STEMI Guidelines and Research

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Disclosure

- Research contracts: AstraZeneca, Novartis, GSK, Sanofi-Aventis, BMS, The Medicines Company, Astellas, and Boehringer Ingelheim

- Consulting/Honoraria: AstraZeneca, GSK, BMS, Novartis, Roche, Boehringer Ingelheim, The Medicines Company, and Sanofi-Aventis

- For full listing see w*ww.dcri.duke.edu/research/coi.jsp*

"I'll be happy to give you innovative thinking. What are the guidelines?"

System Delay (First Medical Contact to Wire) and Long-Term Mortality
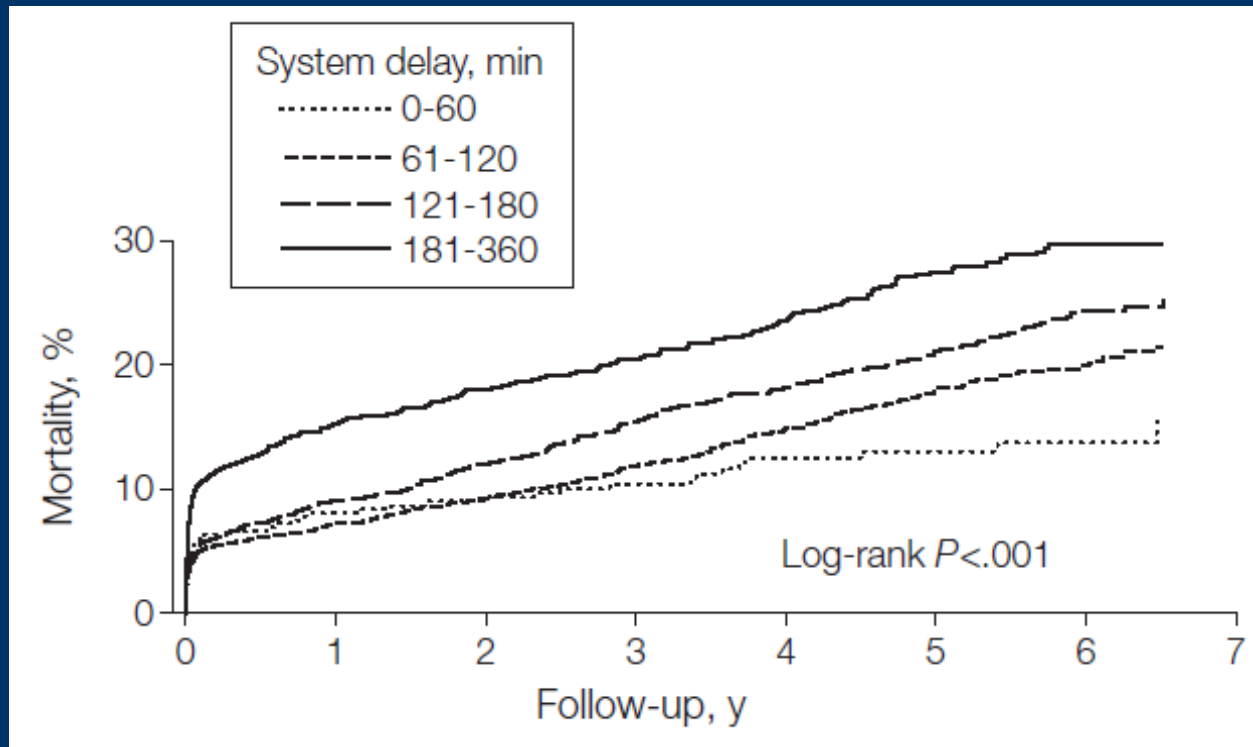
Each hour of delay associated with 10% ↑ risk of death

PCI in Specific Clinical Situations: STEMI–Primary PCI of the Infarct Artery

| I	IIa	IIb	III
B			

Primary PCI should be performed in patients with STEMI presenting to a hospital <u>with PCI capability</u>

within 90 minutes of first medical contact

as a systems goal.

I	IIa	IIb	III
B			

Primary PCI should be performed in patients with STEMI presenting to a hospital <u>without PCI capability</u>

within 120 minutes of first medical contact

as a systems goal.

American Heart Association®

Death by guideline goal
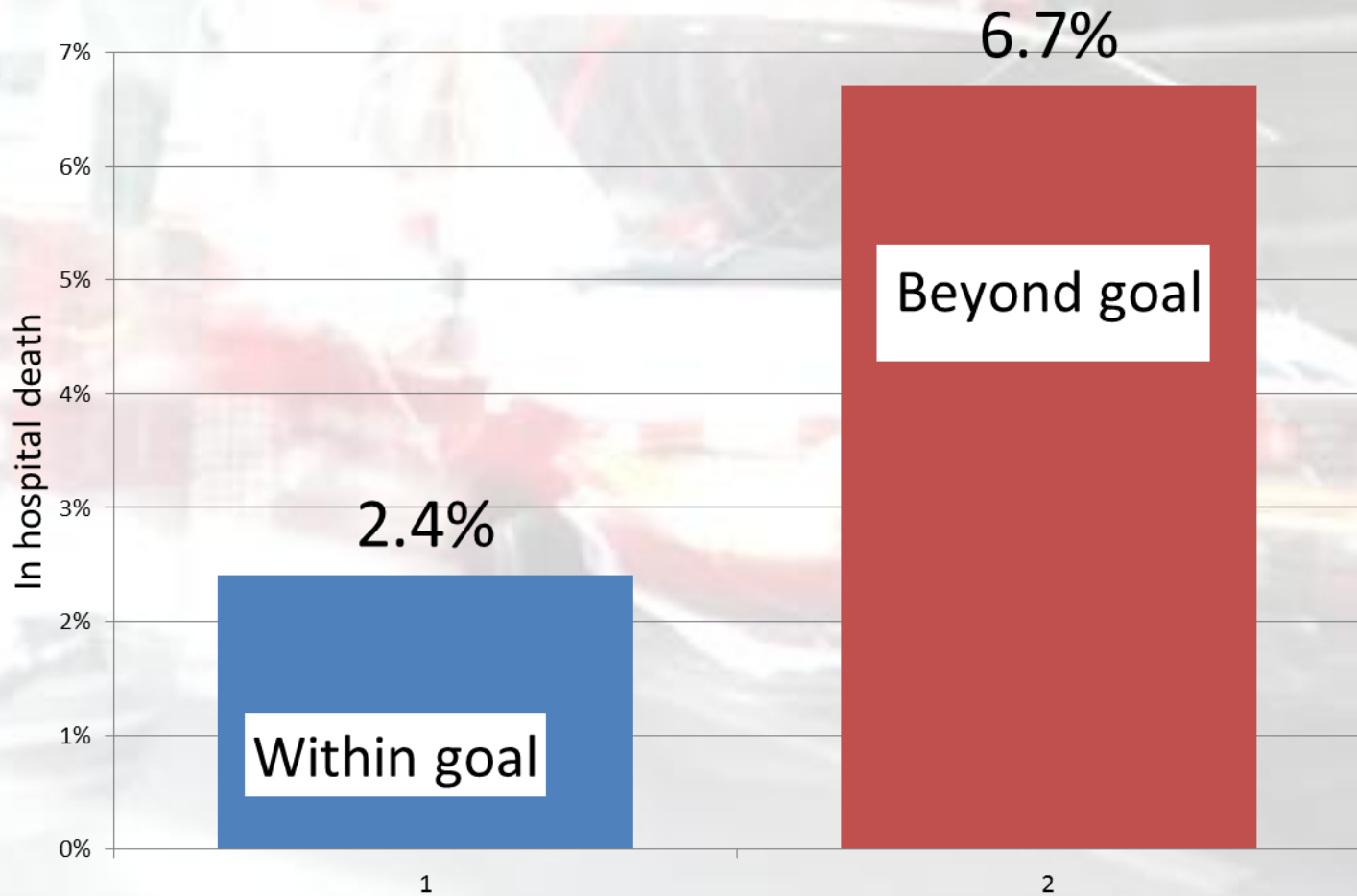
NC RACE, *Circulation.2012;126:189–195.*

Logistics of pre-hospital care

Recommendations	Class[a]	Level[b]
Ambulance teams must be trained and equipped to identify STEMI (with use of ECG recorders and telemetry as necessary) and administer initial therapy, including thrombolysis where applicable.	I	B
The prehospital management of STEMI patients must be based on regional networks designed to deliver reperfusion therapy expeditiously and effectively, with efforts made to make primary PCI available to as many patients as possible.	I	B
Primary PCI-capable centres must deliver a 24/7 service and be able to start primary PCI as soon as possible but always within 60 min from the initial call.	I	B

ECG = electrocardiogram; EMS = emergency medical system; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

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Logistics of pre-hospital care, con't

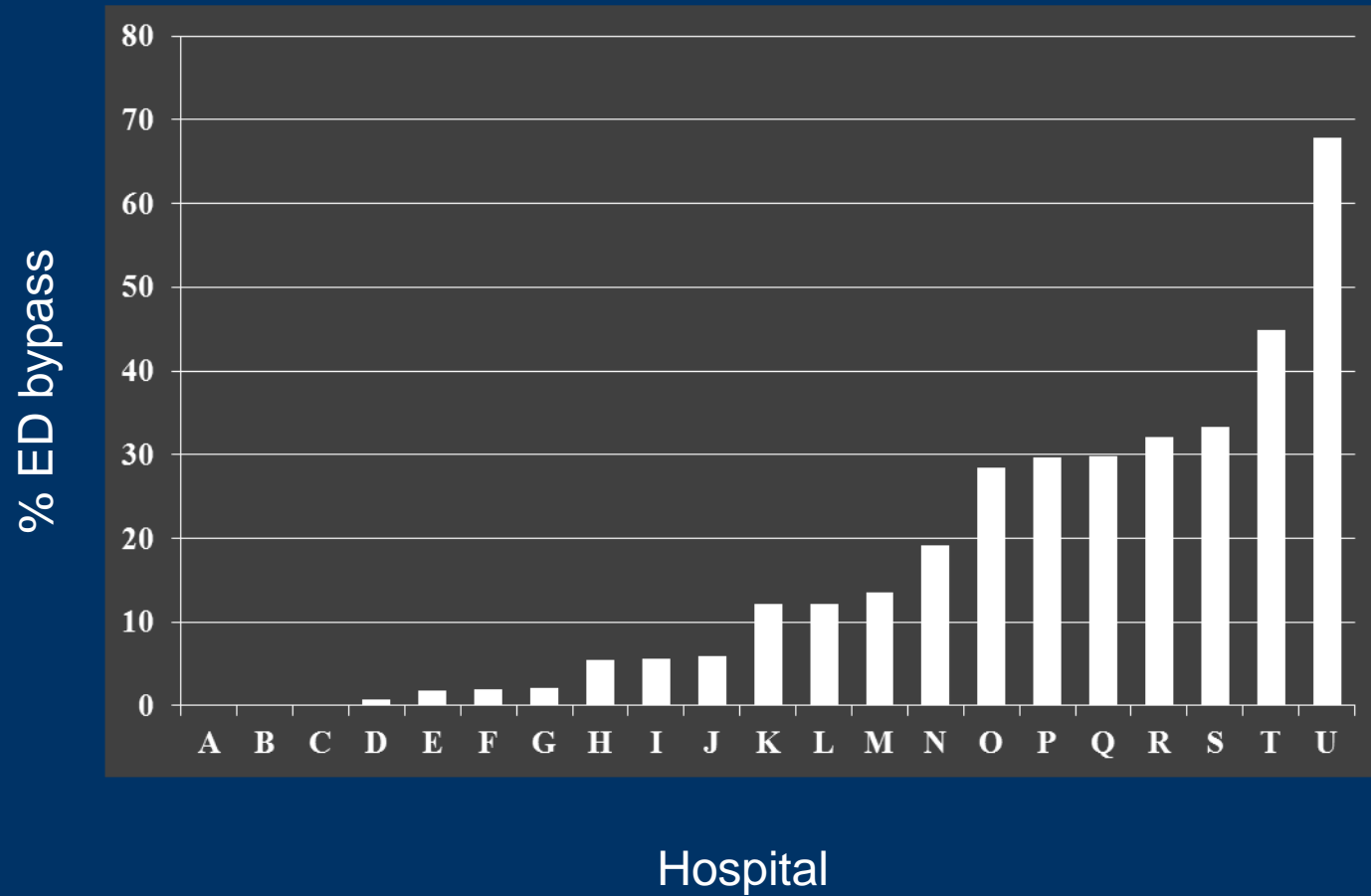|		

All hospitals and EMSs participating in the care of patients with STEMI must record and monitor delay times and work to achieve and maintain the following quality targets:
• first medical contact to first ECG ≤10 min;
• first medical contact to reperfusion therapy:
   • for fibrinolysis ≤30 min;
   • for primary PCI ≤90 min (≤60 min if the patient presents within 120 min of symptom onset or directly to a PCI-capable hospital).
	I	B

All EMSs, emergency departments, and coronary care units must have a written updated STEMI management protocol, preferably shared within geographic networks.	I	C
Patients presenting to a non-PCI-capable hospital and awaiting transportation for primary or rescue PCI must be attended in an appropriately monitored area.	I	C
Patients transferred to a PCI-capable centre for primary PCI should bypass the emergency department and be transferred directly to the catheterization laboratory.	IIa	B

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Important delays and treatment goals in the management of acute STEMI

Delay	Target
Preferred for FMC to ECG and diagnosis	≤10 min
Preferred for FMC to fibrinolysis ('FMC to needle')	≤30 min
Preferred for FMC to primary PCI ('door to balloon') in primary PCI hospitals	≤60 min
Preferred for FMC to primary PCI	≤90 min (≤60 min if early presenter with large area at risk)
Acceptable for primary PCI rather than fibrinolysis	≤120 min (≤90 min if early presenter with large area at risk) if this target cannot be met, consider fibrinolysis.
Preferred for successful fibrinolysis to angiography	3–24 h

FMC = first medical contact; PCI = percutaneous coronary intervention.

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NC STEMI Bypassing PCI Center ED

Hospital

Akshay Bagai TCT 2012

Duke Clinical Research Institute

RACE 2008-2009 STEMI diagnosed pre-hospital and taken directly to PCI Centers

- FMC to device < 90 min in 54%

- 17% ED bypass

- Median ED arrival to cath lab 30 min (IQR 20, 41)

- FMC to device 75 (ED bypass) vs. 90 minutes

- FMC to device within 90 min 74% vs. 50%

Akshay Bagai TCT 2012

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Primary Outcome of 7 Trials of Routine vs Ischemia-driven Catheterization and PCI After Fibrinolytic Therapy