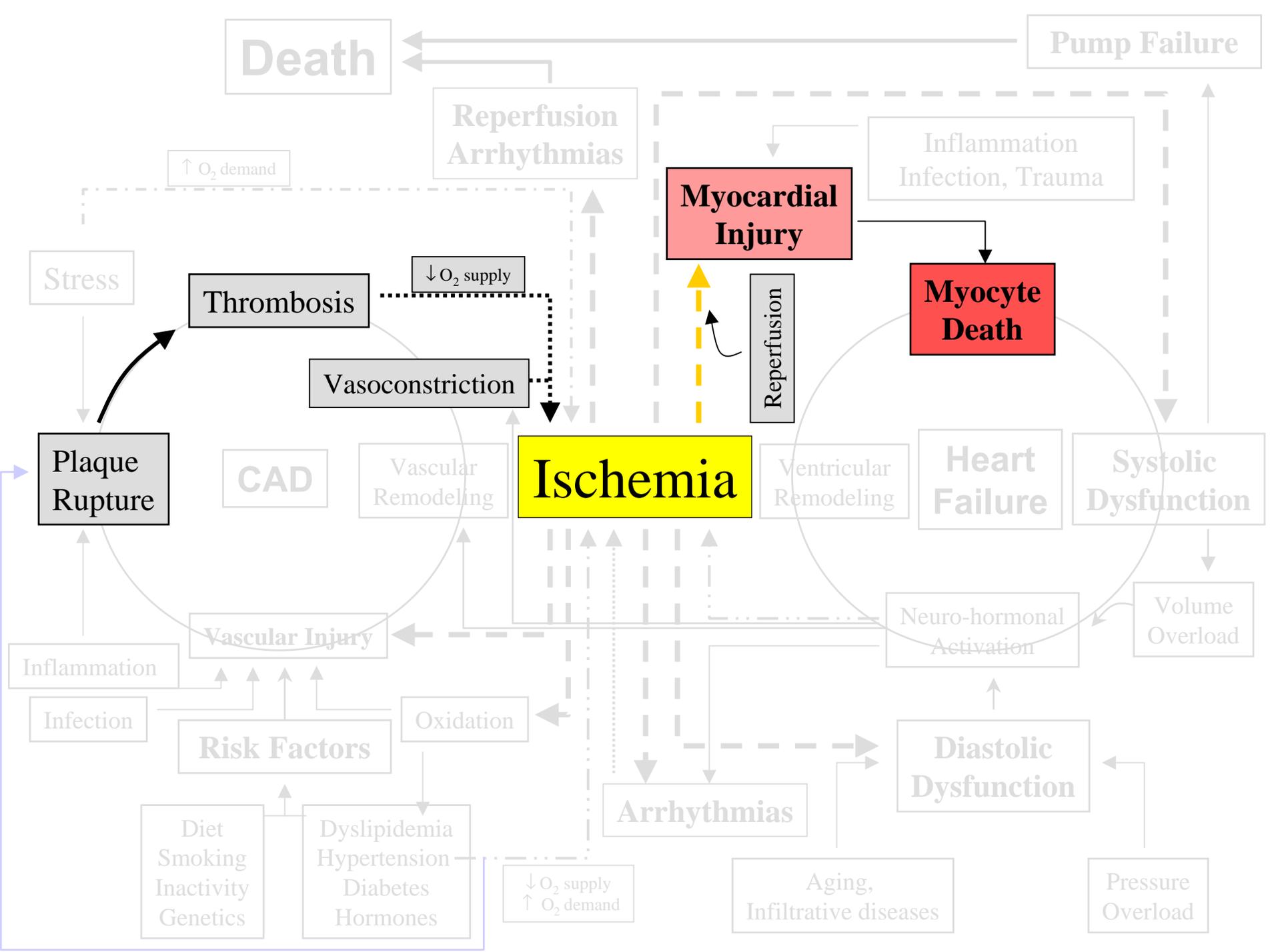
Sudden Cardiac Death

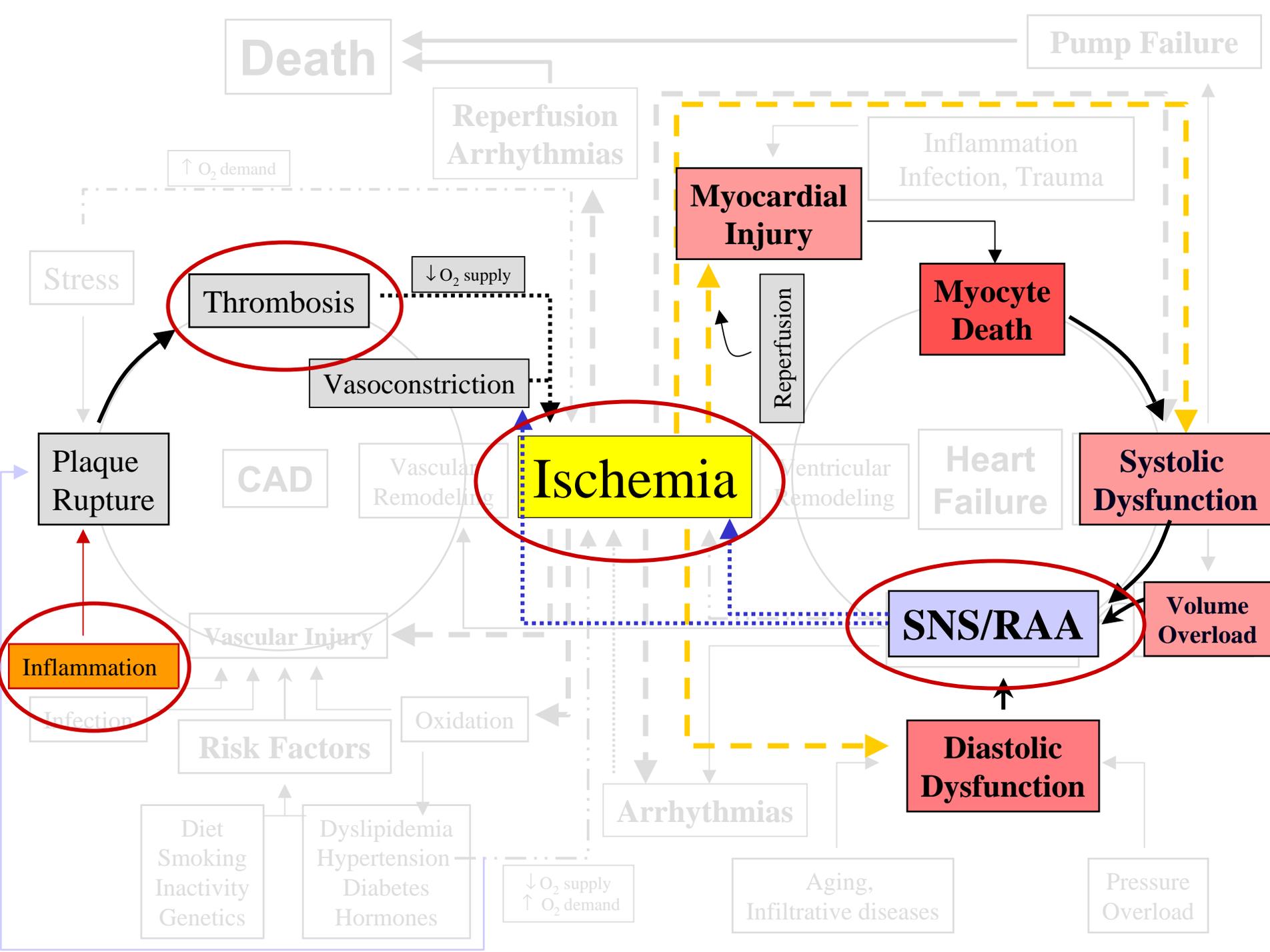
Inflammatory Atherothrombotic Coronary Artery Disease

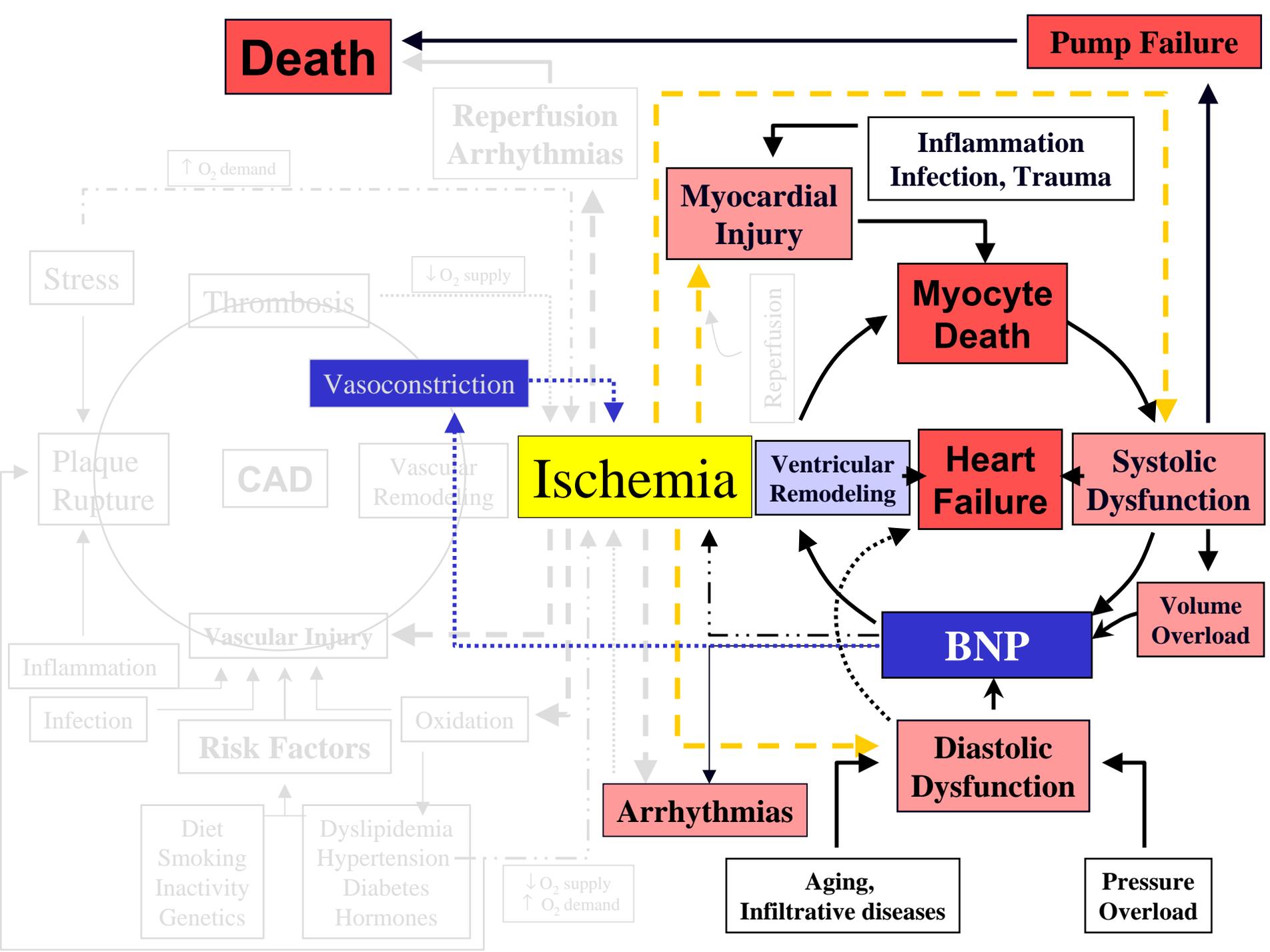


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Sudden Cardiac Death





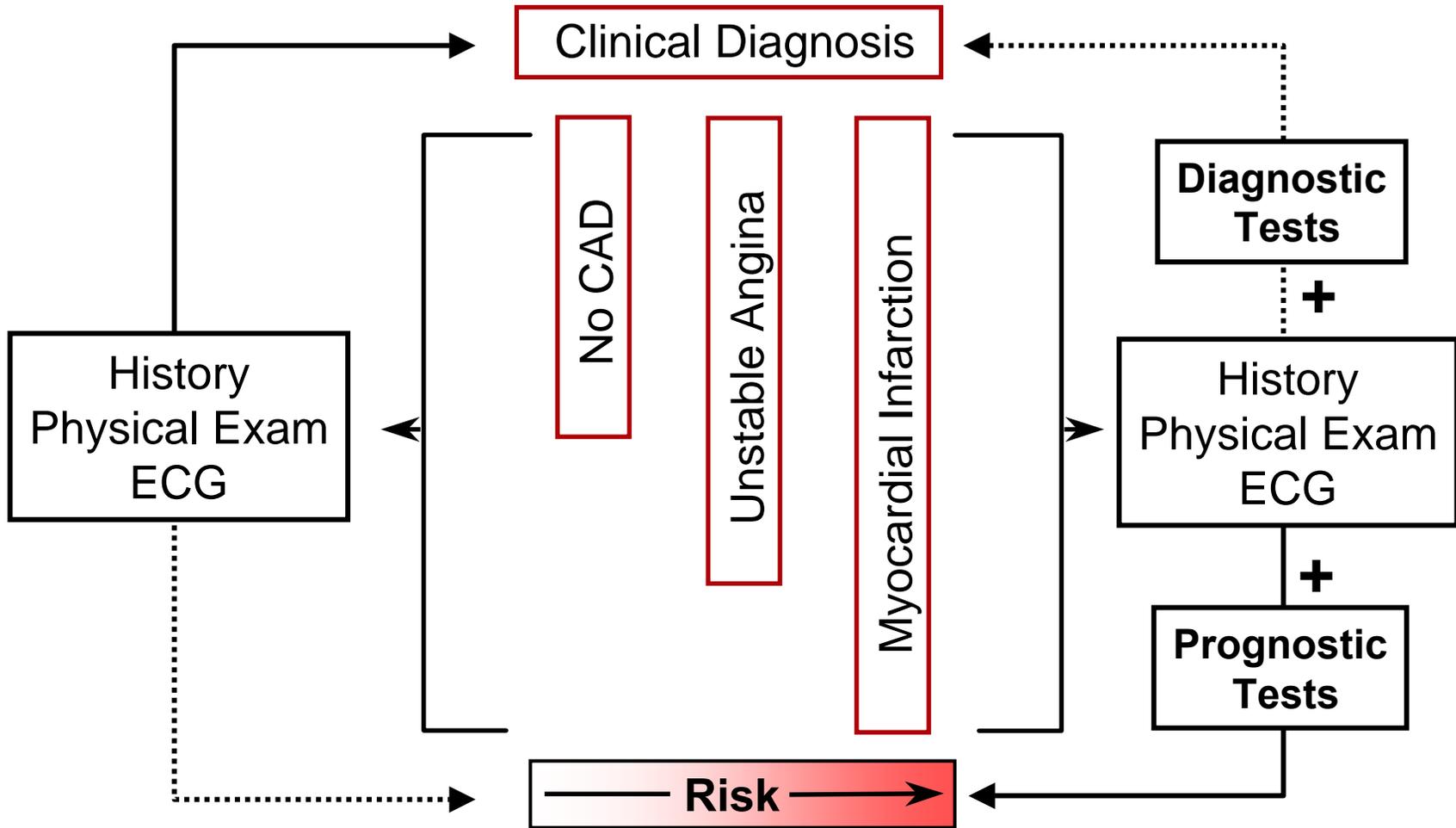


Acute Coronary Syndromes

Risk Stratification

Primary Risk Stratification

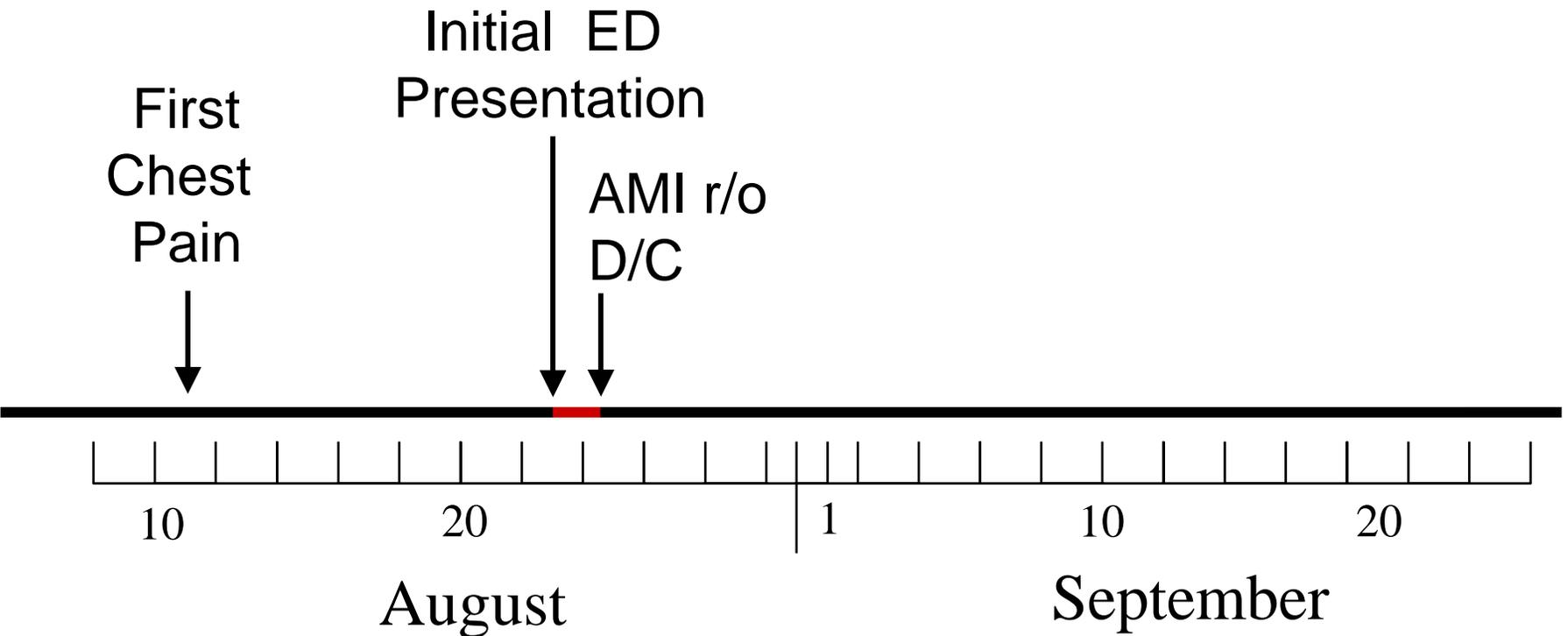
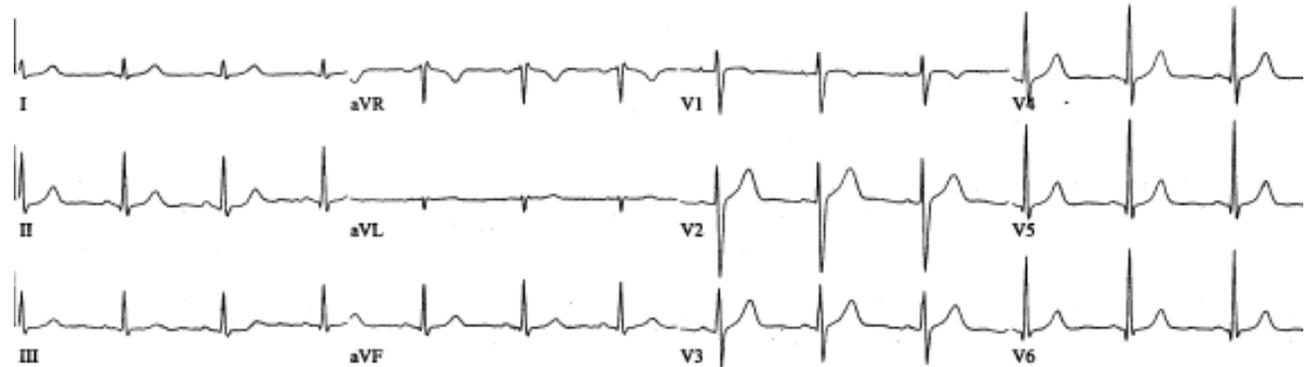
Secondary Risk Stratification



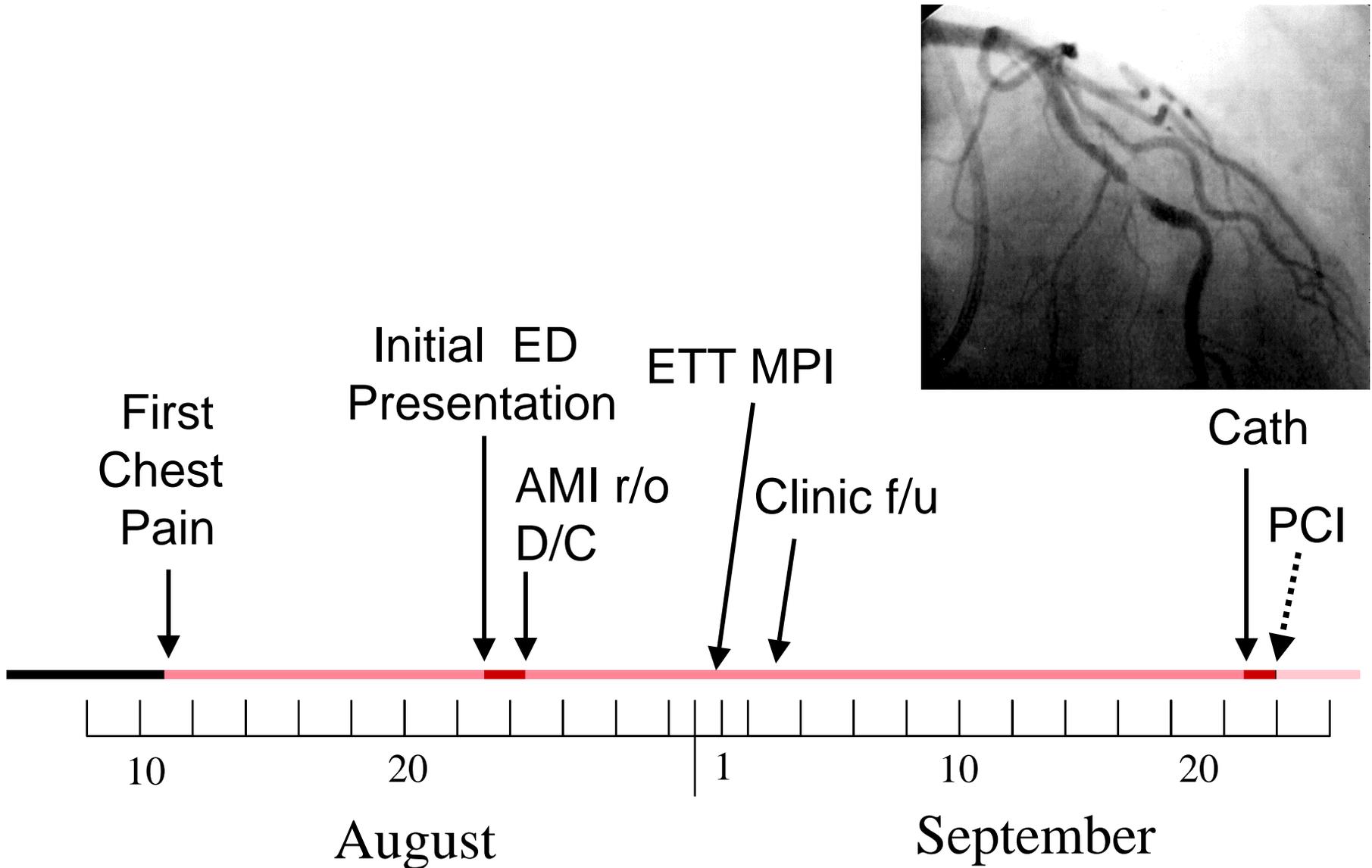
Sensitivity < 95%

Sensitivity > 99%

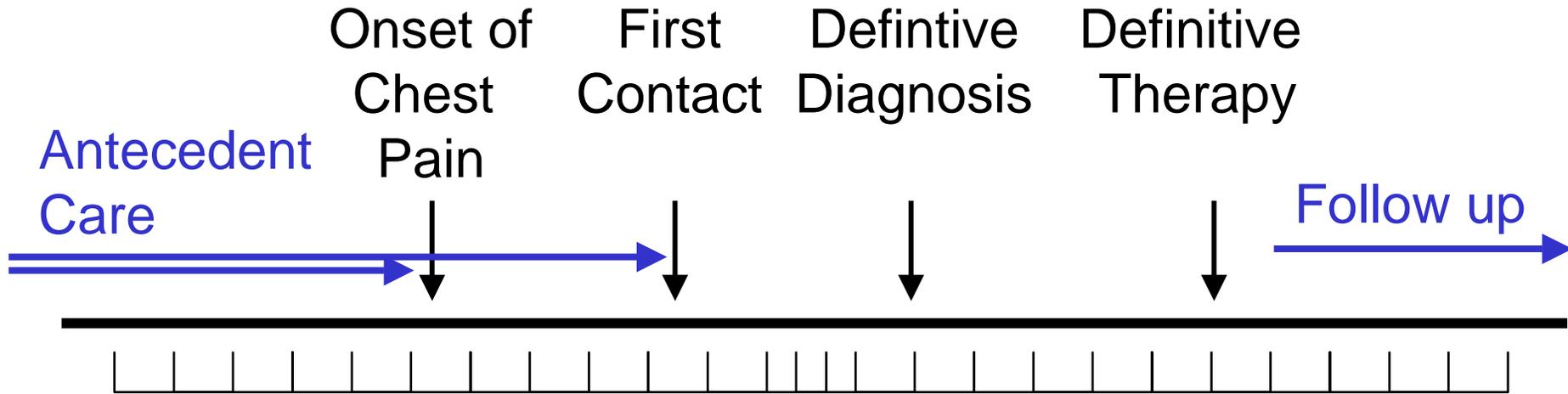
Chronology of an Acute Coronary Syndrome



Chronology of an Acute Coronary Syndrome

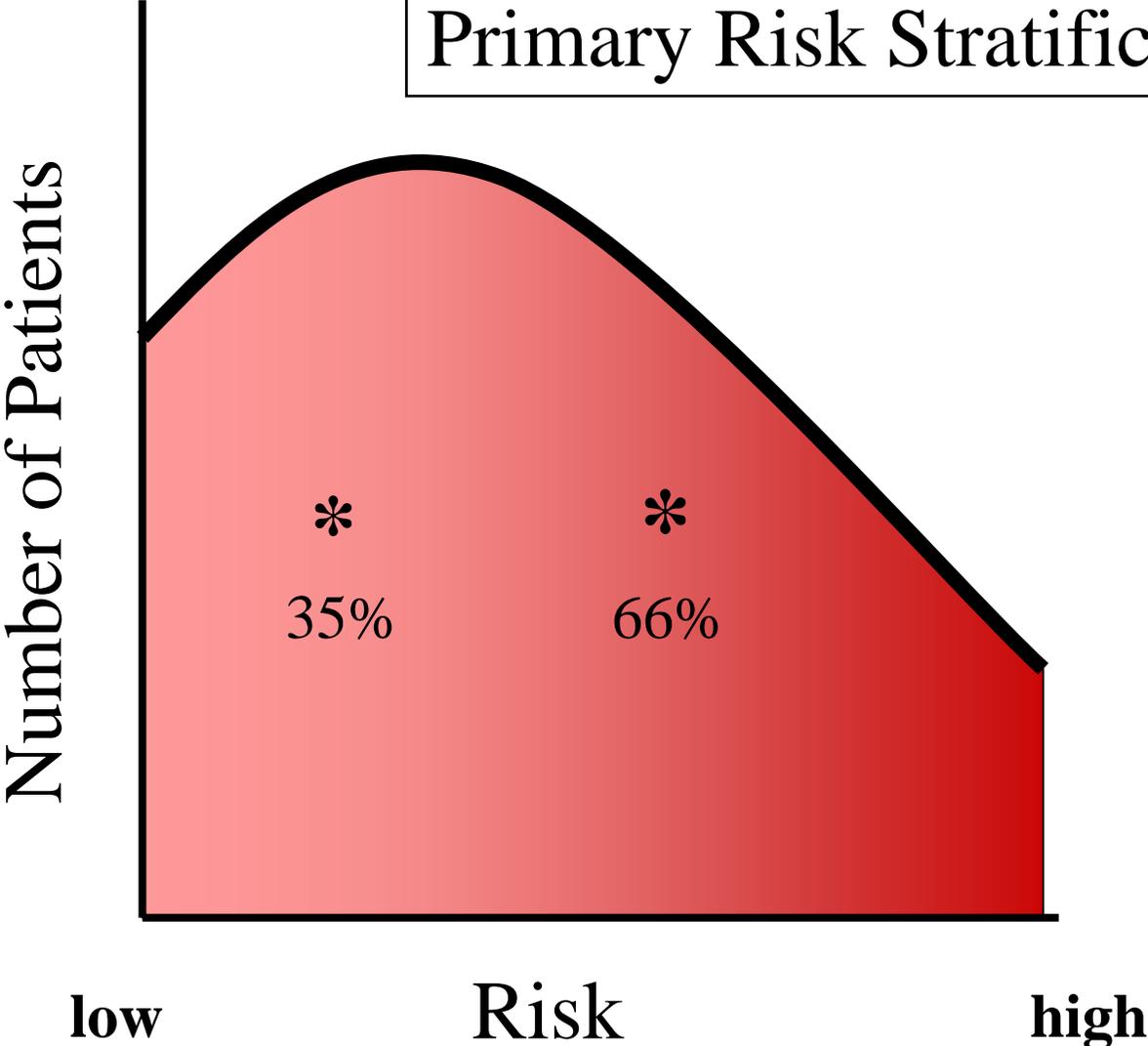


Chronology of an Acute Coronary Syndrome

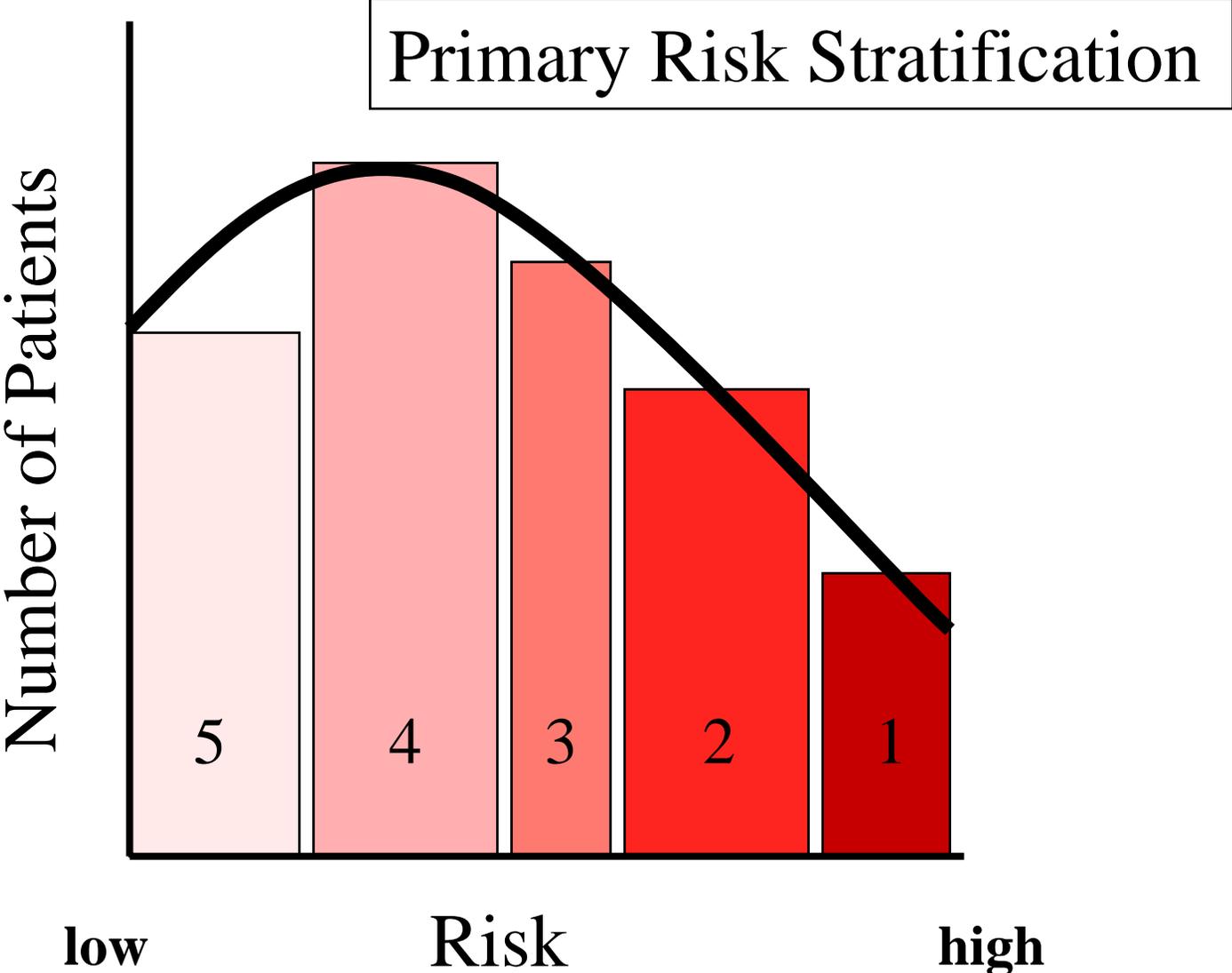


Evaluation of Chest Pain

Primary Risk Stratification



Evaluation of Chest Pain



Patient Presents with Chest Pain



**History
ECG
Physical Exam**



5

**Non Cardiac
D/C Home**



***Primary*
Risk Stratification**



| | | | |
|------------|-----------|---|--|
| AMI | UA | Non-Diagnostic (Higher - Risk) | Non-Diagnostic (Lower - Risk) |
|------------|-----------|---|--|

1



2



3

4

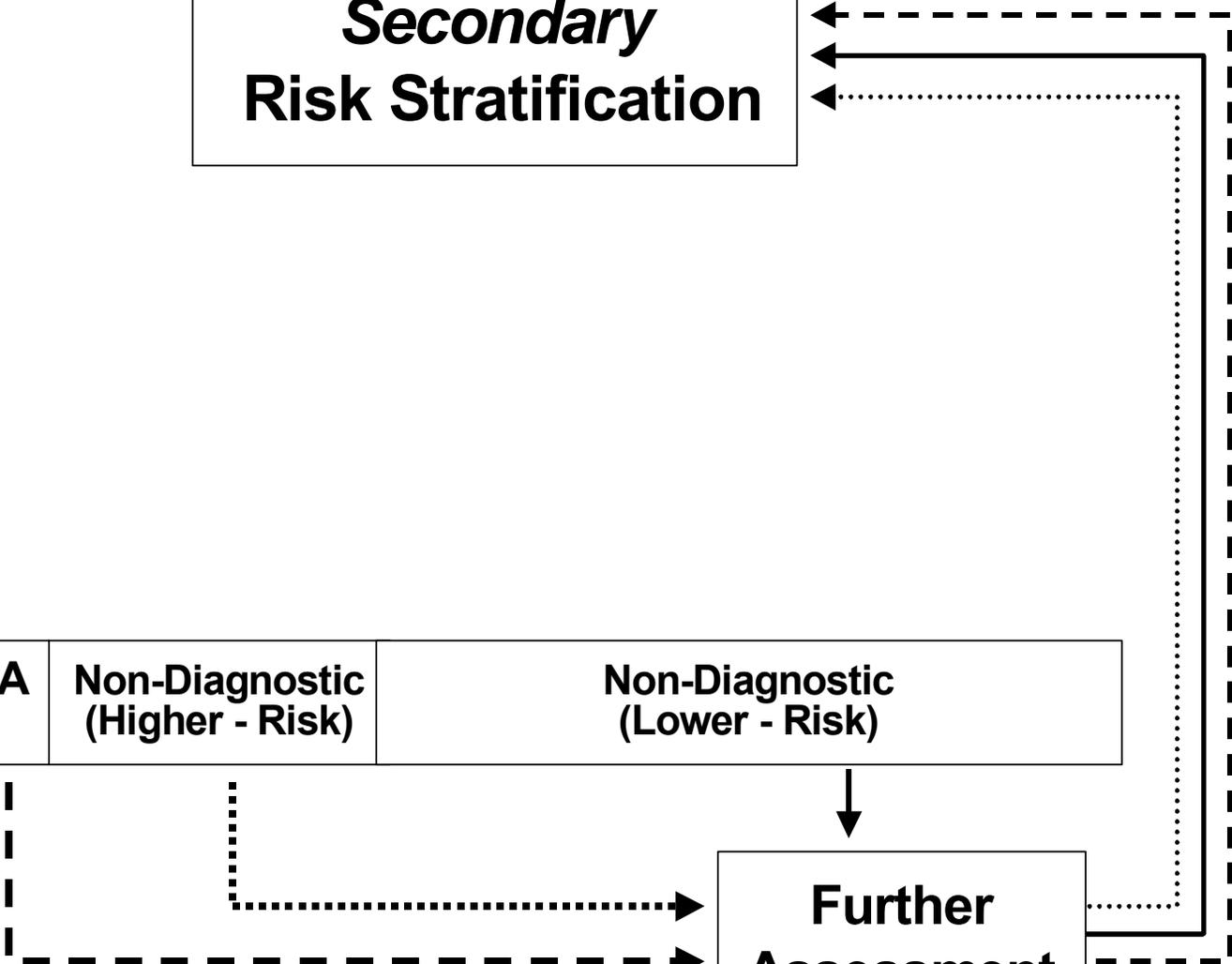
**Lytics
PCI**

**Anti-thrombin
Anti-platelet
Anti-ischemia**

Secondary
Risk Stratification

| | | | |
|------------|-----------|---|--|
| AMI | UA | Non-Diagnostic (Higher - Risk) | Non-Diagnostic (Lower - Risk) |
|------------|-----------|---|--|

**Further
Assessment**



Chest Pain Evaluation

A Hierarchy of Risk

Rapidly rule-in STEMI and initiate therapy

↓ **ECG**

Rapidly rule-in ACS and initiate therapy

↓ **Cardiac Markers**

Rule-out acute coronary syndromes



Identify stable coronary disease

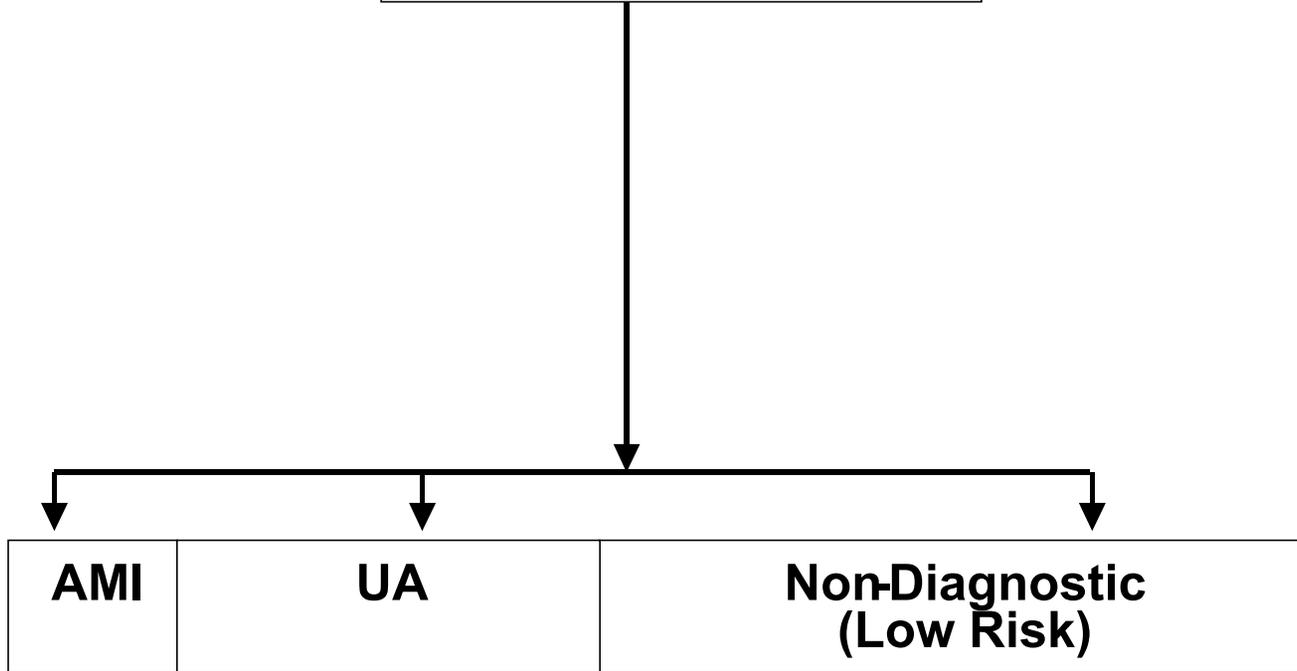
↓ **ETT**

Identify high risk individuals

↓ **Lipids, HTN, DM, etc.**

Risk factor modification

Secondary Risk Stratification



30 Minutes

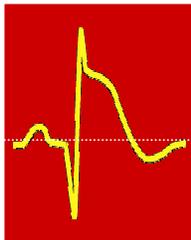
1

ECG

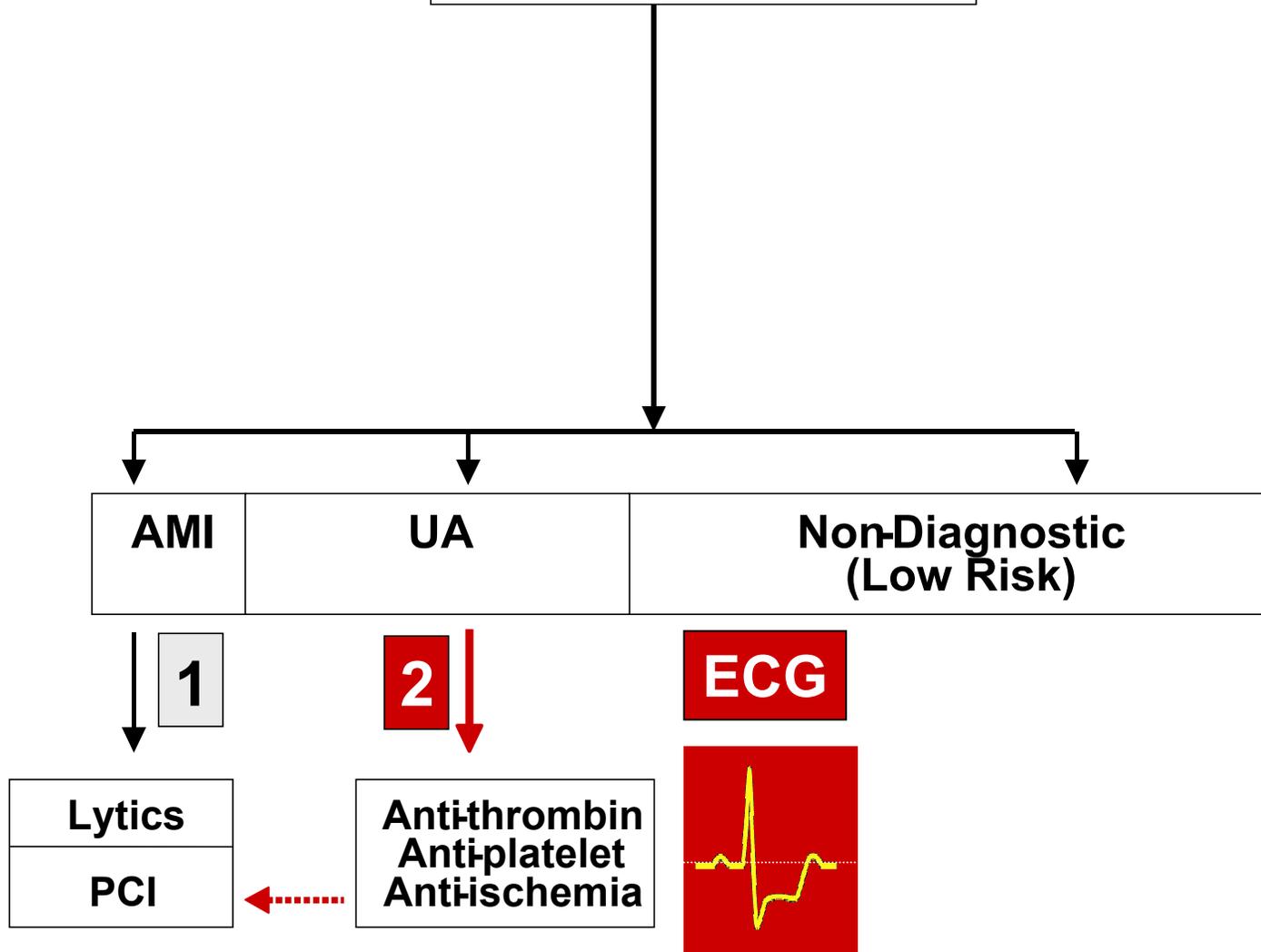
10 Minutes

Lytics

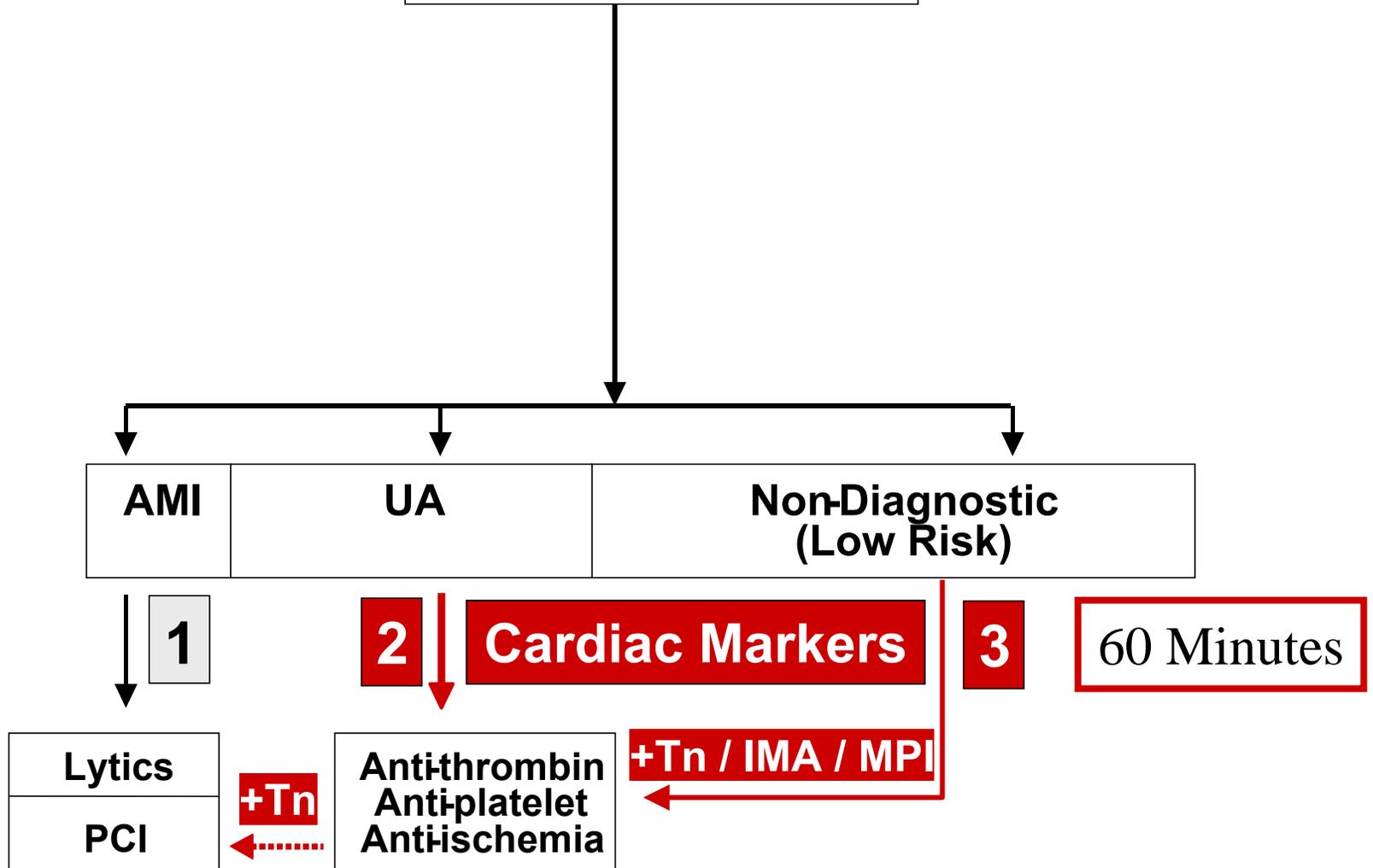
PCI

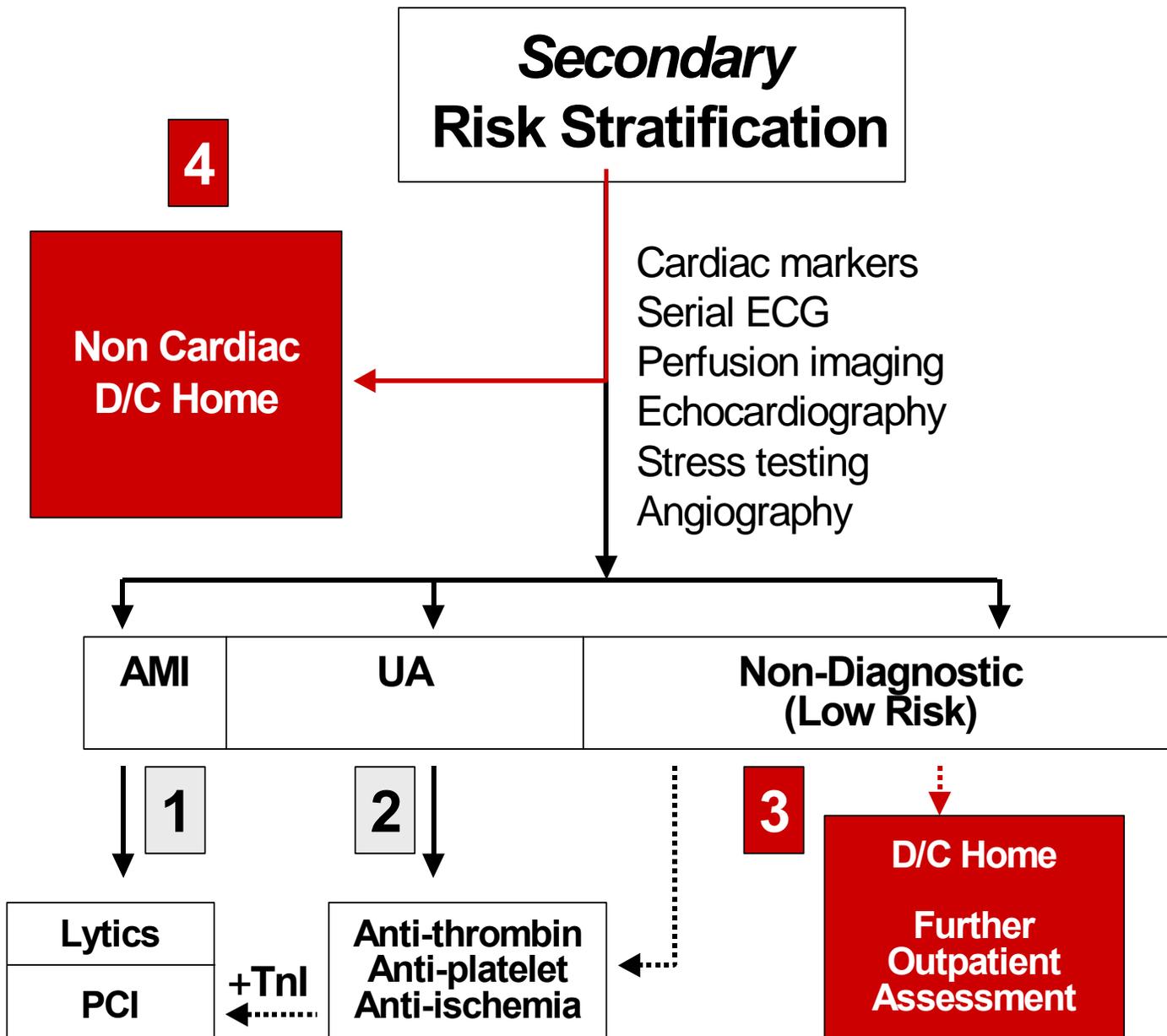


Secondary Risk Stratification



Secondary Risk Stratification

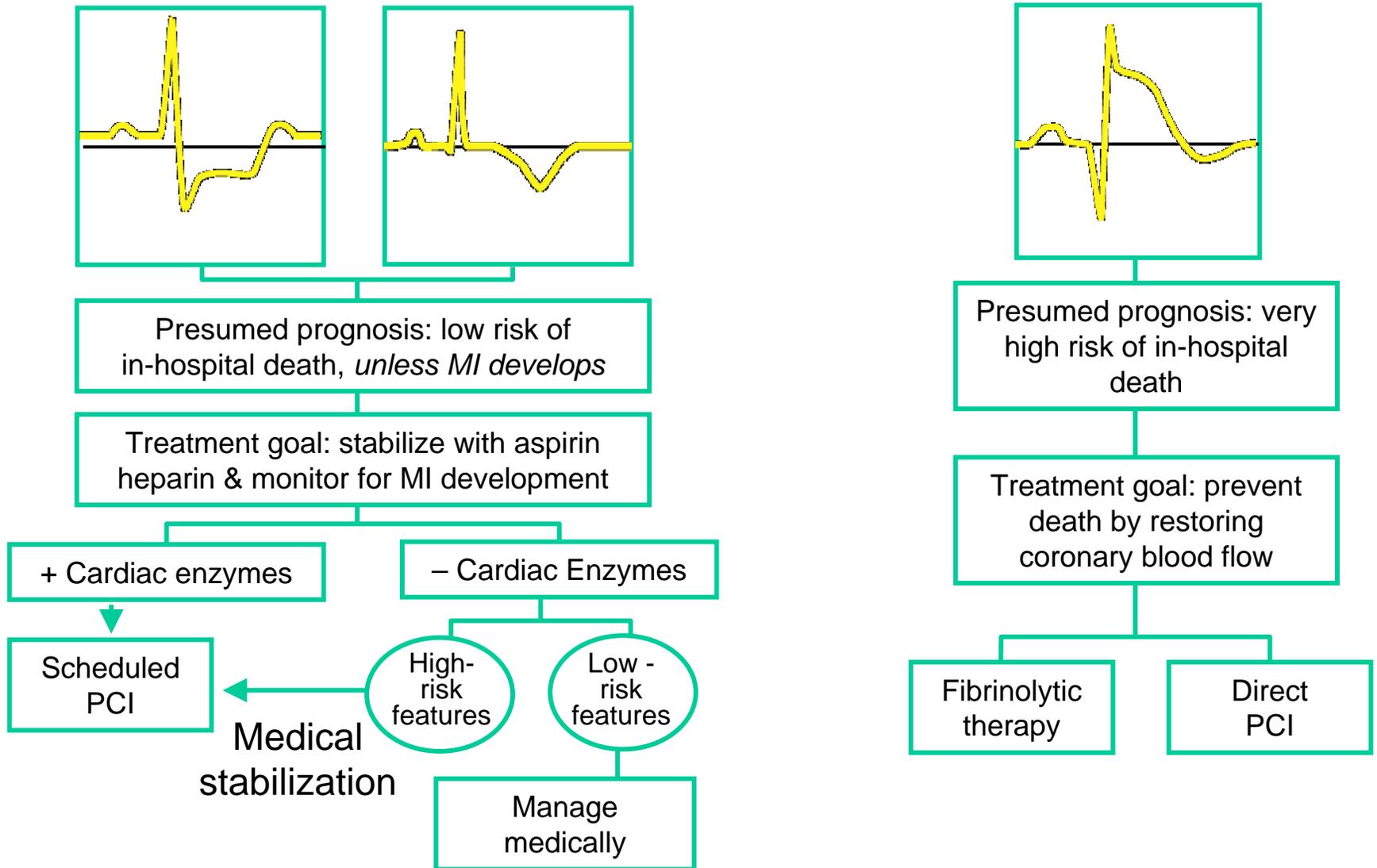




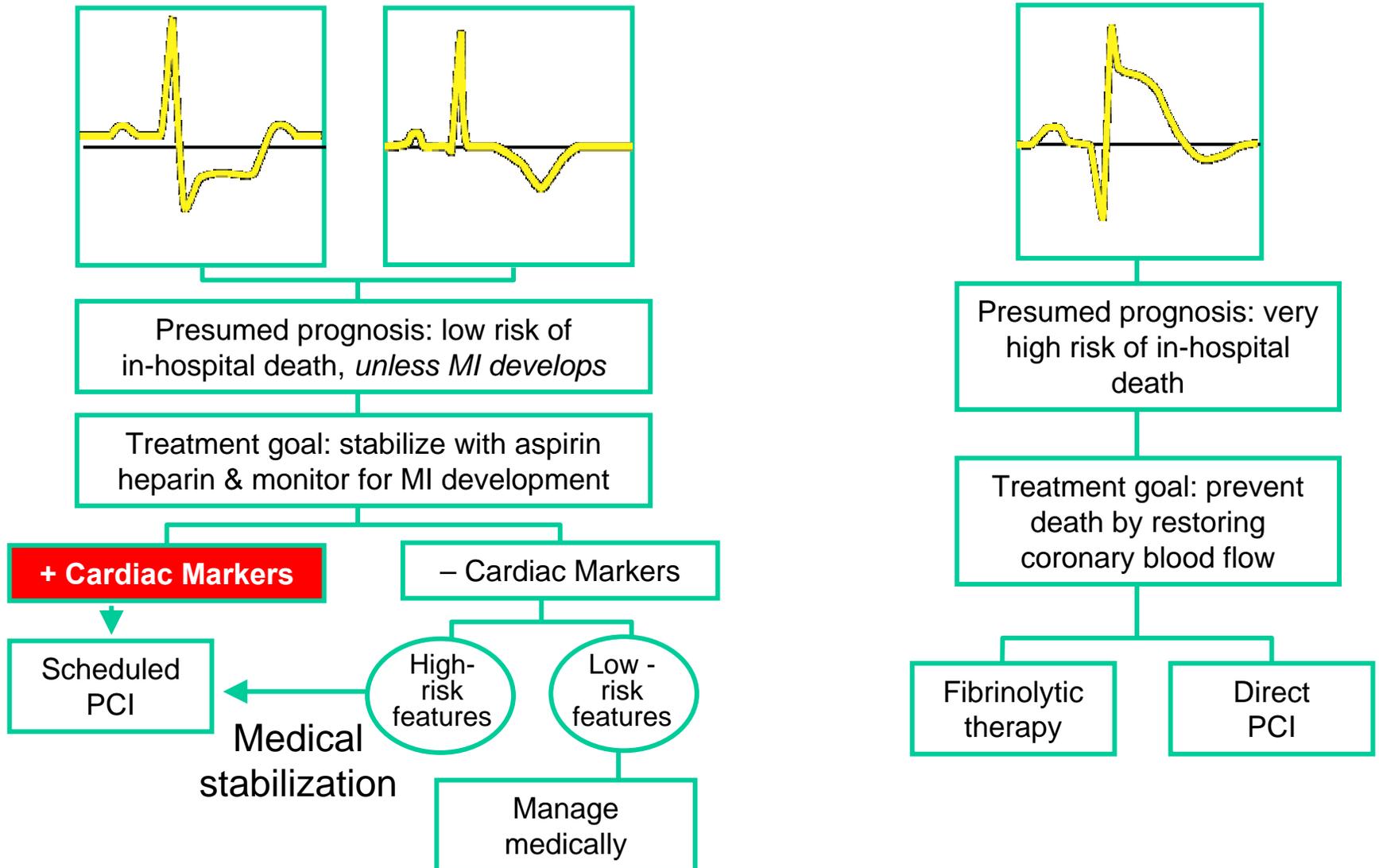
Acute Coronary Syndromes

Management

Current Management of ACS



Current Management of ACS

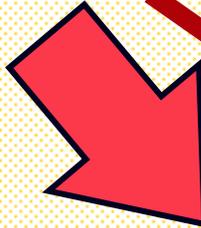
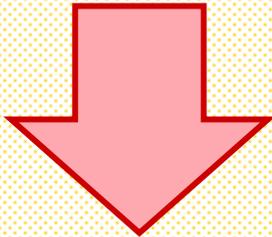


Acute Coronary Syndrome

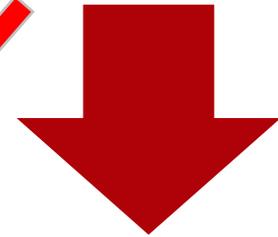
No ST Elevation

ST Elevation

Rapid
Markers



NSTEMI



Unstable Angina

NQMI

Q-wave MI

Fibrinolytics

GP IIb/IIIa Blockers

Aspirin

Clopidogrel

UFH / LMWH (Enoxaprin)

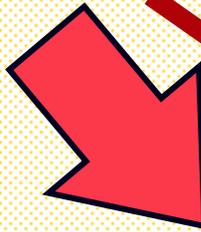
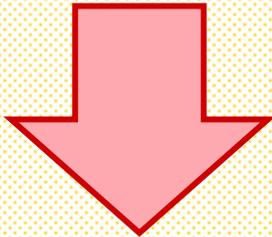
**P
C
I**

Acute Coronary Syndrome

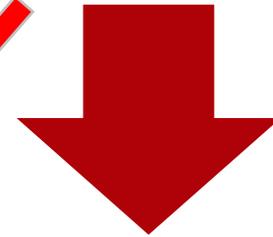
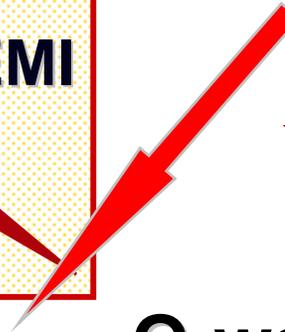
No ST Elevation

ST Elevation

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NSTEMI



Unstable Angina

NQMI

Q-wave MI



Fibrinolytics

GP IIb/IIIa Blockers *



Aspirin

Clopidogrel *

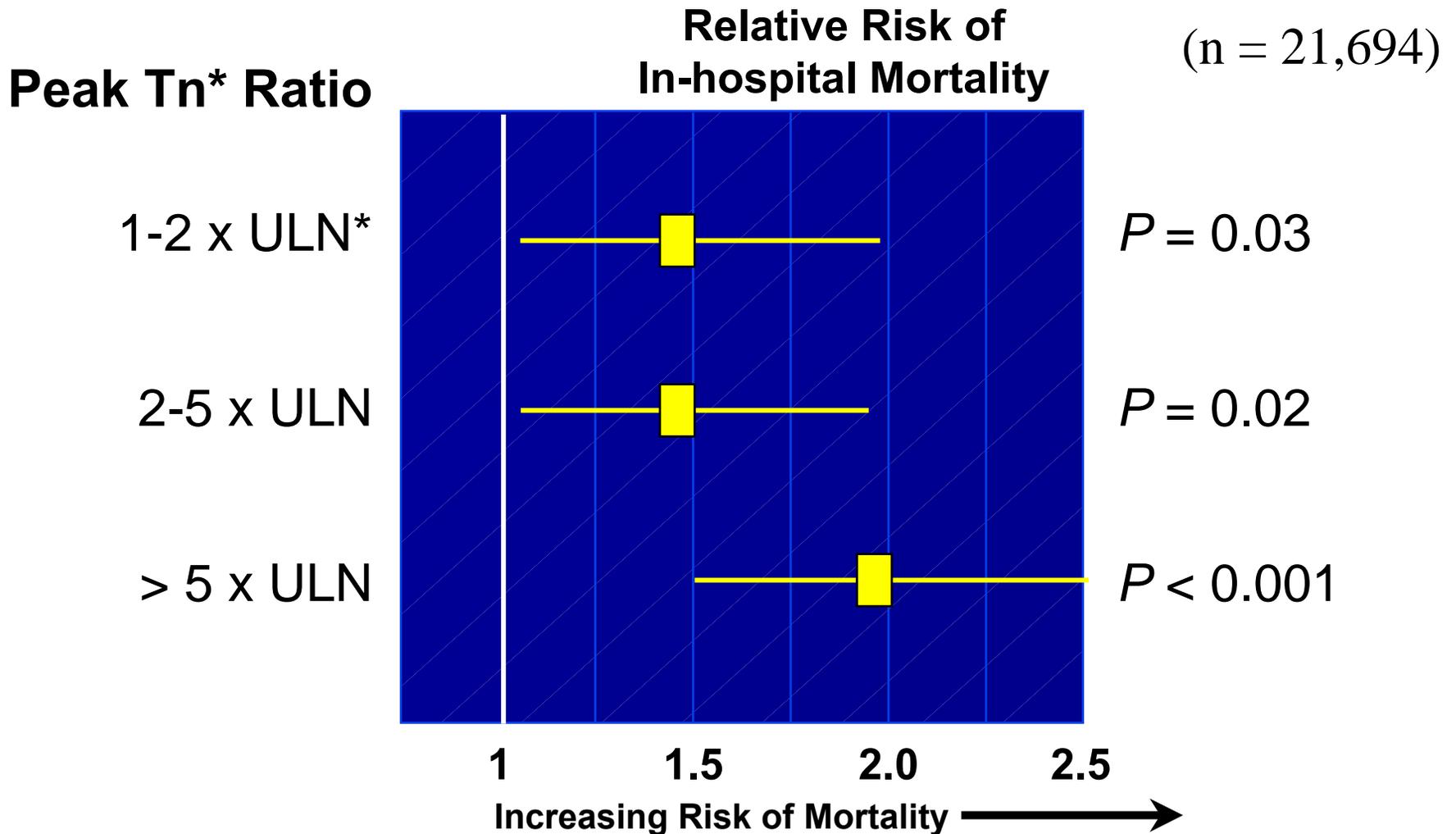
UFH / LMWH (Enoxaprin) *



P
C
I

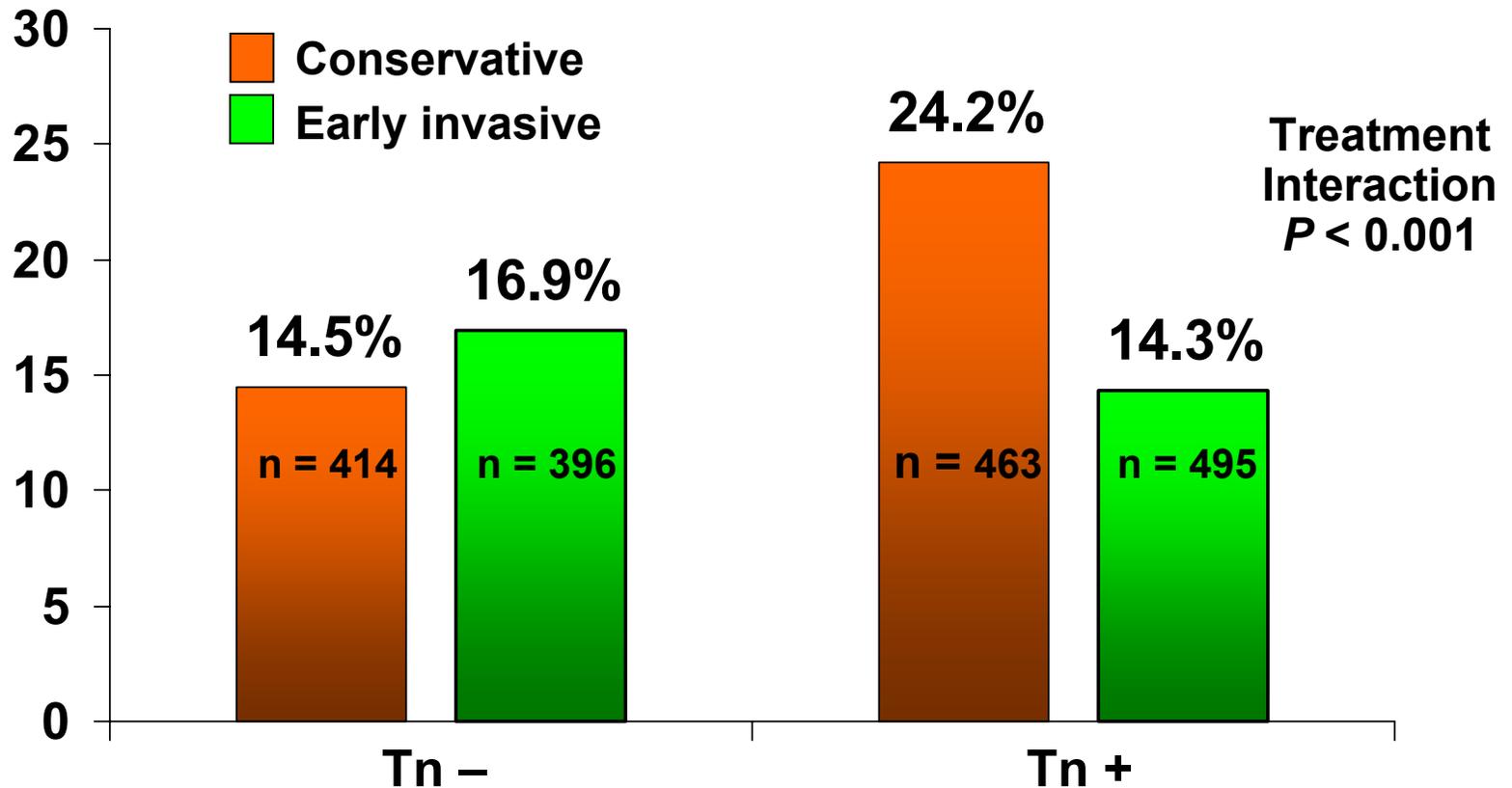
In-hospital Mortality in NSTEMI ACS

Adjusted Risk of by Peak Troponin Level



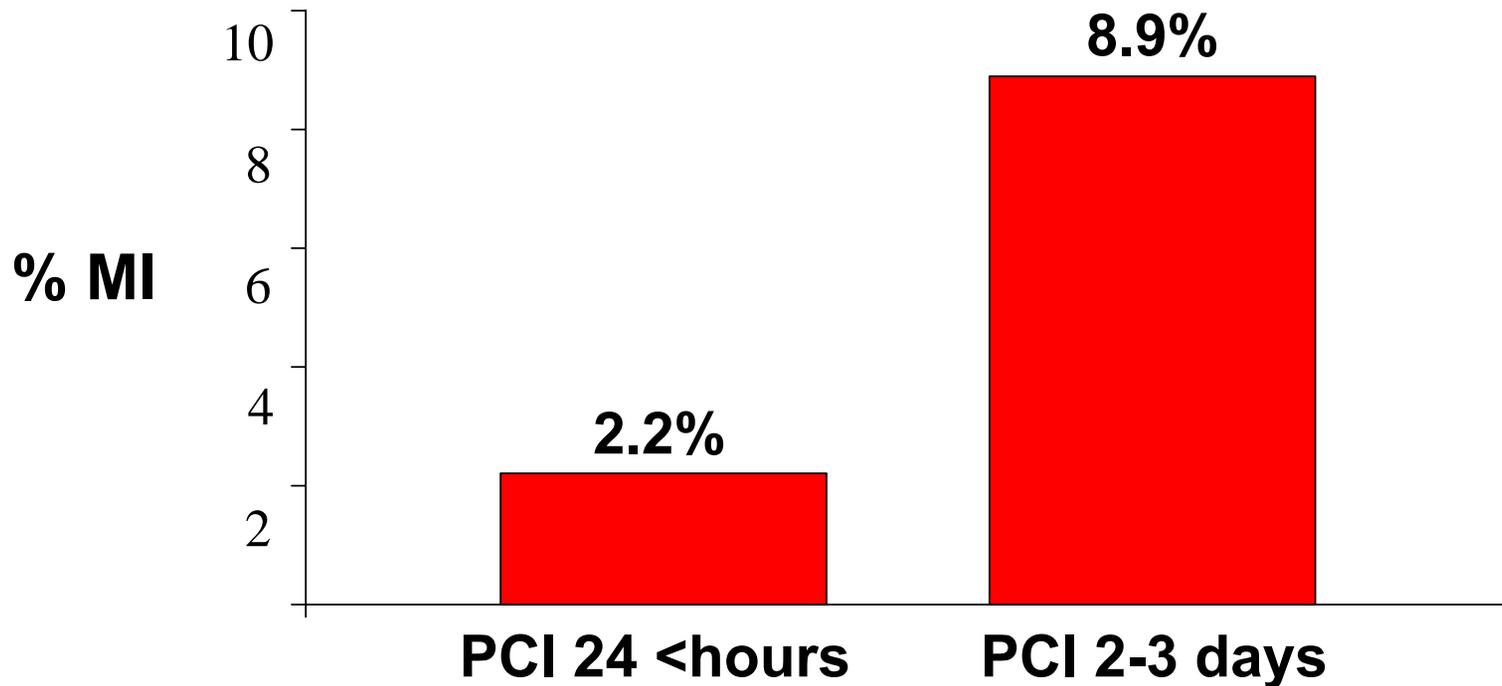
Early Invasive vs Conservative Strategy TACTICS-TIMI 18 Outcomes By Troponin Status

% Death, MI, Rehospitalization at 6 Months



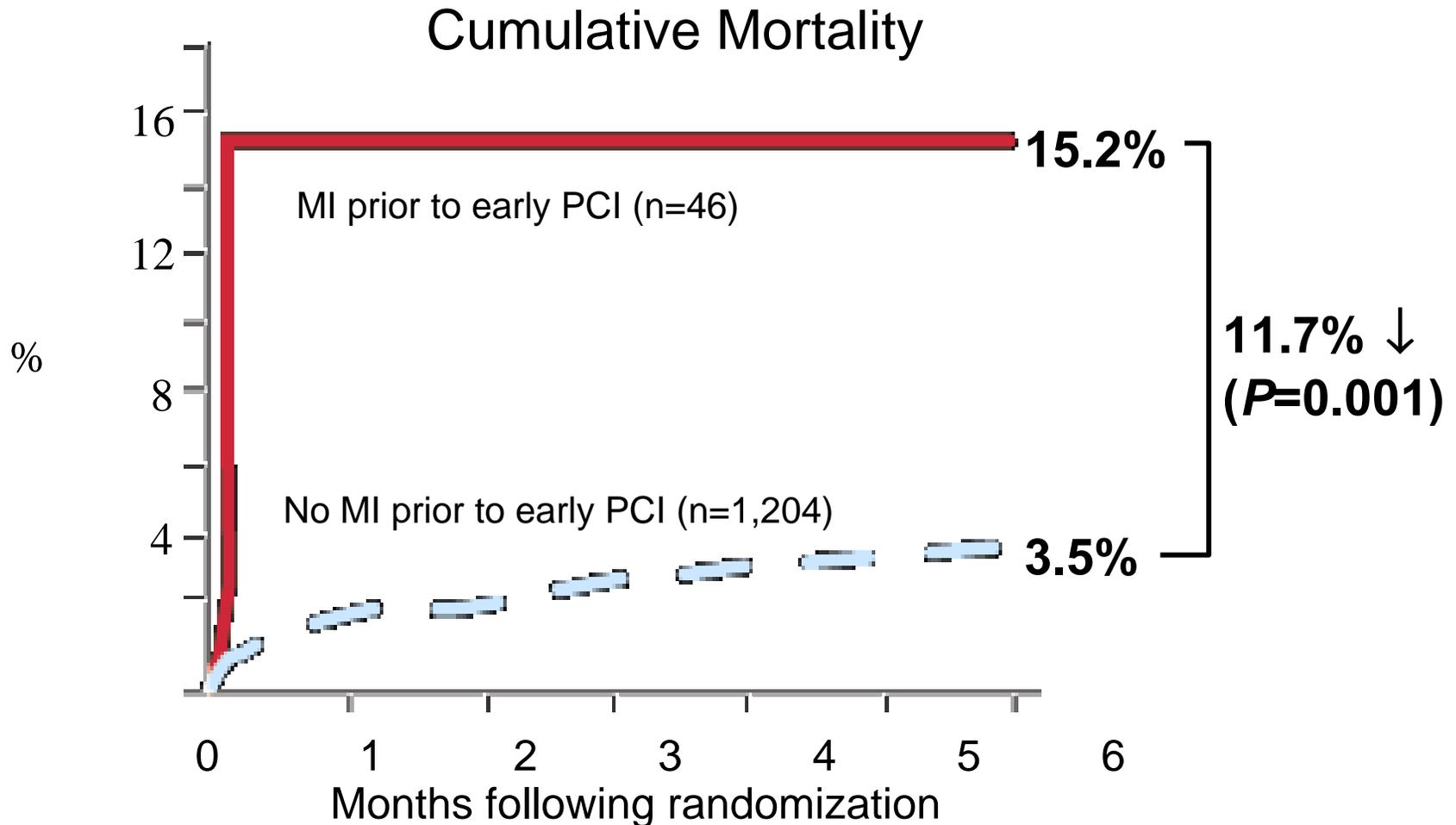
Incidence of MI Prior to PCI

Patients with Non-ST Elevation ACS



Post-randomization analysis

Mortality in Patients With MI Prior to PCI

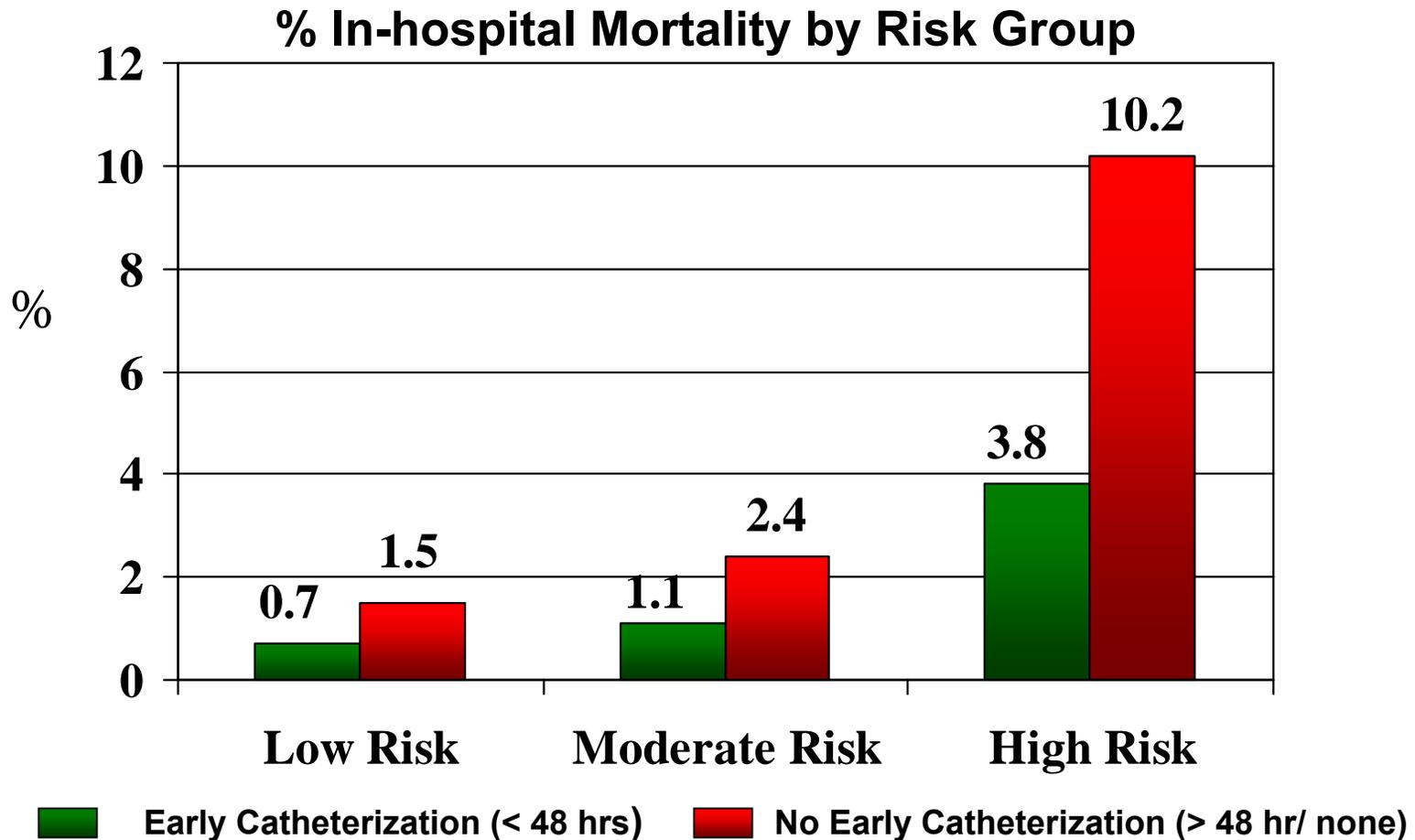


Post-randomization analysis

Fintel DJ et al. *J Am Coll Cardiol.* 2000; 35A: A375.

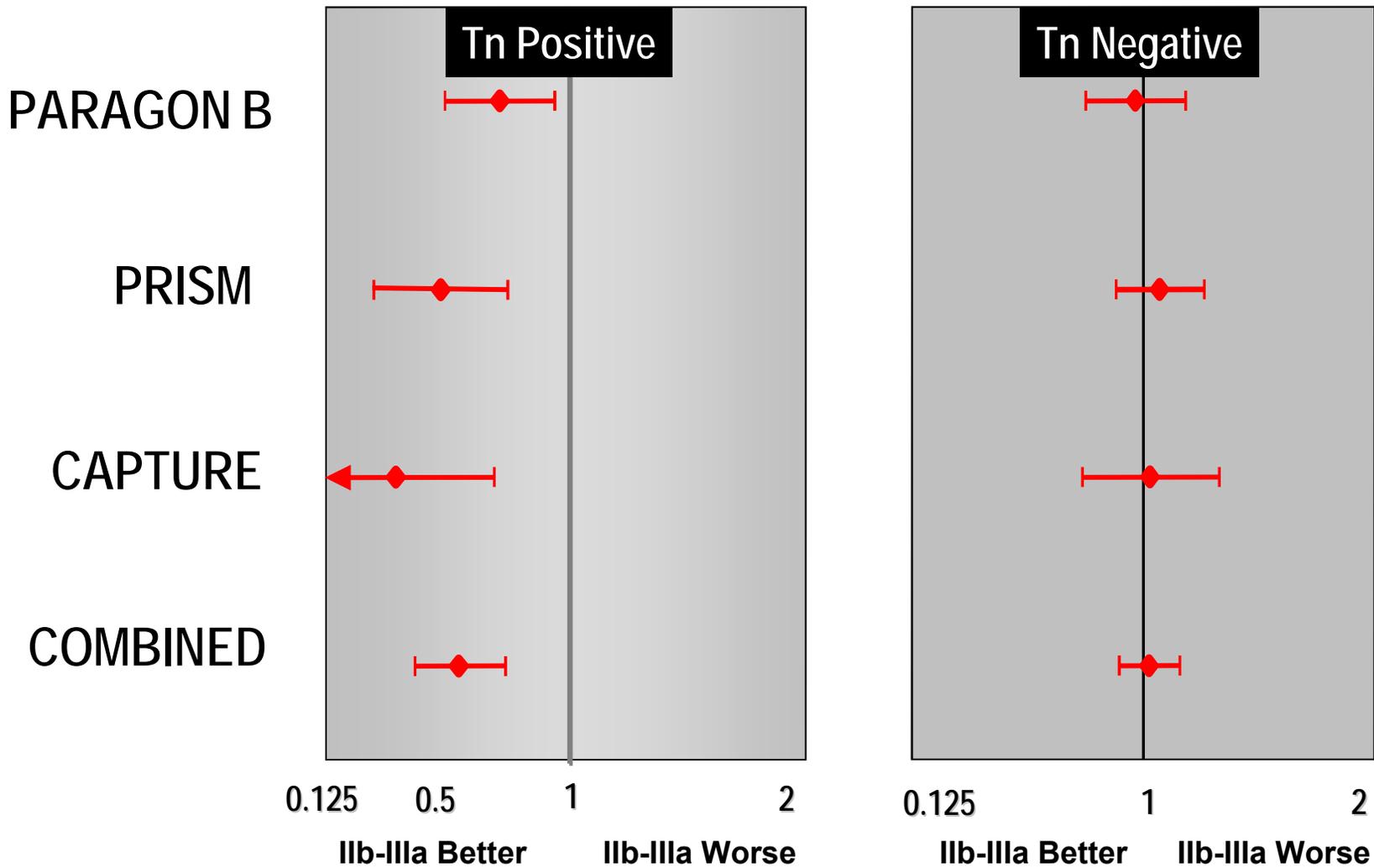
Early Catheterization in NSTEMI ACS

Benefit Observed in CRUSADE



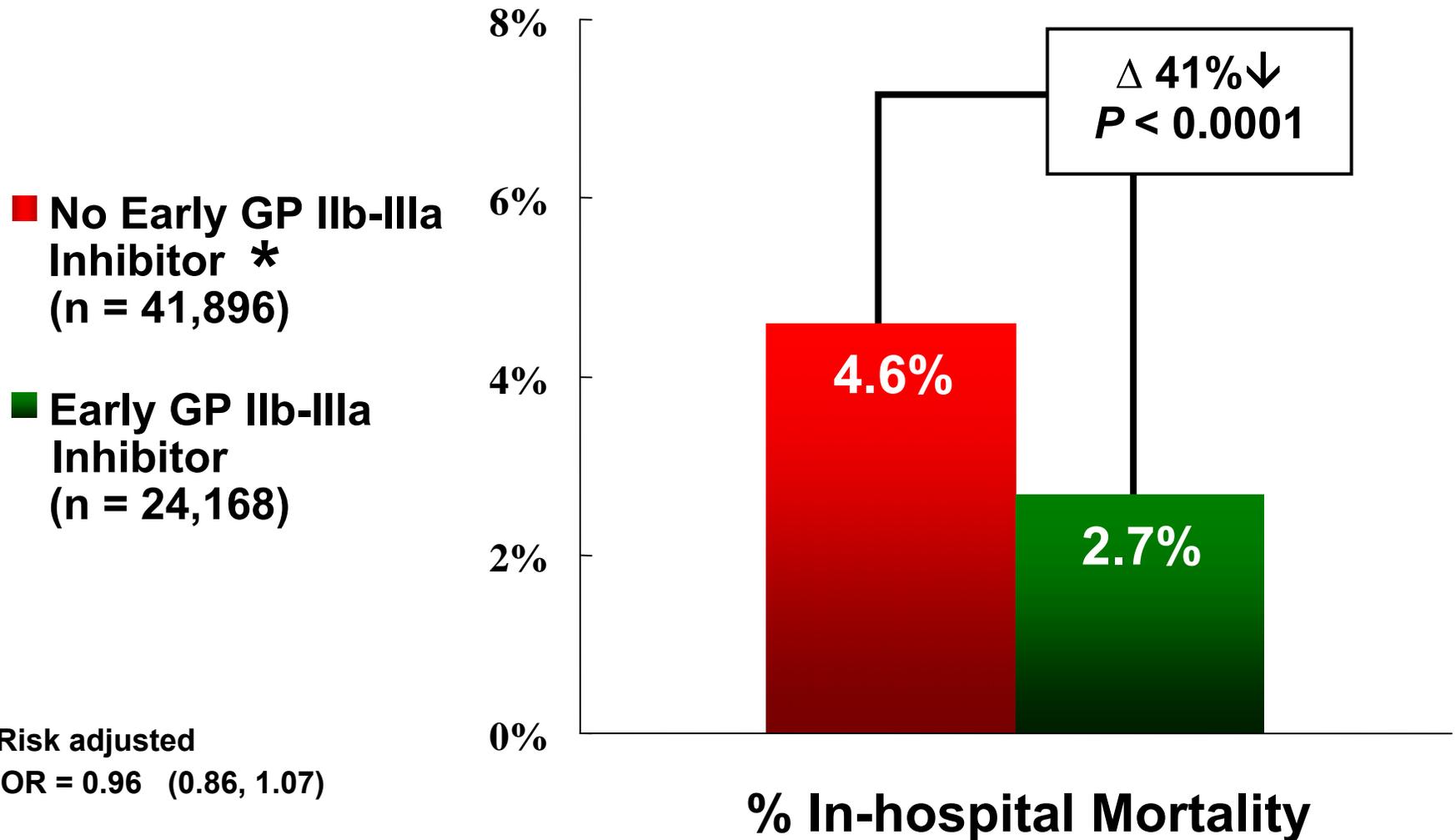
Benefits of GP IIb-IIIa Inhibition

Outcome by Troponin Status in NSTE ACS



In-hospital Mortality in NSTEMI ACS

Early GP IIb-IIIa Inhibitor Use Within 24 Hours †

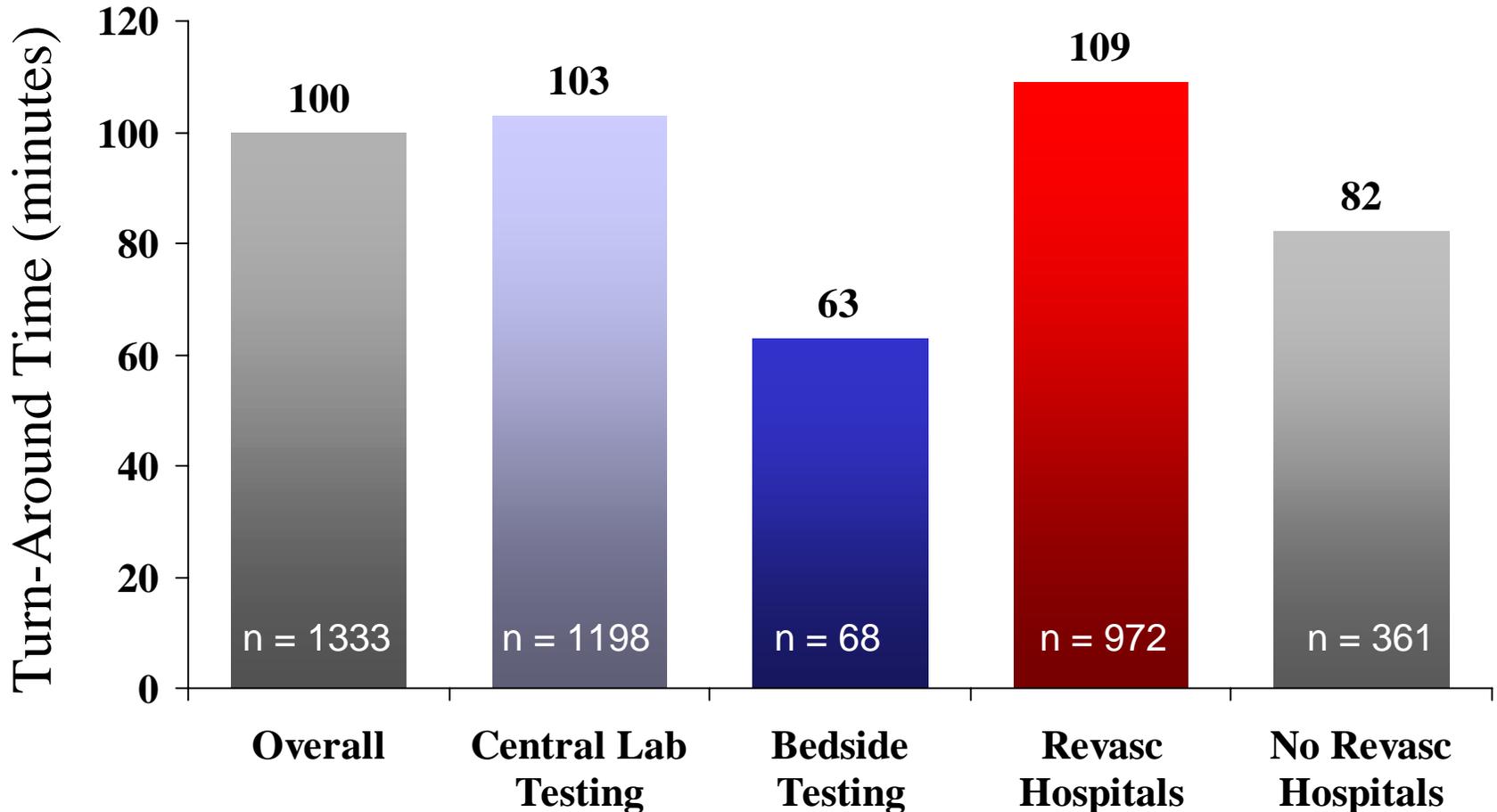


* Risk adjusted
OR = 0.96 (0.86, 1.07)

* Includes patients who received late GP IIb-IIIa inhibitor (> 24 hrs) therapy.

Troponin Turnaround Times in the ED

26 U.S. CRUSADE Hospitals



Vein-to-brain = time from blood draw until troponin results reach the physician

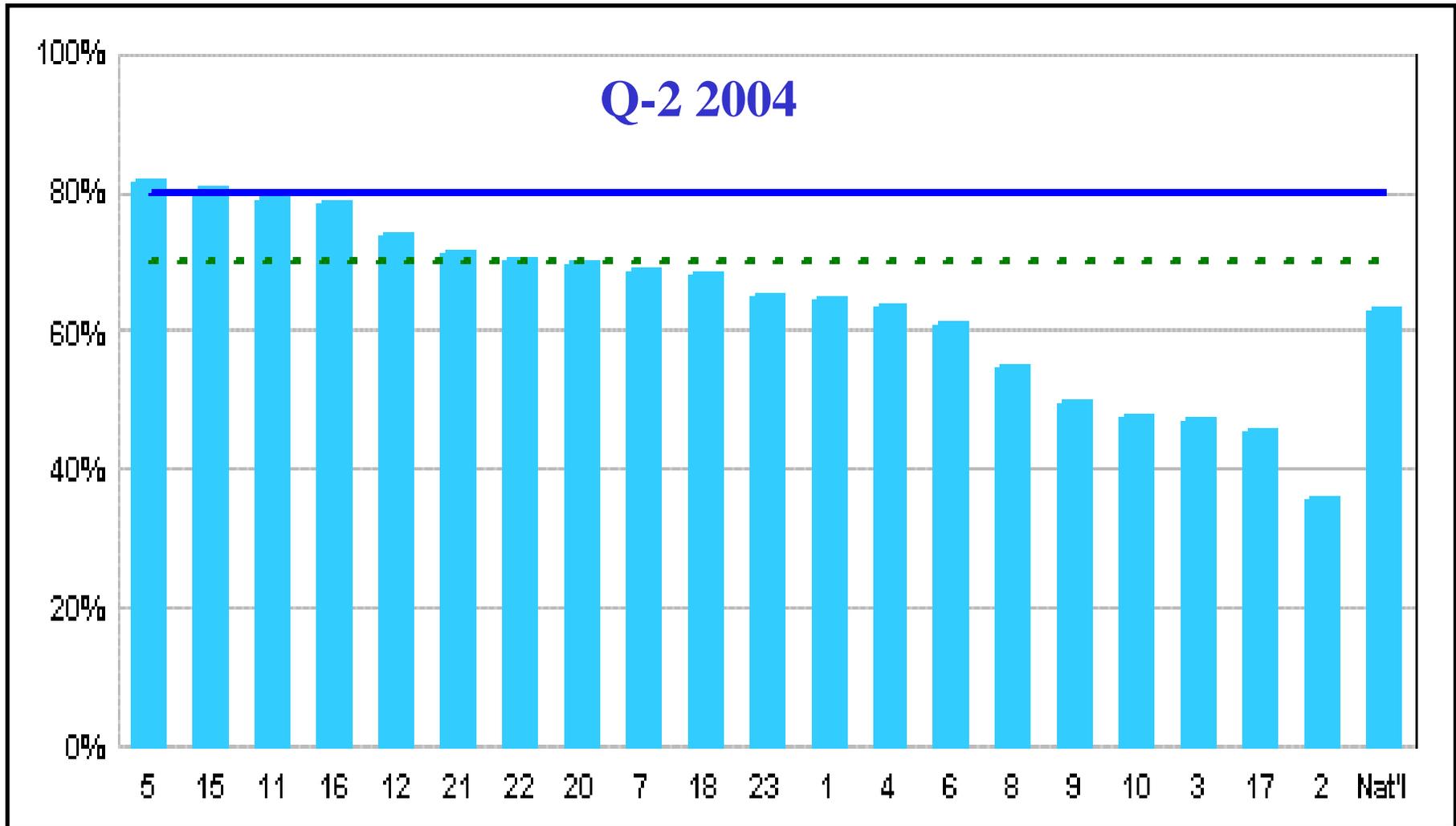
VHA Performance Measures

Troponin Turn-Around Time

- Troponin identifies patients who are at higher risk for poor outcomes and who will benefit most from many treatments
- ACC/AHA and NACB/AACC recommend 60 minute turnaround for troponin
- VHA began 60 minute troponin turnaround as a network-wide performance standard in November 2003

VHA Performance Measures

Troponin Turn-Around < 60 Minutes



The explicit goal in ACS must be to identify high risk patients early and to prevent any necrosis !

Managing Quality in ACS

Assessing Quality in Healthcare

- Quality is in the eye of the beholder
- Outcome is the ultimate gauge of quality
- We can't measure outcomes with any statistical validity
- We can measure processes
- RCTs link processes to outcomes
- Quality is defined by process adherence

Data That Drives Quality Assessment

- **Demographics**
- **Medical history**
- **Initial evaluation**
- **Disease specific**
- **Hospital course**
- **Laboratory data**
- **Medications**
- **Procedures**
- **Clinical events**
- **Disposition**

Quality in ACS Care

Performance Measures versus Guidelines

Performance Measures

- Founded on the highest level of evidence-based practice
- Imposes accountability for outcomes

Performance Measures

Rationale

- Decrease variation in processes known to impact outcomes
- Improve the consistency of desired outcomes *across the healthcare network*
- Demonstrate quality within a clinical system
 - National benchmarking

Performance Measures

“Information that compels action”

Performance Measures

Implementation Strategies

- Achieve global goals through local implementation
- Clear delineation of expectations
- Feedback
 - Frequent
 - Accurate
- Transparency
 - JACHO core measures posted on the web

Performance Measures

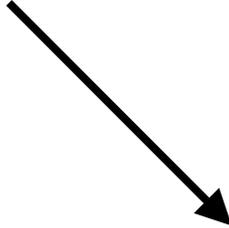
Accountability

- Commitment to success by leadership
 - Set high standards
 - Accept current performance as a basis to move forward with improvement plans
 - Network-level accountability
- Accountability at the provider level
 - Sometimes is difficult
 - Always is useful

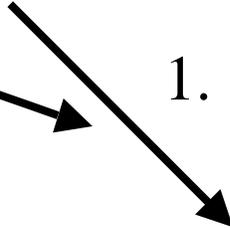
The Focus of Guidelines

- Targeted patients
 - Any person eligible for care under a condition of interest
- Targeted interventions
 - Diagnosis
 - Pharmacologic treatments
 - Non-pharmacologic management

Observation

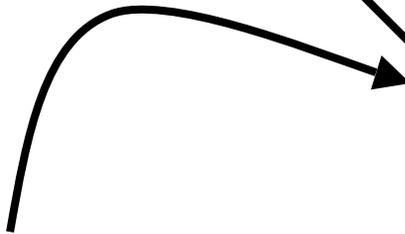


Randomized Clinical Trial



1. Quality of Evidence
2. Strength of recommendation

Guideline



- Class I: Evidence that a procedure or treatment is useful
- Class II: Conflicting evidence
 - * IIa Weight of evidence in favor of efficacy
 - * IIb Weight of evidence less well established
- Class III: Evidence that a procedure or treatment may be harmful

For Health Services Research

Observation

Randomized Clinical Trial

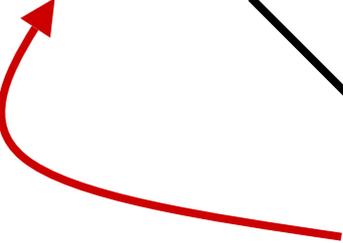
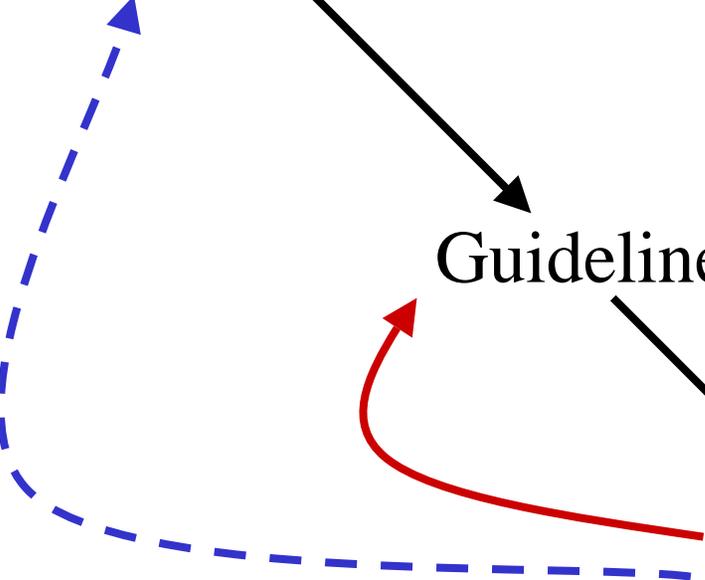
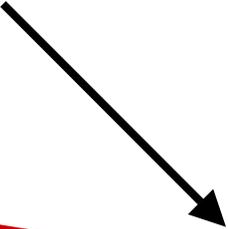
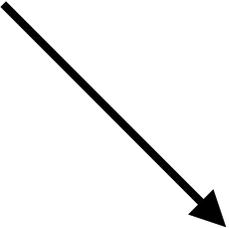
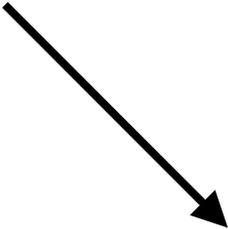
Guideline

Registries
CQI data sets

Observation

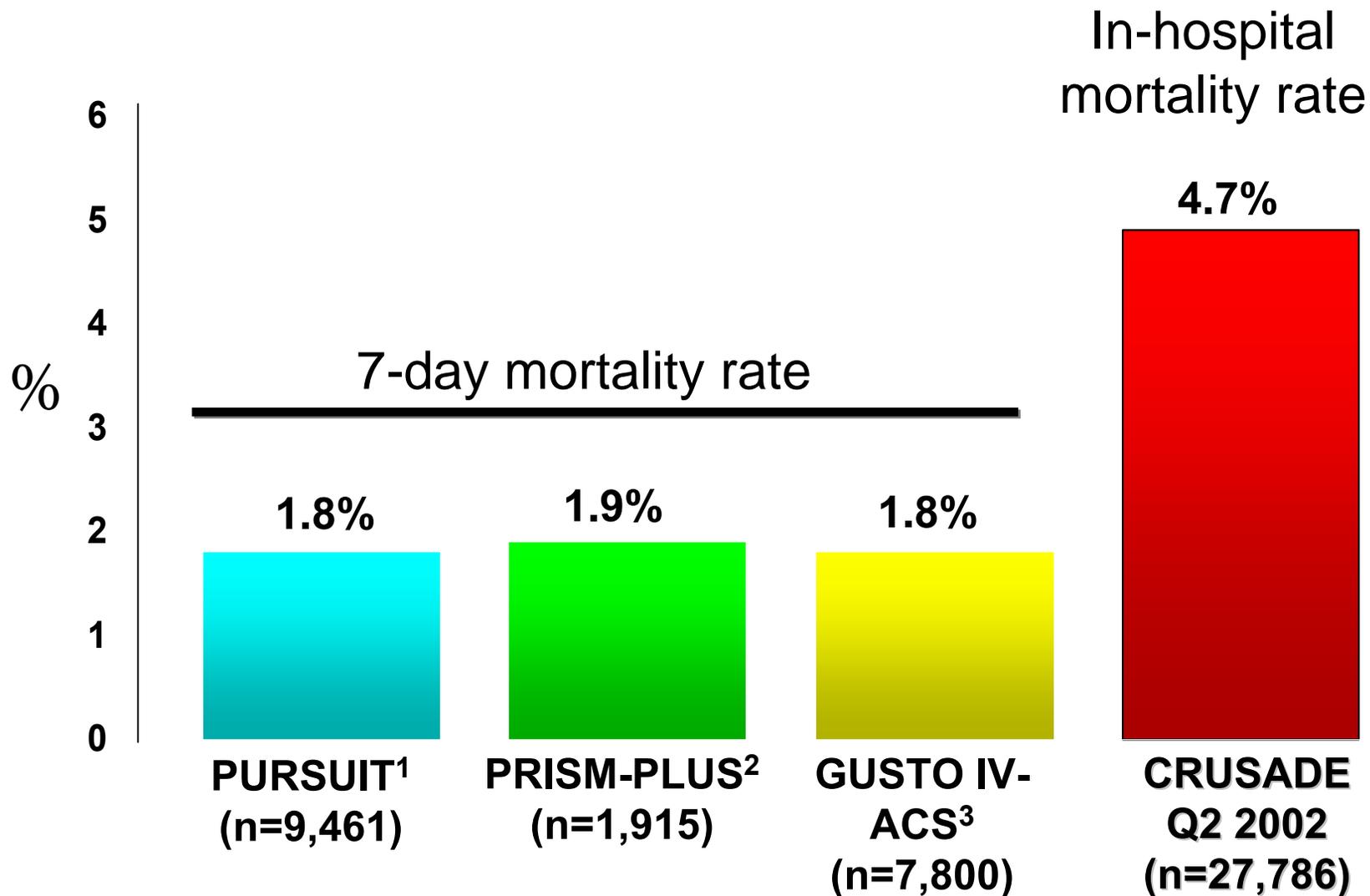
hypothesis
generating

confirmation of RCT results
in an unselected population



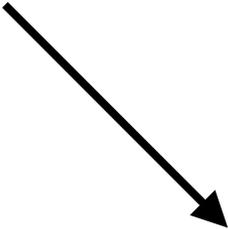
Non-STE-ACS Trials vs CRUSADE

Early Mortality

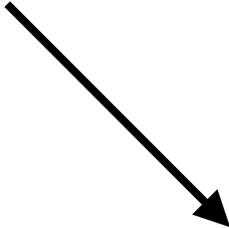


For the Individual:

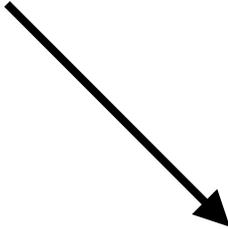
Observation



Randomized Clinical Trial



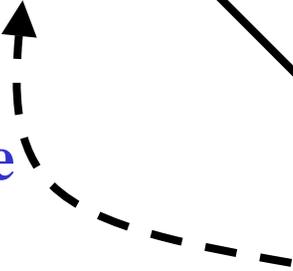
Guideline



CRUSADE/EPRP

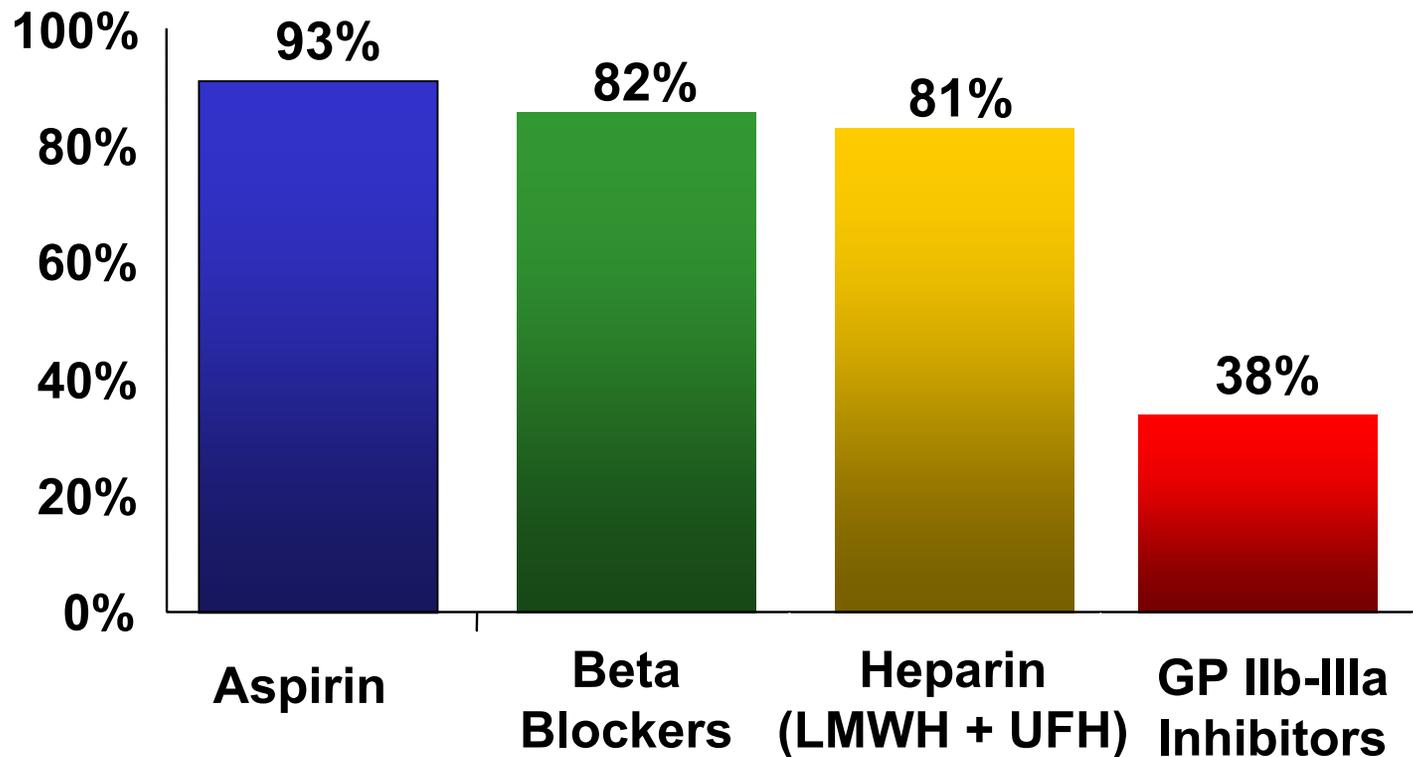
Performance
Measurement

**Appropriate
Adherence
Feedback**



Acute Medication Use in NSTEMI ACS

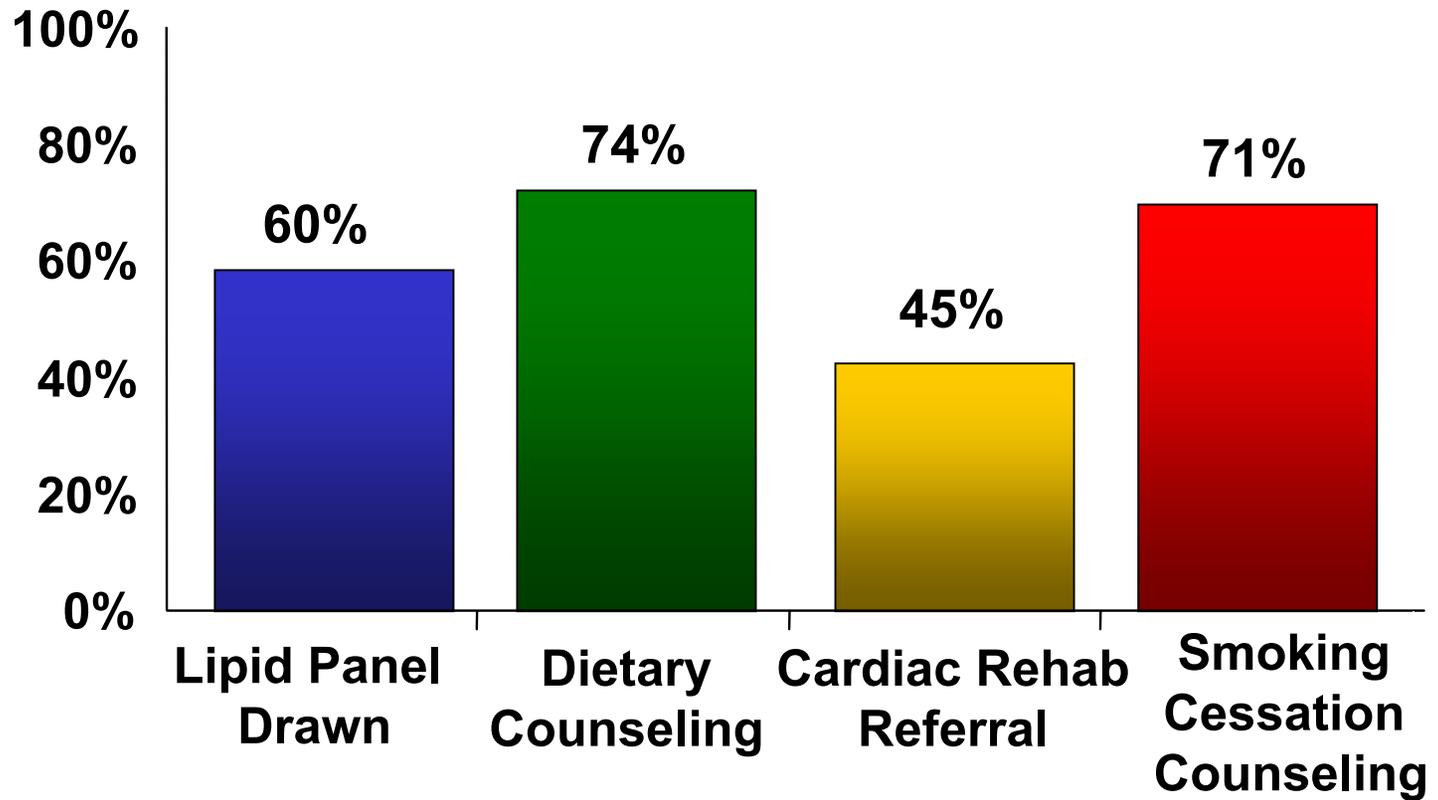
The First 24 Hours (n = 44,306)*



*Data collected January 2003 to December 2003. Excludes contraindications.
Data on file, Duke Clinical Research Institute.

Discharge Actions in NSTEMI-ACS

(n = 44,306)



*Data collected January 2003 to December 2003.
Data on file, Duke Clinical Research Institute.

VHA Performance Measures

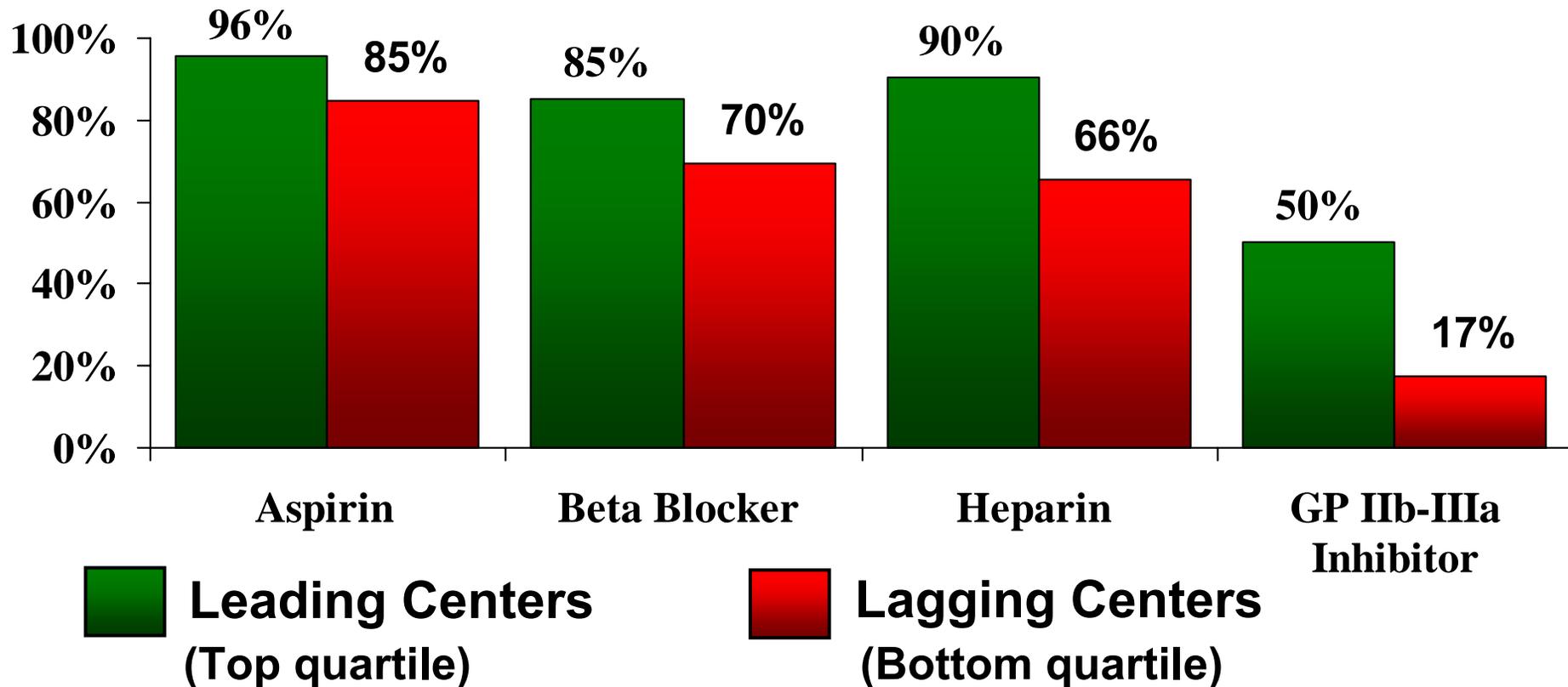
Methodology

- Set Targets
 - Top performers – upper 20 %
 - For new measures use existing non-VHA benchmarks
 - Accreditation
- Compare
 - Within VHA
 - Externally
 - HEDIS, CMS
 - NCDR, CRUSADE, GWTG

Key Elements of Early ACS Care

Leading and Lagging Hospital Quartiles*

NSTE ACS (n = 64,775)

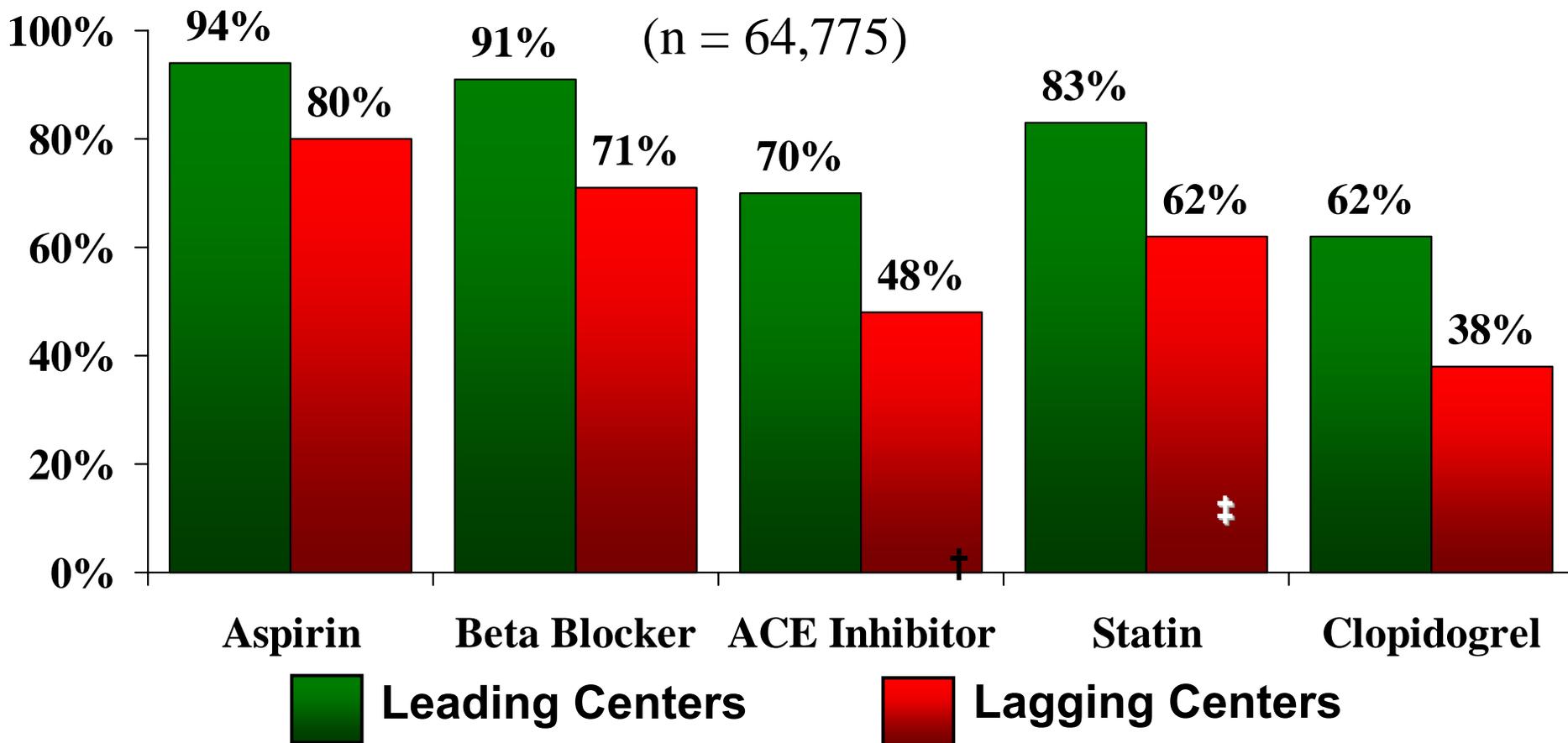


* Excludes contraindications and transfers out.

Data collected November 2001 to December 2003. Data on file, Duke Clinical Research Institute.

Key Elements in Discharge Care

Leading and Lagging Hospital Quartiles*

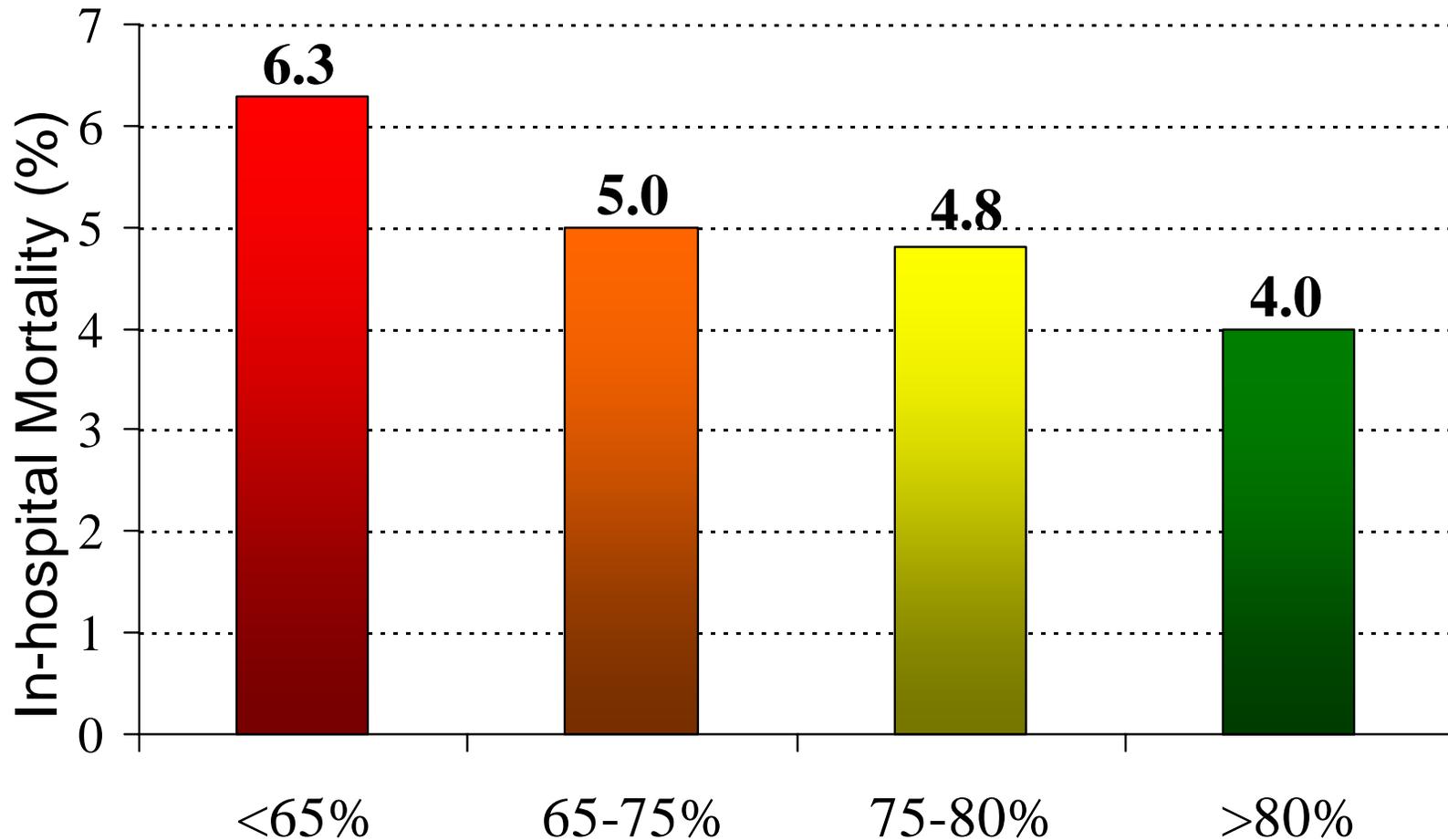


*Data collected from November 2001 to December 2003. Excludes contraindications.

† LVEF < 40% Known hyperlipidemia

Performance Matters!

Relationship between Process and Outcome

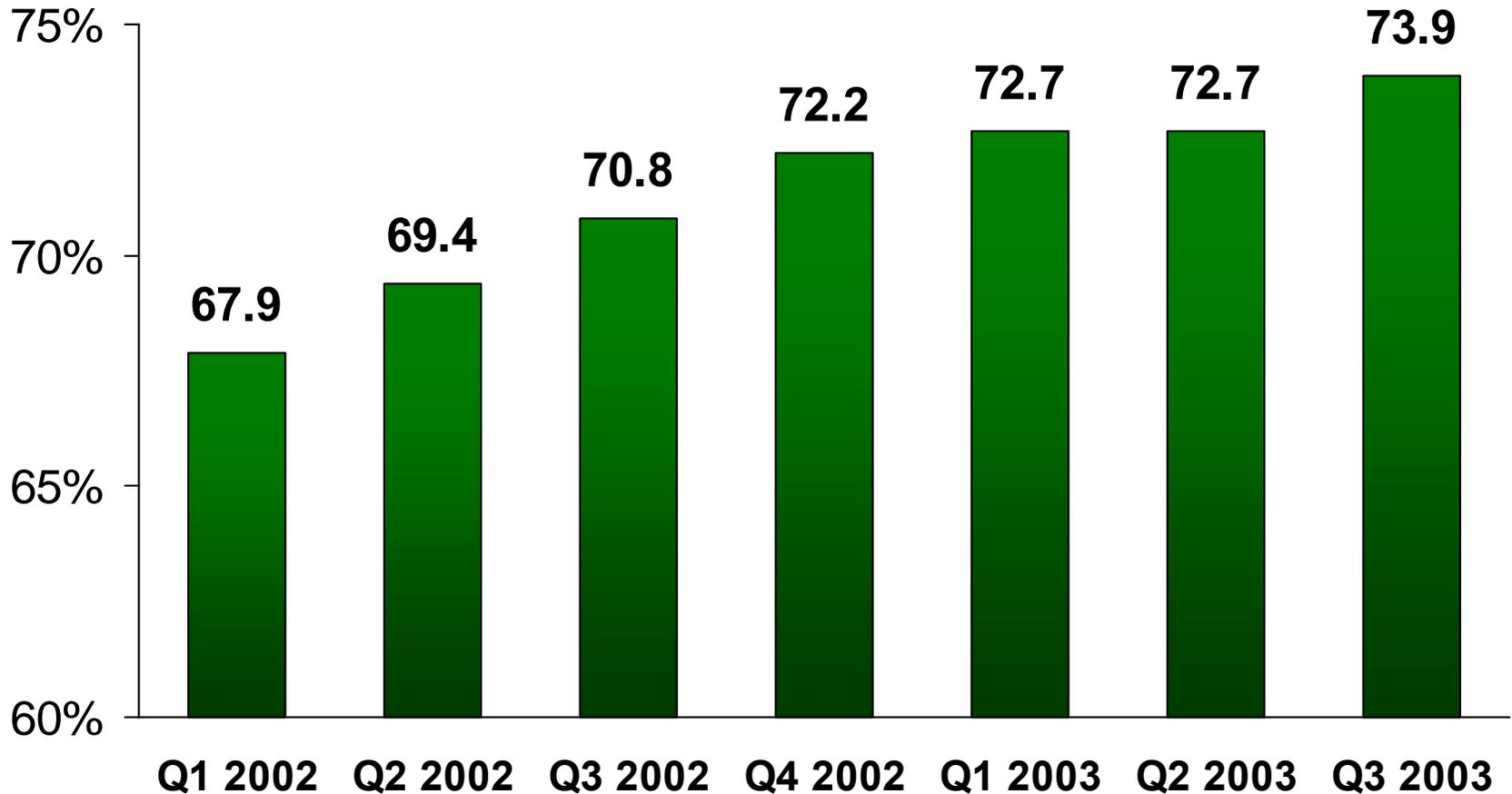


Hospital Composite Adherence Quartiles

* Data Collected from November 2001 to December 2003.

Overall Composite Adherence Trends

Quarter 1, 2002 – Quarter 3, 2003



***Knowledge is Information
Put to Productive Use***

or...

***There Can be No Evidence-
based Medicine Without
Implementation***

What's New on the Horizon ?

What's New on the Horizon ?

- Timer starts with first diagnostic ECG
 - Pre-hospital, antecedent ECG (NH, clinic, EMS)
- Primary PCI lowered to 90 min
 - Increased use of facilitated PCI
- Emphasis on non-STEMI ACS
 - Anti-platelet agent performance markers
 - Time constraints placed on ACS care
 - Map care to appropriate risk status (Tn)

What's New on the Horizon ?

- Right care at the right place
 - Protective environment
 - Rapid risk assessment
 - Appropriate initial care
 - Timely transfer
 - Continuity of care
 - System accountability

What's New on the Horizon ?

- Lipid targets redefined
 - Start in-hospital
 - Start in ED?
 - New targets (70 mg/dl?) vs max statin dose
 - Antecedent care accountability

What's New on the Horizon ?

- Stronger CHF Performance Measures
 - Resynchronization therapy
 - AICD utilization

 - Diastolic dysfunction guidelines / PMs

 - A role for BNP ?

Quality in Cardiac Care - 2004

Lessons Learned

- The effectiveness of processes of care in practice are defined by RCTs and structured by guidelines.
- Large gaps persist between ideal care and that received by many in community.
- Processes are the accepted surrogate for outcomes and will be reviewed and reported as “scorecards” of quality
- When metrics are not up to expectation first validate the data, then examine the *process*

Encourage Quality NSTEMI ACS Care

- Clinicians need to rapidly assess patient risk
 - Clinical factors and biochemical markers
- Patients at highest risk tend to benefit most from aggressive interventions
 - paradoxical care – highest risk patients treated less
- Reduce variance in NSTEMI ACS care:
 - wide variability between *leading* and *lagging centers*
- Define the linkage between care and outcome
 - healthcare professionals need to work together to develop successful ACS quality improvement efforts

How to Make a Difference...

- Look critically at your data
 - Identify areas that need improvement
- Examine your systems
 - Understand your processes
- Learn from your neighbors
 - Identify high performance models
- Make practical, actionable plans
 - Follow-up
 - Continue to improve

Quality in ACS Care

Ensuring outcomes for an “n” of 1

END

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Initial Evaluation

Risk Stratification (1)

| I | IIa | IIb | III |
|----------|-----|-----|-----|
| B | | | |
| C | | | |
| C | | | |
| B | | | |

Early risk stratification by symptoms, physical findings, ECG, cardiac markers

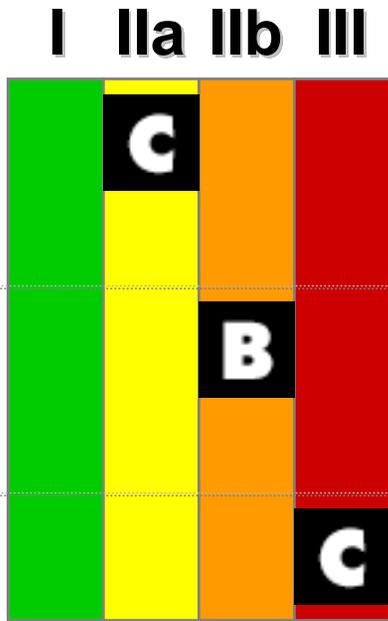
12-lead ECG within 10 min for ongoing pain, or ASAP if pain has resolved at presentation

Cardiac markers, Troponins and CK-MB, for initial assessment

Monitoring, repeat ECG and cardiac markers in 6-12 hours, if initial results normal

Initial Evaluation

Risk Stratification (2)



If <6 hours after symptom onset, add early myoglobin or CK-MB to troponin

C-reactive protein, other markers of inflammation

Total CK, SGOT, HBDH, LDH

Immediate Management

| I | IIa | IIb | III | |
|---|-----|-----|-----|---|
| C | | | | Classify as non-cardiac, chronic stable angina, possible ACS, or definite ACS |
| A | | | | Evaluate for immediate reperfusion therapy if definite ACS and ST-segment \uparrow present |
| C | | | | Pharmacological or exercise stress test, if possible ACS and serial biomarkers and ECGs are normal |
| C | | | | Admit pts with definite ACS, ongoing pain, \uparrow biomarkers, new ST Δ or deep T-wave inversion, abnormal hemodynamics, or (+) stress test |

Immediate Management

| I | IIa | IIb | III | |
|----------|-----|-----|-----|--|
| A | | | | Antiplatelet tx initiated promptly – ASA or clopidogrel if ASA-allergic |
| A | | | | Clopidogrel + ASA for a non-early interventional approach – 30 days (A) 9 months (B) |
| A | | | | Add a IIb/IIIa + ASA + Heparin when PCI is planned |
| C | | | | Clopidogrel for patients for planned PCI (and not at high risk for bleeding) |

Immediate Management

| I | IIa | IIb | III | |
|---|-----|-----|-----|---|
| | A | | | Eptifibitide or tirofiban + ASA + heparin in high risk patients for planned PCI |
| | B | | | Add a IIb/IIIa antagonist in addition to clopidogrel when PCI is planned |
| | | A | | Eptifibitide or tirofiban + ASA + heparin in non-high risk patients not for planned PCI |
| | | | A | Reopro when PCI not planned |
| | | | A | Lytics in non ST-elevation patients |