

5 Most Important EMS Articles EAGLES 2016

Corey M. Slovis, M.D.
Vanderbilt University Medical Center
Metro Nashville Fire Department
Nashville International Airport
Nashville, TN

Valsalva and PSVT

PSVT Management

Stable

Younger

- Valsalva
- Carotid massage
- Both Valsalva and Carotid
- Consider ice water
- Adenosine 12 mgs IVP

Older

Valsalva

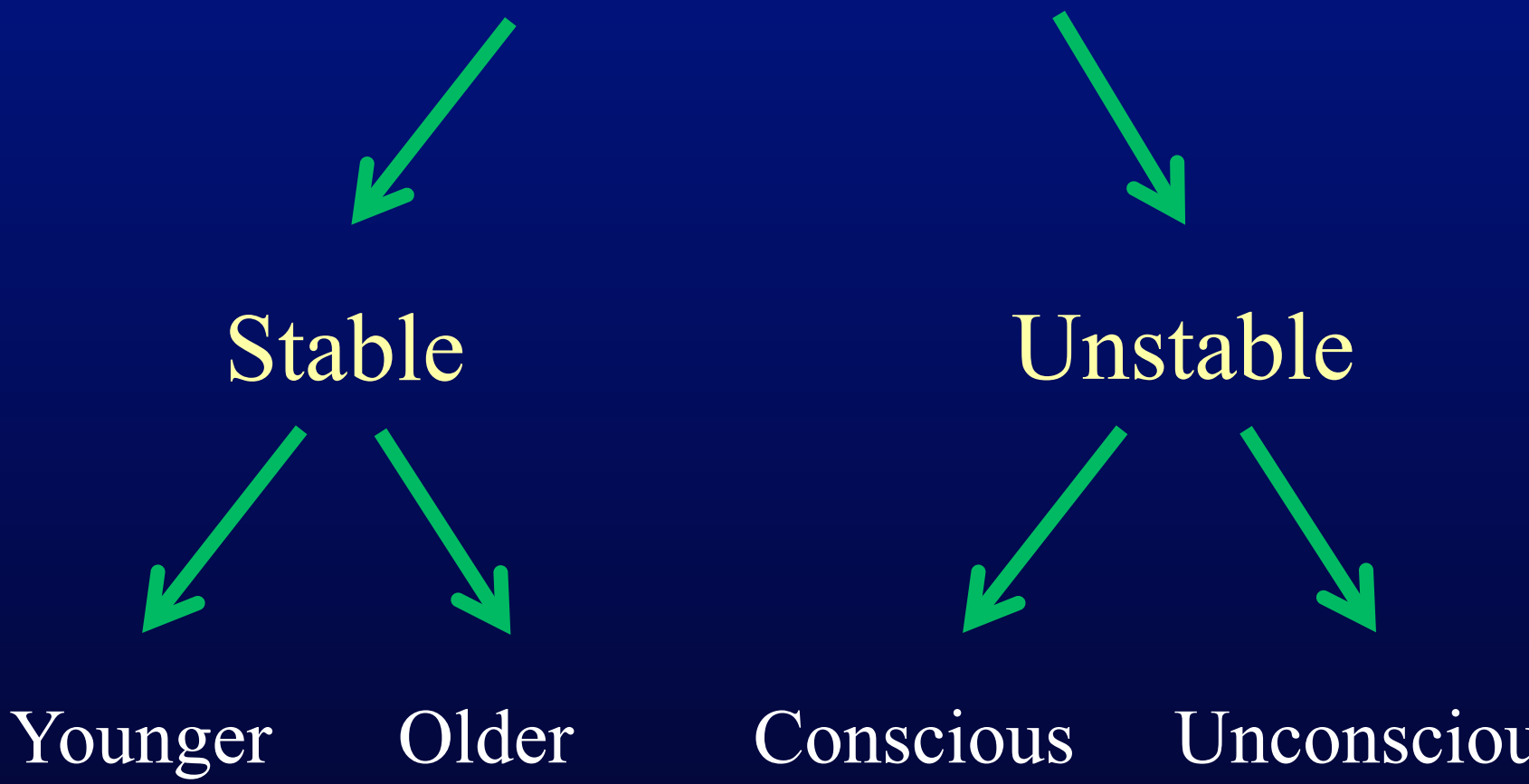
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Adenosine
12 mgs IVP

PSVT Management



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graph TD; A[PSVT Management] --> B[Stable]; A --> C[Unstable]; B --> D[Younger]; B --> E[Older]; C --> F[Conscious]; C --> G[Unconscious]
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The diagram is a flowchart titled "PSVT Management". It starts with the title at the top, which branches into two categories: "Stable" and "Unstable". From "Stable", it branches into "Younger" and "Older". From "Unstable", it branches into "Conscious" and "Unconscious". All text is in a serif font, and the flow is indicated by green arrows.

Stable

Unstable

Younger

Older

Conscious

Unconscious

Systematic Review Snapshot

TAKE-HOME MESSAGE

The Valsalva maneuver appears to be a modestly effective intervention, with a low risk of adverse events, but is supported by only a small number of low-quality trials.

METHODS

Valsalva Maneuver for Termination of Supraventricular Tachycardia

EBEM Commentators

Ann Emerg Med 2015;65:27-29

- Valsalva's effectiveness in SVT is variable
- Works 17 - 54% of the time
- Usually 10 – 20% effective
- “*Usual way*” not optimal
- Article discusses way to increase efficacy

Impact of a modified Valsalva manoeuvre in the termination of paroxysmal supraventricular tachycardia

S Walker, P Cutting

Department of Emergency
Medicine, Leeds Teaching
Hospitals NHS Trust, Leeds,
England

Correspondence to
Dr Simon Walker, Department of

ABSTRACT

Background Paroxysmal supraventricular tachycardia (SVT) is a relatively common problem presented to the emergency department. Most sources advocate the use of vagal manoeuvres as first-line management, including Valsalva manoeuvre. Despite this, there is lack of

re-entry tachycardias: atrioventricular nodal re-entry tachycardia and atrioventricular re-entry/reciprocating tachycardia. If the tachycardia involves the atrioventricular node as part of the re-entry circuit, then methods to increase atrioventricular nodal blockade, that is, vagal manoeuvres,

Emerg Med J 2010;27:287-291

- Response improved from 5.3% to 31.7%
- Sitting up increases sympathetic tone
- Lie patient flat or reverse Trendelenburg
- Bear down maximally
- At least 15 seconds (*not 5 seconds*)

Can you really make the Valsalva a key
therapy in PSVT?

Postural modification to the standard Valsalva manoeuvre for emergency treatment of supraventricular tachycardias (REVERT): a randomised controlled trial

Andrew Appelboam, Adam Reuben, Clifford Mann, James Gagg, Paul Ewings, Andrew Barton, Trudie Lobban, Mark Dayer, Jane Vickery, Jonathan Benger, on behalf of the REVERT trial collaborators

Summary

Background The Valsalva manoeuvre is an internationally recommended treatment for supraventricular tachycardia, but cardioversion is rare in practice (5–20%), necessitating the use of other treatments including adenosine, which patients often find unpleasant. We assessed whether a postural modification to the Valsalva manoeuvre could improve its effectiveness.

Lancet 2015;386:1747-53

Can lying the patient down and raising their legs 45° for 15 seconds immediately post Valsalva increase its effectiveness?

- 428 Patients with PSVT
- Randomized 1:1 for standard vs. modified
- Sitting vs sitting then lie back with legs raised

Lying the patient back and raising their legs 45° maximizes venous return during the relaxation phase of the Valsalva

Modified Valsalva

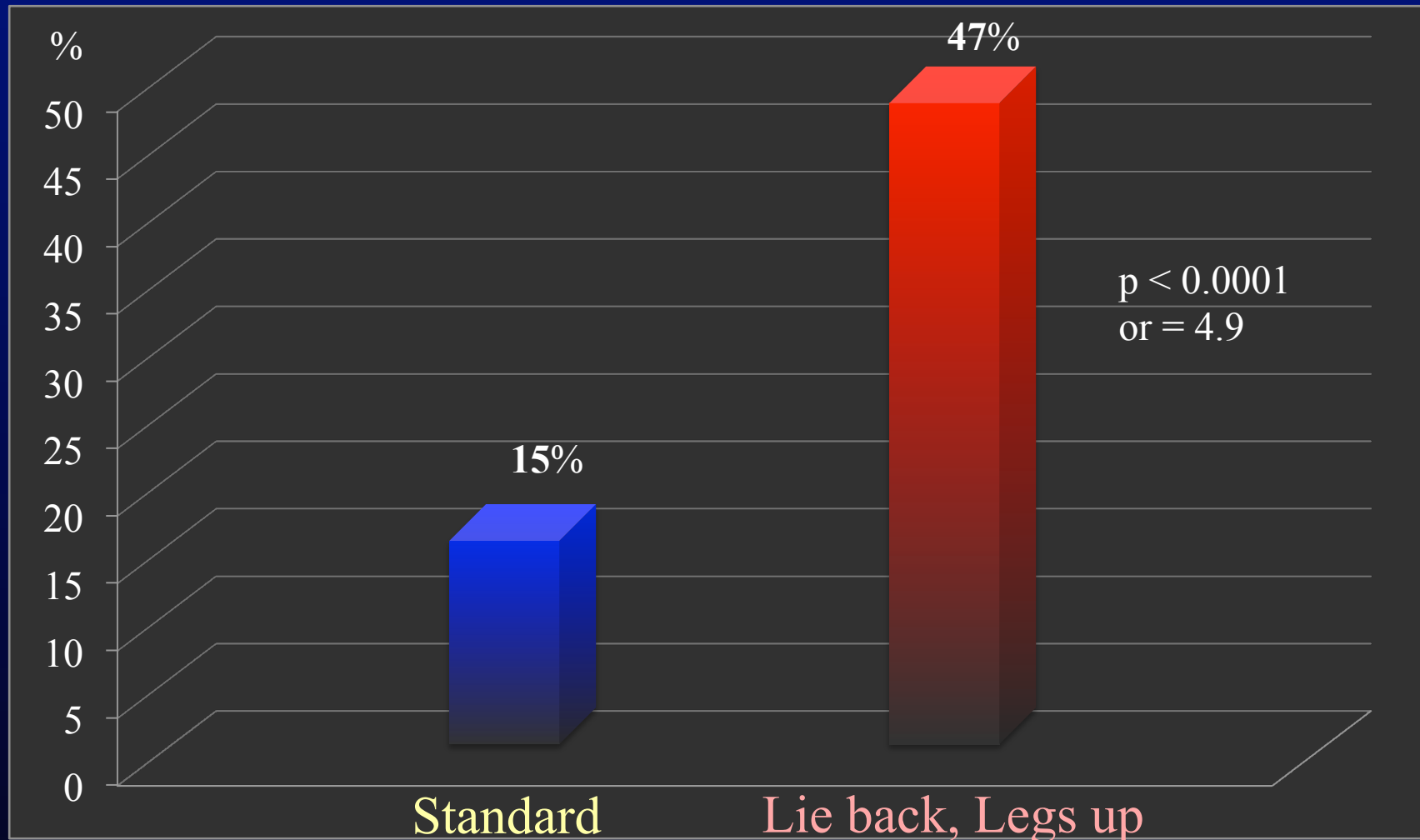
5 Steps

- Patient sitting on stretcher
- Valsalva for 15 seconds
- Immediately lie patient flat and...lift
- Lift patient's legs 45° for 15 seconds
- Return to sitting position



Valsalva Effectiveness (n=214 each group)

Lancet 2015 online August 24



Modifying the Valsalva in PSVT Take Homes

- Great maneuver, free and easy
- No disadvantages
- Highest reported conversion rate
- Takes 15 seconds
- Legs up better than just supine

Practice Changing

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Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Working Group.⁴

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Circulation 2015;132 (suppl 2);5444-64

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- 147 references
- 15 writing groups
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Oxygen Use

Use 100% O₂ during CPR

But not necessarily after ROSC

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BVM vs SGA vs ETT

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- Amiodarone may be considered
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- Magnesium not recommended

*“No antiarrhythmic as yet been shown to
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Vasopressin

- Vasopressin no longer recommended
- Vasopressin + Epinephrine no longer recommended

Vasopressin has been removed from
ACLS algorithm

Summary

Not many changes

10 breaths/min (Q 6 secs)

Vasopressin gone

Lidocaine back

Epinephrine Q 3-5 min stays

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Handouts

ACEP 2015 Boston

Atrial Fibrillation Update – Don't Miss a Beat

[Download](#)

Handout for a Presentation by Corey Slovis, MD for ACEP 2015 Boston

Cruising the Literature: Cardiology

[Download](#)

Handout for a Presentation by Corey Slovis, MD for ACEP 2015 Boston

EMCREG International Symposium

Optimizing Collaboration Handout

[Download](#)

CPR 2016

ORIGINAL ARTICLE

Trial of Continuous or Interrupted Chest Compressions during CPR

Graham Nichol, M.D., M.P.H., Brian Leroux, Ph.D., Henry Wang, M.D., Clifton W. Callaway, M.D., Ph.D., George Sopko, M.D., Myron Weisfeldt, M.D., Ian Stiell, M.D., Laurie J. Morrison, M.D., Tom P. Aufderheide, M.D., Sheldon Cheskes, M.D., Jim Christenson, M.D., Peter Kudenchuk, M.D., Christian Vaillancourt, M.D., Thomas D. Rea, M.D., Ahamed H. Idris, M.D., Riccardo Colella, D.O., M.P.H., Marshal Isaacs, M.D., Ron Straight, Shannon Stephens, Joe Richardson, Joe Conde, Robert H. Schmicker, M.S., Debra Egan, M.P.H., B.S.N., Susanne May, Ph.D., and Joseph P. Ornato, M.D., for the ROC Investigators*

New Engl J Med 2015;373:2203-14

Compared continuous CPR with positive pressure ventilation vs Interrupted CPR with 30:2 compression:breaths

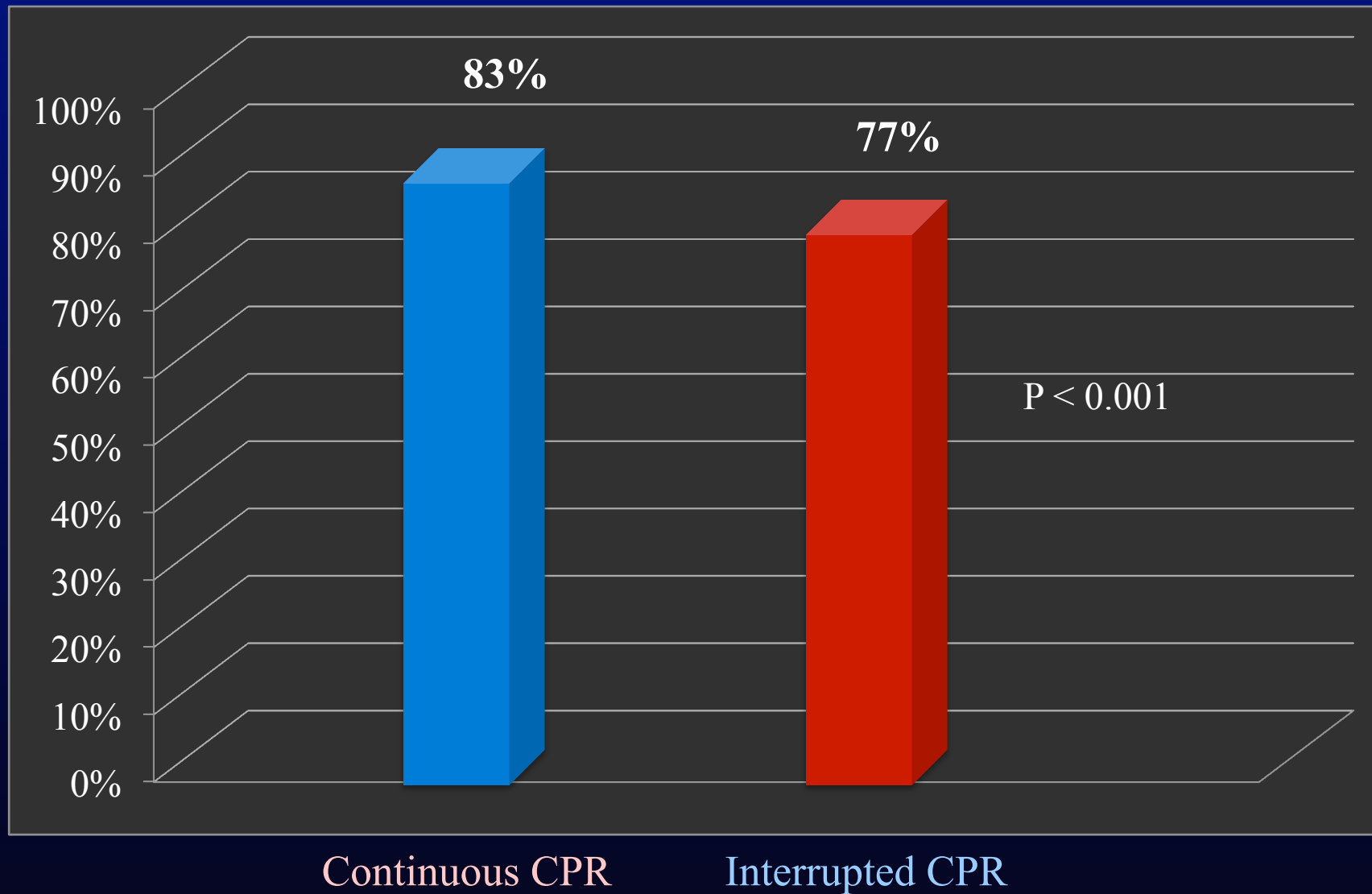
- 23,700 patients
- 8 ROC sites, 114 EMS agencies
- Evaluated survival to discharge
- Evaluated neurologic status of survivors

Methodology

- Methodology centered around 43 “clusters” of EMS agencies. After practice period, each cluster switched methods every 6 months
- 100 compressions/min + 10 breaths/min
vs
- 30 compressions then 2 breaths within 5 seconds
- CPR efficacy via monitor - defibrillator

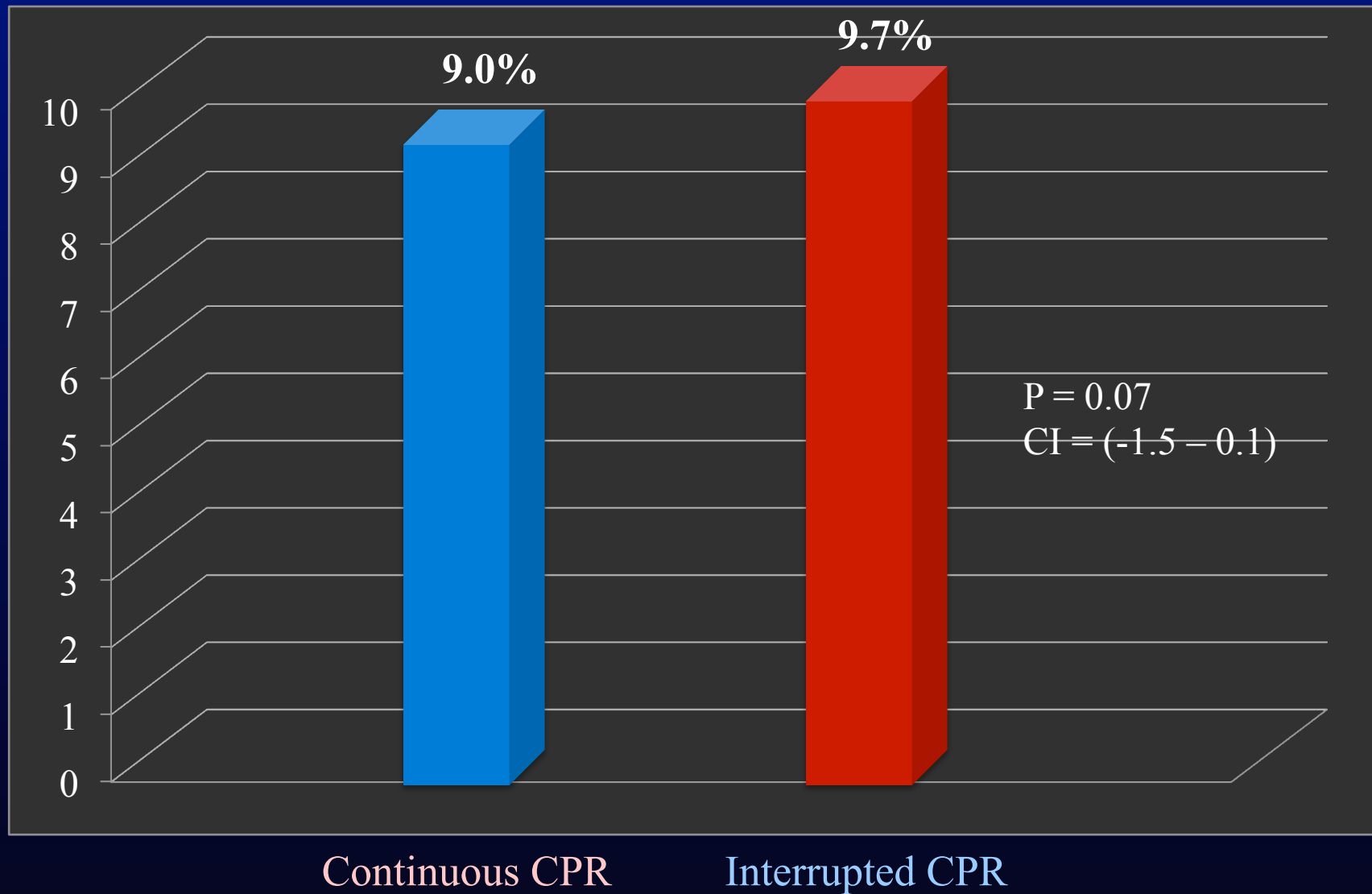
Compression Fraction

New Engl J Med 2015;Nov epub



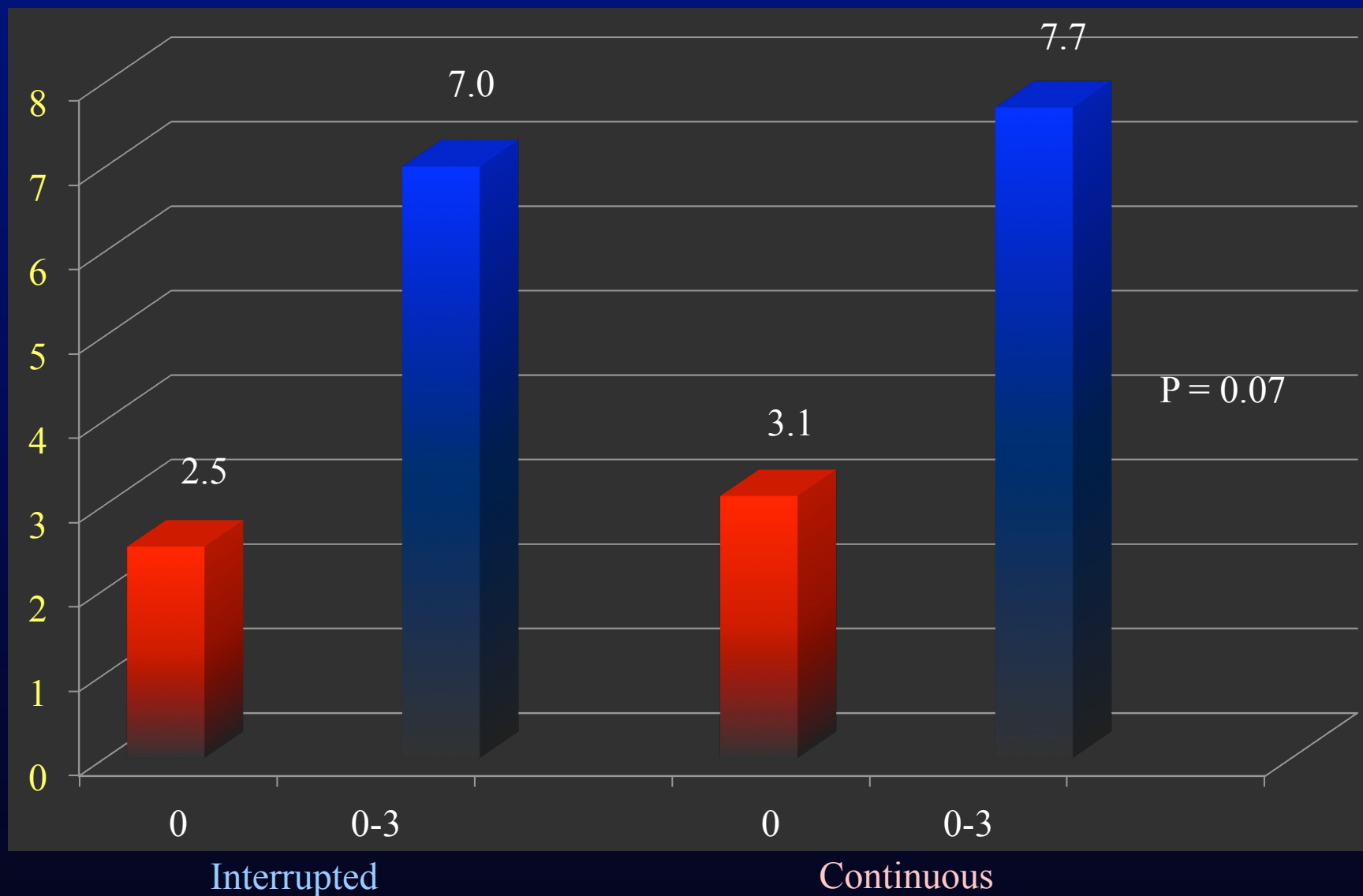
Survival to Discharge

New Engl J Med 2015;Nov epub



Modified Rankin Score 0 and 0-3

New Engl J Med 2015;Nov epub



Continuous vs Interrupted CPR

Comments

- Continuous has a higher compression fraction (83% vs 77%)
- Trend toward Interrupted being better for neurologic outcomes and survival
- More Interrupted CPR patients got to the hospital

Take Homes

CPR: Continuous vs Interrupted

At the present time there is no proof that continuous CPR is better than 30:2
Interrupted compressions for 2 breaths may be preferred

ORIGINAL ARTICLE

Mobile-Phone Dispatch of Laypersons for CPR in Out-of-Hospital Cardiac Arrest

Mattias Ringh, M.D., Mårten Rosenqvist, M.D., Ph.D., Jacob Hollenberg, M.D., Ph.D.,
Martin Jonsson, B.Sc., David Fredman, R.N., Per Nordberg, M.D.,
Hans Järnbert-Pettersson, Ph.D., Ingela Hasselqvist-Ax, R.N., Gabriel Riva, M.D.,
and Leif Svensson, M.D., Ph.D.

NEJM 2015; 372: 2316-25

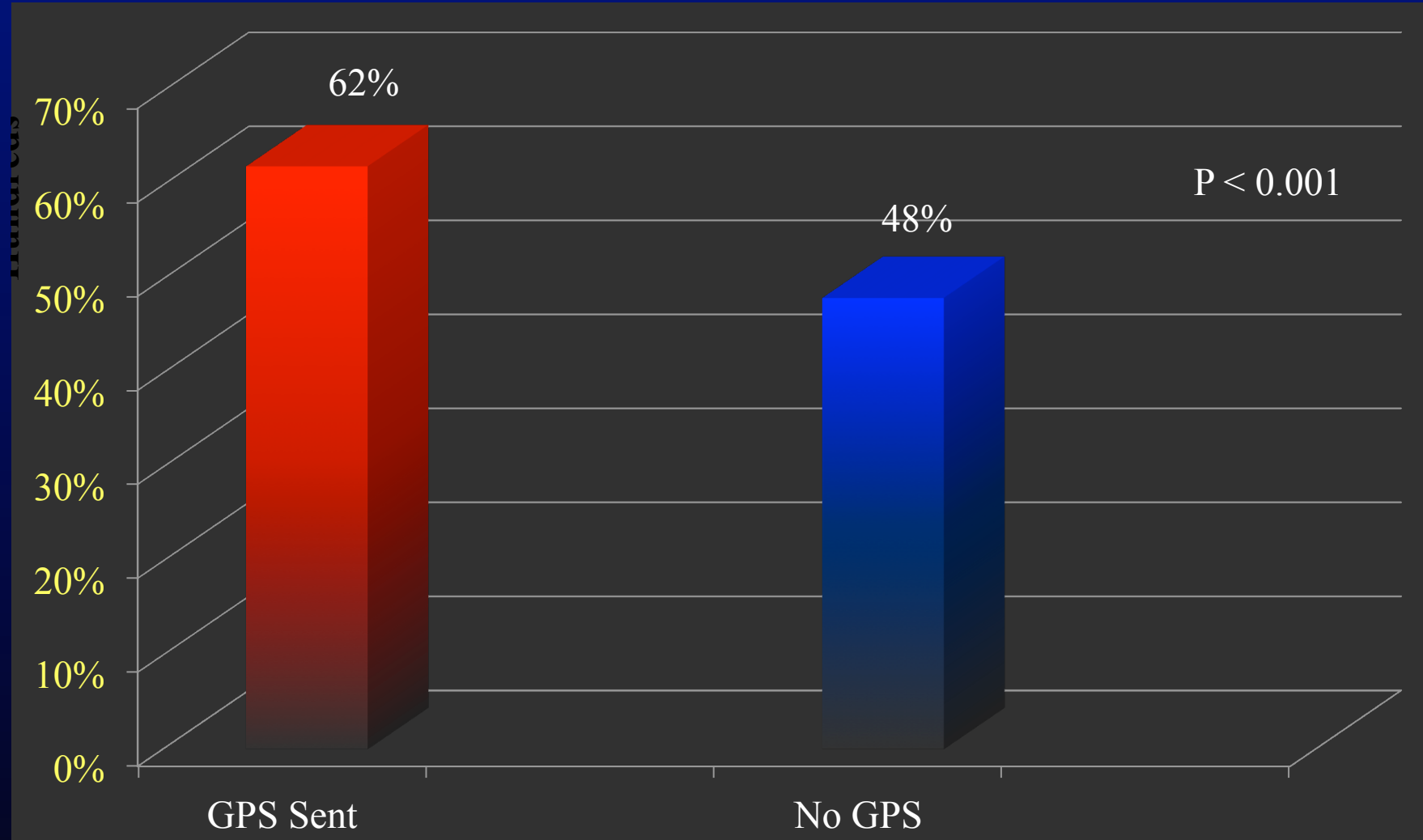
Does a phone alert to those close to a
cardiac arrest improve bystander CPR

- 5,989 volunteers CPR trained
- Used phones with GPS
- 667 cardiac arrests
- 911 system sends mobile alerts

This was a **blinded study** where phone activation to those within 0.3 miles (500 meters) was turned on or off in 1:1 randomized manner

Bystander CPR

NEJM 2015; 372: 2316-25



BCLS 2016

Take Homes

- Bystander CPR can double survival
- More than 80% of 30-day survivors will be neurologically intact
- 911 center cell phone activation of CPR providers increases the likelihood of bystander CPR pre EMS arrival

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Assessment of ETT Placement

Continuous waveform capnography is
recommended for placement and monitoring

*If not available then colorimetric, EDD or
ultrasound may be used*

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Circulation 2015;132 (suppl 2);5444-64

Beta Blockers

- Use not addressed during VF/pVT
- “Inadequate evidence” to support post CPR use
- May be considered
- Not enough evidence to be for or against lidocaine or beta blockers s/p VF/pVT

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Circulation 2015;132 (suppl 2);5444-64

Epinephrine Use

Standard dose epinephrine (1 mg Q 3-5 min)
may be reasonable for patients with cardiac
arrest (class 11b)

- *Early administration may improve ROSC and neurologic outcomes – later administration may decrease both*

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Steroids

- There is no recommendation for or against steroids for in-hospital cardiac arrest
- Use of steroids in out-of-hospital arrests are “of uncertain benefit”



Resuscitation 2015;97:115-21

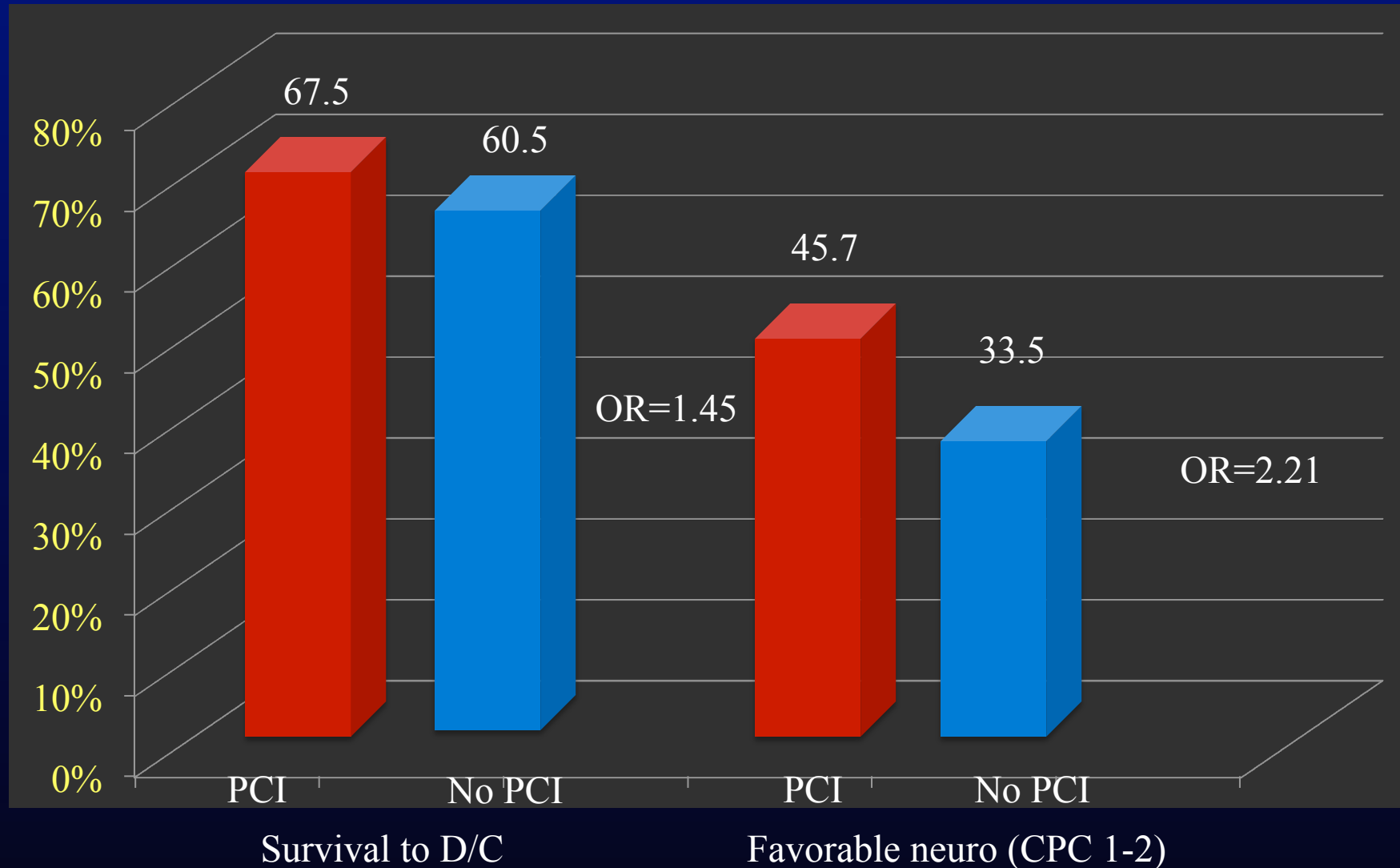
How important is PCI s/p out-of-hospital cardiac arrest?

- 9,762 patients; 1,140 received PCI (11.7%)
- Korean study 2009-2013; propensity matched
- Evaluated survival and neurological outcomes
- Compared shockable vs non-shockable

Survival and Neuro Outcomes

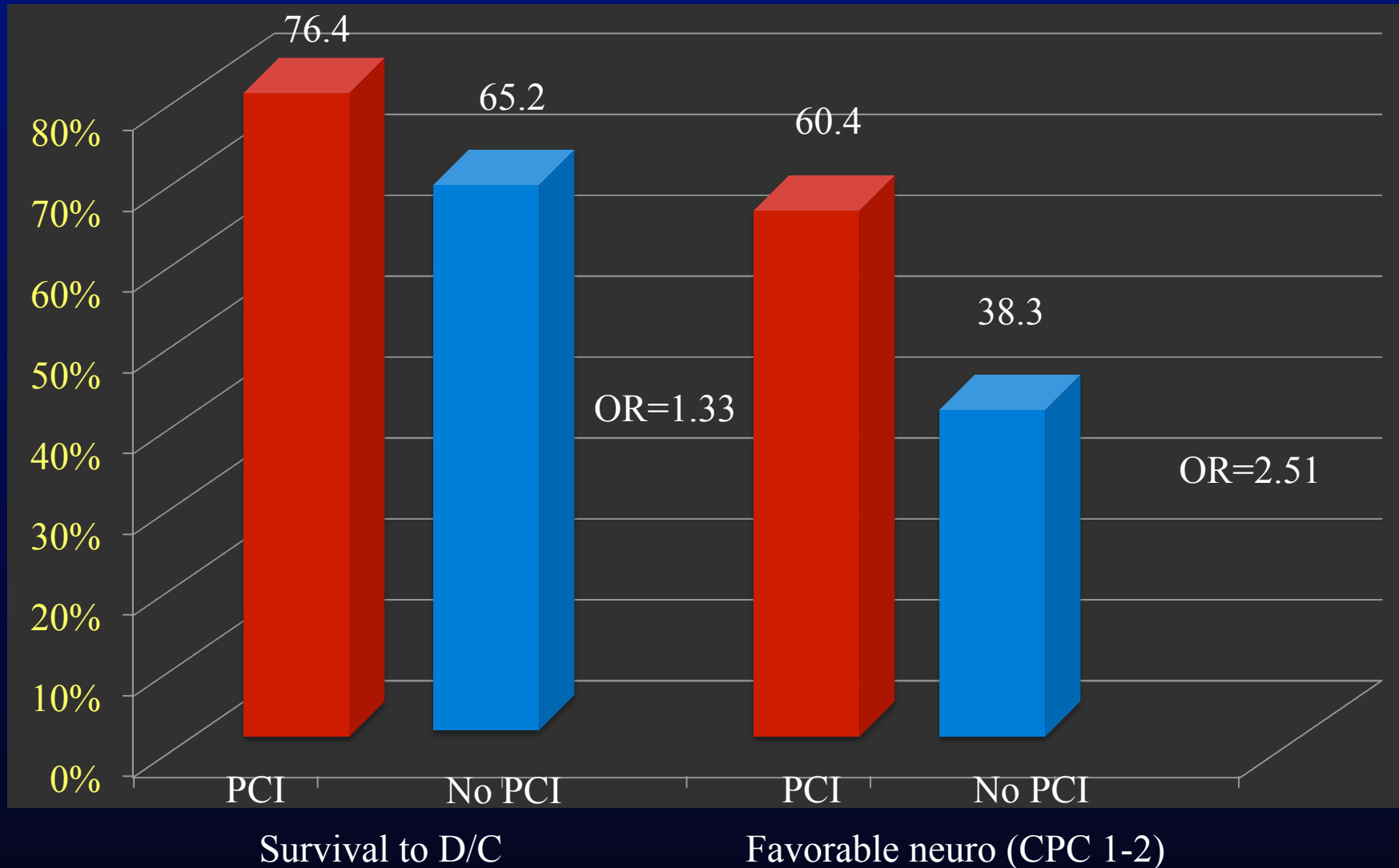
Propensity Matched

Resuscitation 2015;97;115-21



Shockable Rhythm Propensity Matched

Resuscitation 2015;97:115-21



PCI S/P OHCA

Take Homes

- PCI significantly improves survival and favorable neurological outcomes
- Favorable neurological improvements seen in all subgroups including non-shockable rhythms and HD and no-HD
- Survival benefits only seen in patients without a history of heart disease

PCI S/P OHCA

Take Homes

- PCI should be actively considered even in patients without HD and/or a non-shockable rhythm
- Note: About 25% had delayed PCI which have been shown to decrease survival and neuro benefits

Outcomes of Basic Versus Advanced Life Support for Out-of-Hospital Medical Emergencies

Prachi Sanghavi, PhD; Anupam B. Jena, MD, PhD; Joseph P. Newhouse, PhD; and Alan M. Zaslavsky, PhD

Background: Most Medicare patients seeking emergency medical transport are treated by ambulance providers trained in advanced life support (ALS). Evidence supporting the superiority of ALS over basic life support (BLS) is limited, but some studies

6.8 percentage points] for trauma; 7.0 percentage points [CI, 6.2 to 7.7 percentage points] for stroke; and 3.7 percentage points [CI, 2.5 to 4.8 percentage points] for respiratory failure). Patients with AMI did not exhibit differences in survival at 30 days but had

Annals Int Med 2015;163:681-90

Is ALS superior to BLS for: major trauma, stroke, AMI and/or Respiratory Failure

- Measured survival and neurological outcome
- 78,000 - 119,000 pts for each complaint
- Data from 2006 – 2011
- Medicare database for survival
- Billing data for BLS vs ALS use

Outcomes of Basic Versus Advanced Life Support for Out-of-Hospital Medical Emergencies

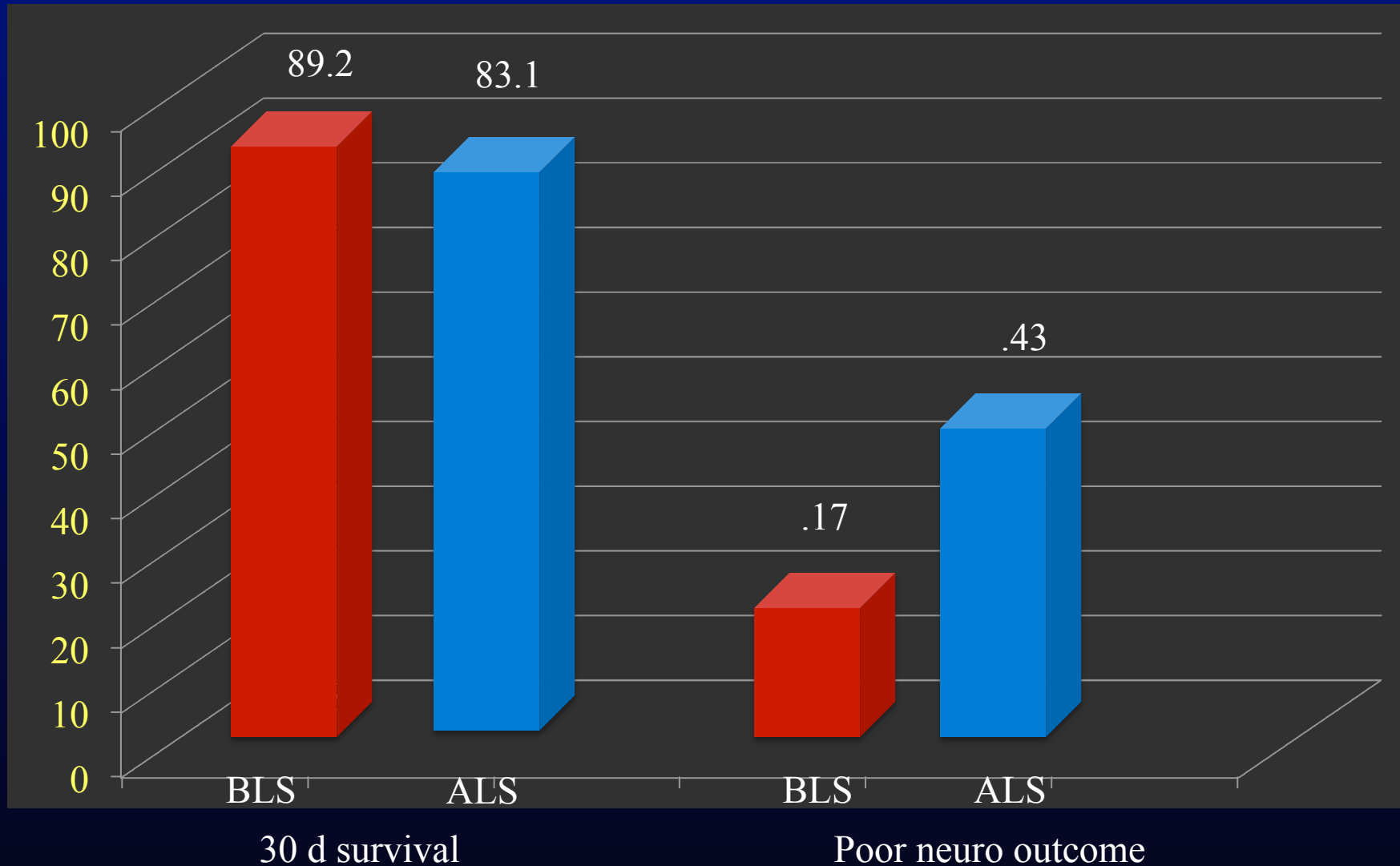
Prachi Sanghavi, PhD; Anupam B. Jena, MD, PhD; Joseph P. Newhouse, PhD; and Alan M. Zaslavsky, PhD

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- Propensity matching to adjust for survival
- Measured un-adjusted and adjusted survival
- Used ICD-9 coding for neurologic outcomes
- Not a randomized trial

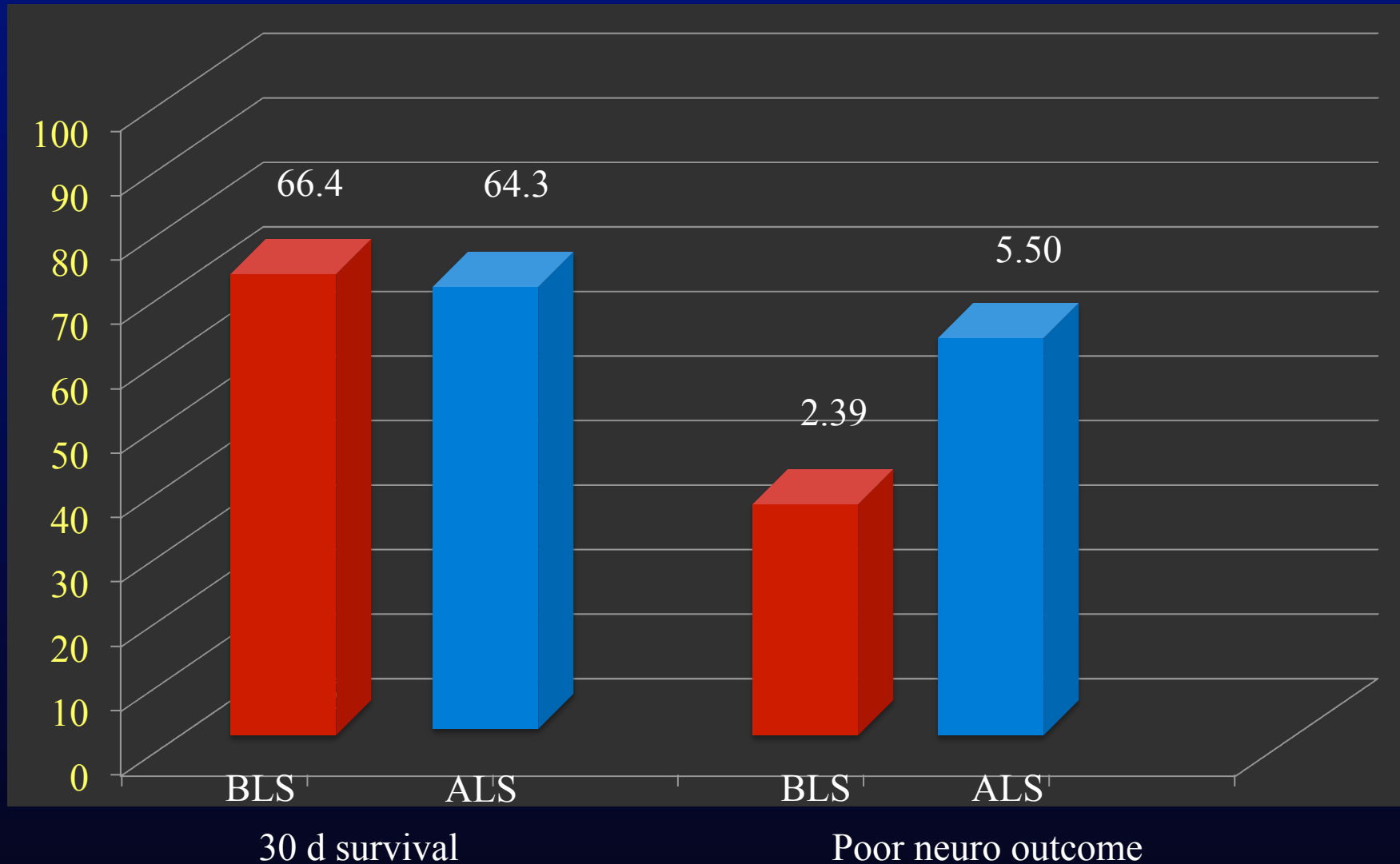
Major Trauma – 30 Day Survival ALS vs BLS

Annals Int Med 2015;163:681-90



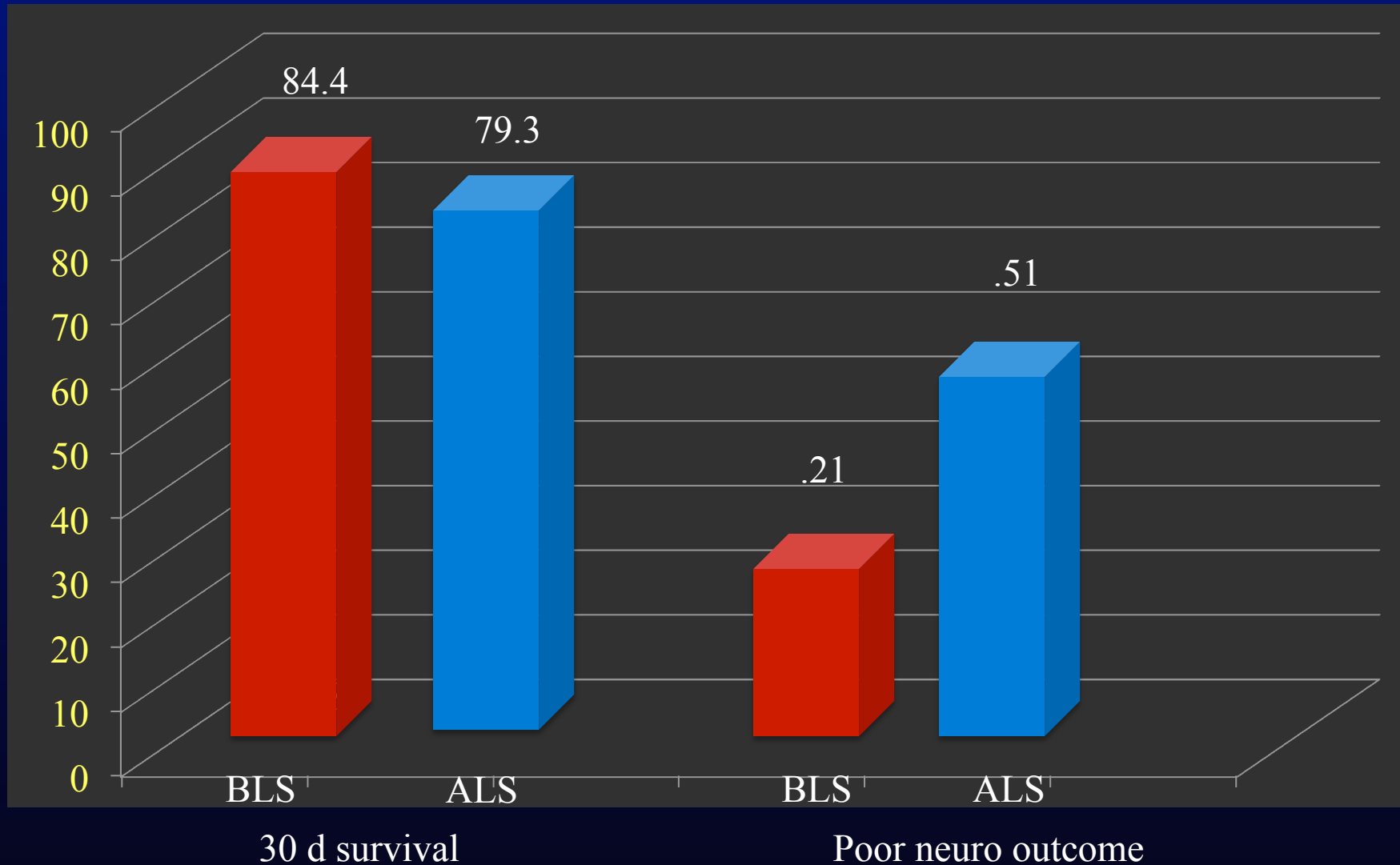
Respiratory Failure – 30 Day Survival ALS vs BLS

Annals Int Med 2015;163:681-90



Acute Stroke – 30 Day Survival ALS vs BLS

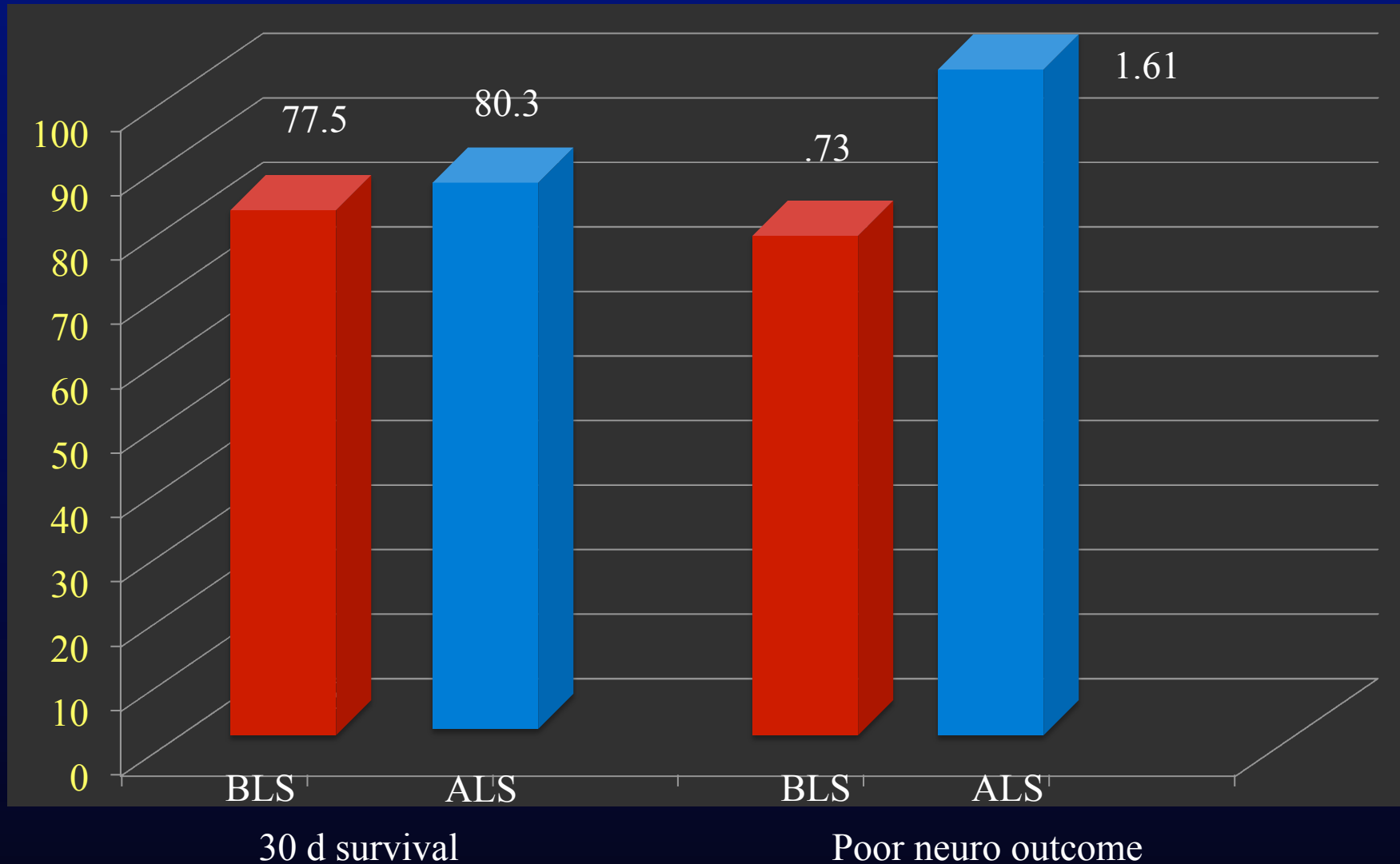
Annals Int Med 2015;163:681-90



AMI – 30 Day Survival

ALS vs BLS

Annals Int Med 2015;163:681-90



ALS vs BLS

Patient Characteristics

Annals Int Med 2015;163:681-90

- ALS younger (2-7 y)
- ALS more males (2-7%)
- ALS less co-morbidities
- ALS W > B except trauma

Summary Statistics

ALS vs BLS

- Trauma: **BLS** > **ALS** by 6.1%
(95% CI 5.4-6.8)
- Stroke: **BLS** > **ALS** by 7.0%
(95% CI 6.7-7.7)
- Resp Failure: **BLS** > **ALS** by 3.7%
(95% CI 2.5-4.8)
- **AMI**: **ALS** > **BLS** by 1.0%
(95% CI 0.1-1.4)

*90 Day Results

Neurological outcomes favored BLS
over ALS for all four disease entities

Take Homes

ALS vs BLS

- Another study suggesting “scoop and run” by BLS > advanced on-scene ALS care
- Not a randomized trial
- Results not easily explained away
- ALS must prove its worth long-term

Importance of BCLS

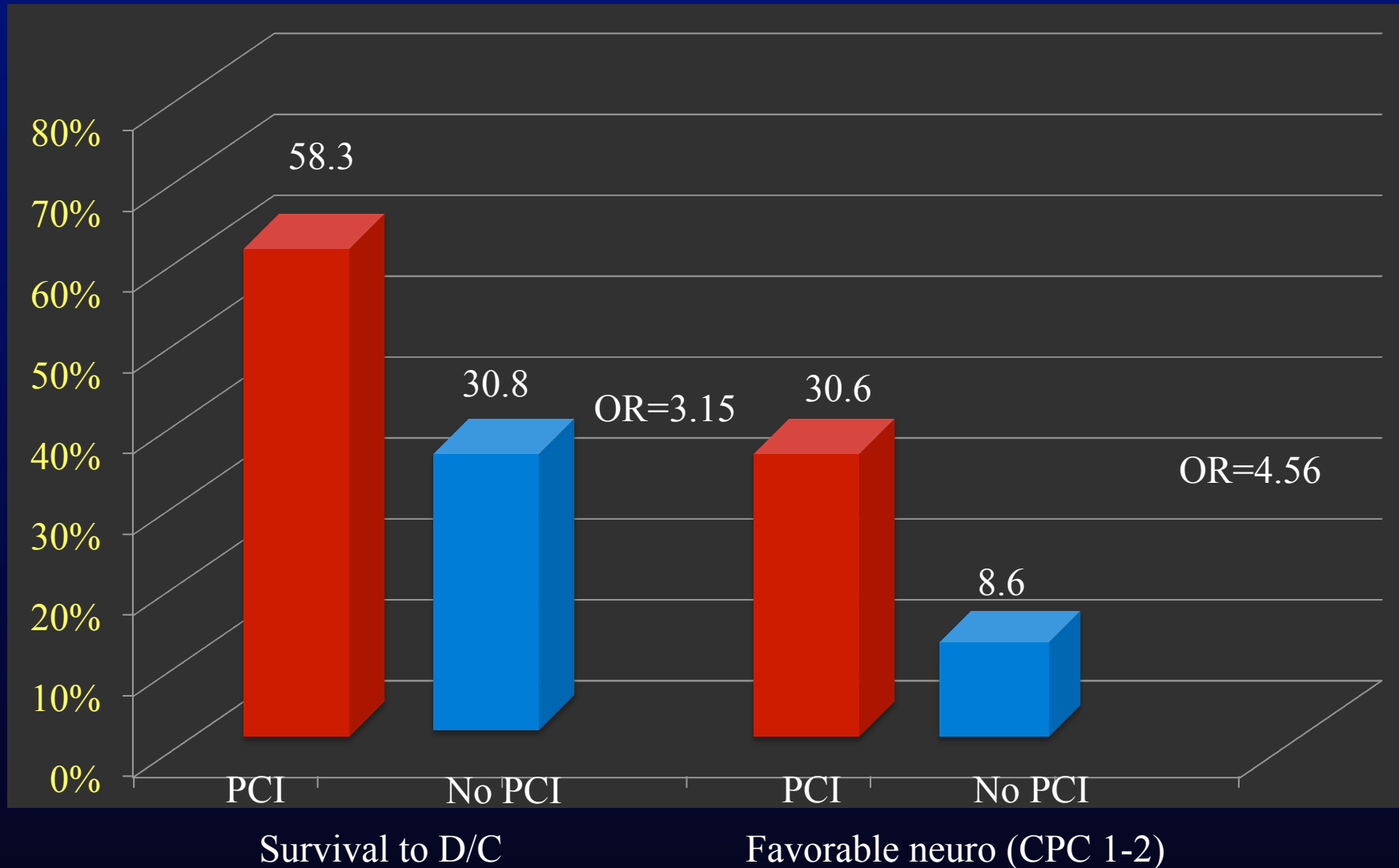
Take Homes

- The more bystander CPR the better
- Can double survival rate
- Low cost, high yield
- AEDs in public locations < \$1,000
- Less A and more B in CLS

Non-shockable Rhythm

Propensity Matched

Resuscitation 2015;97:115-21





Contents lists available at [ScienceDirect](#)

Resuscitation

Journal homepage: www.elsevier.com/locate/resuscitation



Editorial

PCI after out-of-hospital cardiac arrest: Does who, what or when matter?



Improving survival from out-of-hospital cardiac arrest requires a series of timely interventions before and upon return of spontaneous circulation (ROSC) commonly called links in the American Heart Association's (AHA) chain of survival.¹ Notably, achiev-

the 5 year reporting period. And while the current study's findings were adjusted for many of the objective factors that have been proposed to merit a role in decision-making for PCI after cardiac arrest (such as witnessed status, initial arrest rhythm and earlier

Resuscitation 2015;97:A1-A2

Not yet a definitive study as too many variables not well controlled for: PCI timing, technique, definition of “successful” PCI

Peter Kudenchuk

ORIGINAL RESEARCH

**Telephone CPR Instructions in Emergency Dispatch
Systems: Qualitative Survey of 911 Call Centers**

John Sutter, BS[¶]
Micah Panczyk, MS^{*}
Daniel W. Spaite, MD[†]
Jose Maria E. Ferrer, MD[‡]
Jason Roosa, MD, MS[§]
Christian Dameff, MD^{*}
Blake Langlais^{*}
Ryan A. Murphy, MD[¶]
Bentley J. Bobrow, MD[†]

^{*}Arizona Department of Health Services, Bureau of EMS and Trauma System,
Phoenix, Arizona
[†]University of Arizona, Department of Emergency Medicine, Arizona Emergency
Medicine Research Center, Phoenix, Arizona
[‡]American Heart Association
[§]Lutheran Medical Center, Wheat Ridge, Colorado
[¶]University of Arizona College of Medicine – Phoenix, Phoenix, Arizona

West J Emerg Med 2015;16:736-42

**Do 911 call centers teach CPR over the phone
during a cardiac arrest?**

- 1,924/3,555 911 call centers
- 51% provided pre-arrival instructions
- 71% provided compression & ventilation instruction
- Only 7% taught compression only

**Be sure your 911 center teaches CPR and that it is
compression only**

DOUBLE SEQUENTIAL DEFIBRILLATION FOR REFRACTORY VENTRICULAR FIBRILLATION: A CASE REPORT

Aurora M. Lybeck, MD, Hawnwani Philip Moy, MD, David K. Tan, MD

ABSTRACT

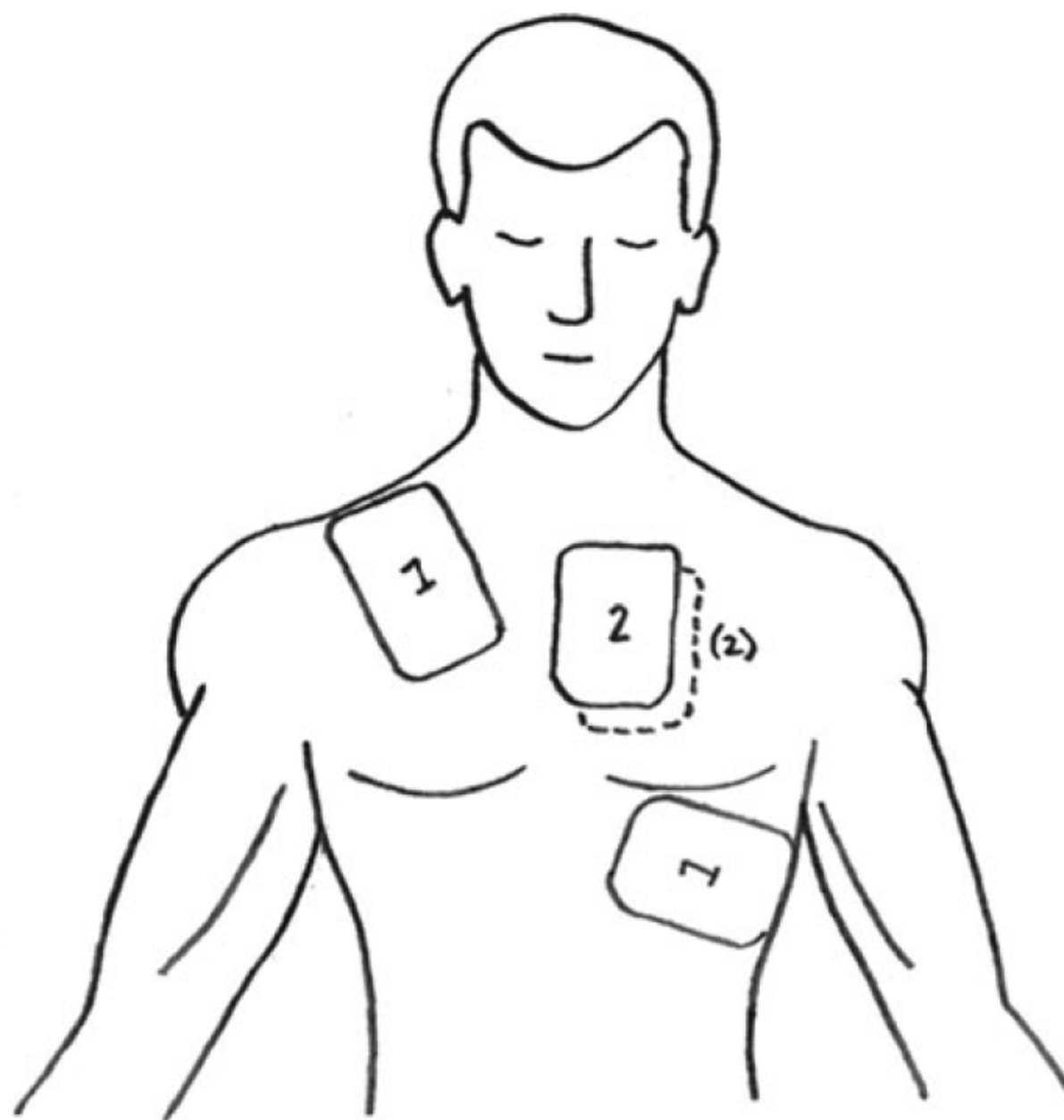
A 40-year-old male struck his chest against a pole during a basketball game and had sudden out-of-hospital cardiac arrest. After bystander cardiopulmonary resuscitation, fire and emergency medical services personnel provided six defibrillation attempts prior to emergency department arrival. A 7th attempt in the emergency department using a different vector was unsuccessful. On the 8th attempt, using a second de-

continued resuscitative efforts, and prepared for transport. At 14:33 the ALS departed the scene, per protocol, and provided 3 more biphasic shocks (200J) en route to the hospital. Upon hospital arrival at 14:43, the patient was noted to be in persistent ventricular fibrillation (VF). The ALS pads were removed and replaced with new pads for the emergency department (ED) defibrillator and a 7th attempt at 360J was admin-

Prehosp Emerg Care 2015;19:554-7

First case report of neurologically intact survival after double sequential defibrillation for refractory VF

- 40 yo, 40 min of VF, 7 shocks
- 8th was dual defibrillation < 1 second apart
- Patient D/C'd 24 d later, neuro intact at 1 yr



Dual Sequential Defibrillation

Take Homes

- Consider after 4-5 unsuccessful shocks
- May provide more even distribution over large area of myocardium
- Two vectors may be better than one
- Longer time of total defibrillation in different directions
- Regardless, one more tool for refractory VF

A NOVEL APPROACH TO IMPROVE TIME TO FIRST SHOCK IN PREHOSPITAL STEMI COMPLICATED BY VENTRICULAR FIBRILLATION

Maxwell Osei-Ampofo, MBChB, MBA, MGCS (EM), MPH, Sheldon Cheskes, MD, CCFP (EM), FCFP, Adam Byers, MDEM, BSc, AEMCA, Ian R. Drennan, ACP BScHK, PhD(c), Jason E. Buick, MSc PCP AEMCA, and P. Richard Verbeek, MD, FRCPC

ABSTRACT

Lethal cardiac arrhythmias such as ventricular fibrillation and pulseless ventricular tachycardia (VF/pVT) complicate up to 6% of all out-of-hospital STEMI. Typically, paramedics respond to this by applying defibrillation pads and delivering a shock as soon as possible. A recently introduced

INTRODUCTION

Improvements in prehospital ST-elevation myocardial infarction (STEMI) identification through serial electrocardiograms (ECGs),¹ as well as STEMI bypass programs that allow paramedics to bypass nearest

Prehospital Emerg Care 2015;Oct Online

- Up to 6% of STEMI have VF/pVT
- Article recommends “pads-on” for all STEMI
- Decreased time to shock from 72min to < 30 sec

PREHOSPITAL NITROGLYCERIN SAFETY IN INFERIOR ST ELEVATION MYOCARDIAL INFARCTION

Laurie Robichaud, MDCM, Dave Ross, MD, Marie-Hélène Proulx, PCP, MSc, Sébastien Légaré, PCP, Charlene Vacon, AEMT-CC, PhD, Xiaoqing Xue, MSc, Eli Segal, MD, FRCP, CSPQ, FACEP

ABSTRACT

Patients with inferior ST elevation myocardial infarction (STEMI), associated with right ventricular infarction, are thought to be at higher risk of developing hypotension when administered nitroglycerin (NTG). However, current basic

while controlling for various factors. Over a 29-month period, we identified 1,466 STEMI cases. Of those, 821 (56.0%) received NTG. We excluded 16 cases because of missing data. Hypotension occurred post NTG in 38/466 inferior STEMIs and 30/339 non-inferior STEMIs, 8.2% vs. 8.9%, $p = 0.73$. A

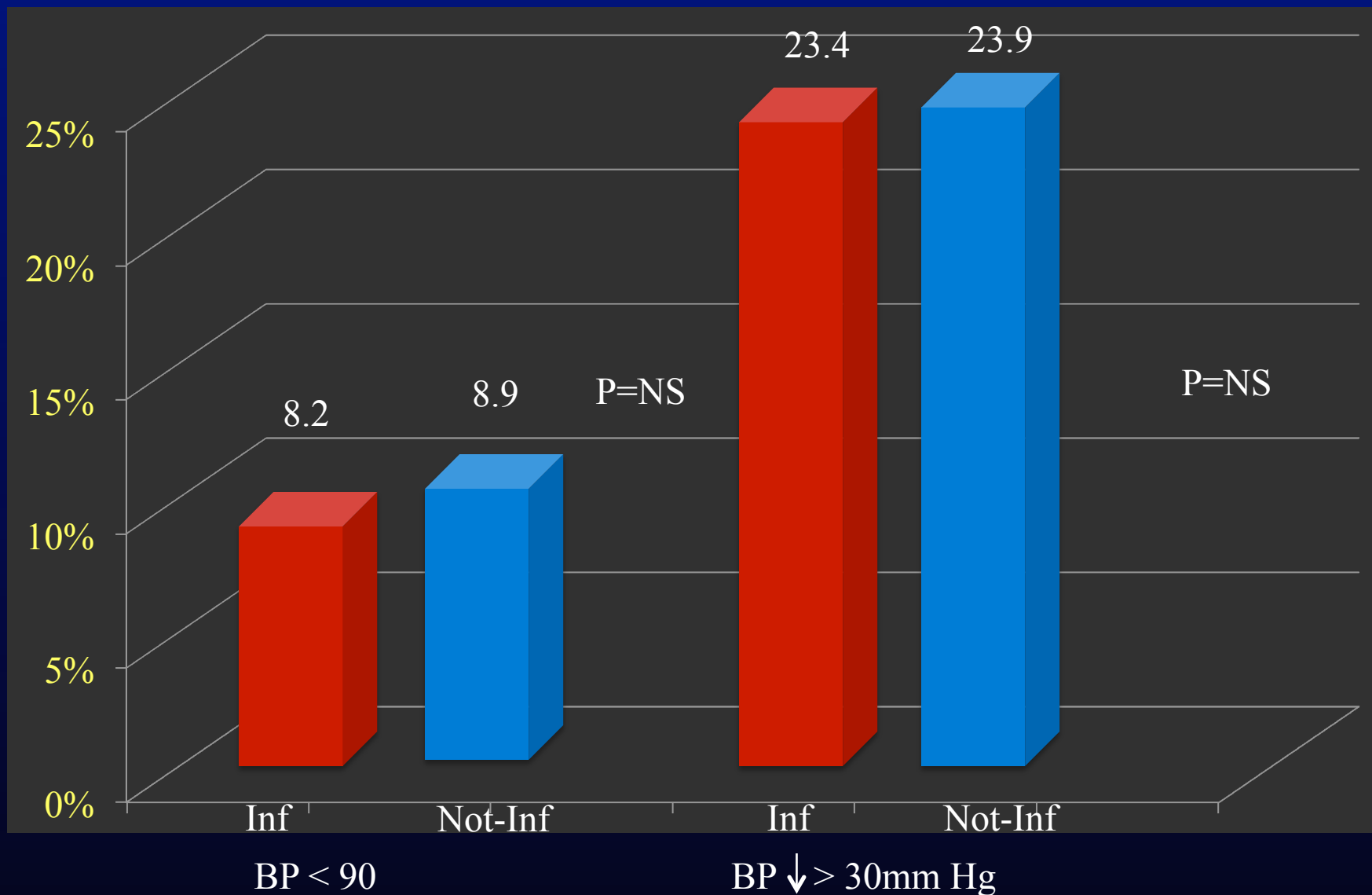
Prehosp Emerg Care 2016;20:76-81

How dangerous is NTG in Inferior AMI?

- 1,466 STEMIs, 56% received NTG
- Montreal Quebec EMS 2010-2012
- Evaluated BP changes in Inf vs Non-Inf AMIs
- $BP < 90$ or $BP \downarrow > 30\text{mm Hg s/p NTG}$

STEMI BP Changes Post NTG

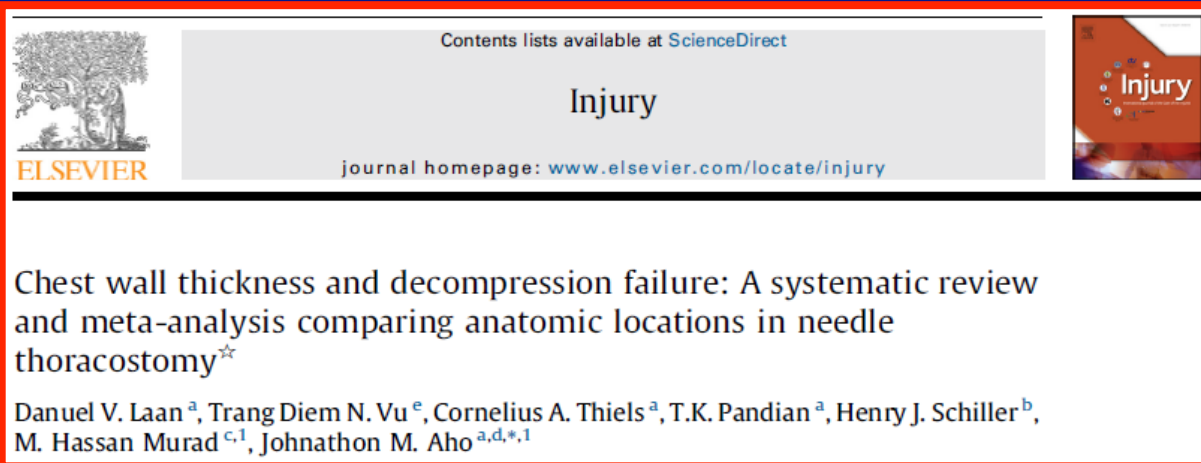
Prehosp Emerg Care 2016;20:76-81



Hypotension S/P NTG in AMI

Take Homes

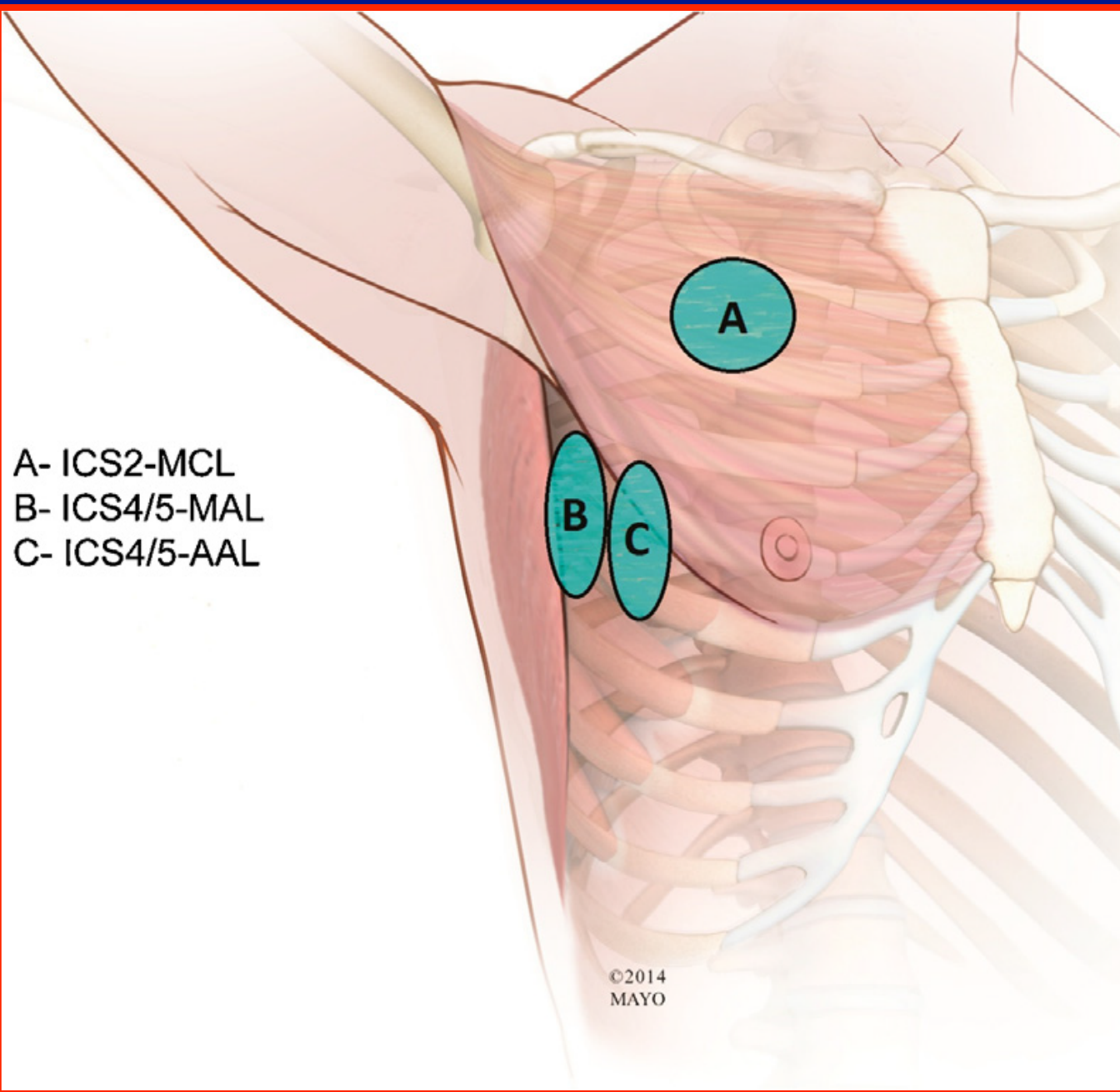
- Common – up to $\frac{1}{4}$ pts of all STEMIs
- Study does not show increased risk in Inferior AMI vs Non-Inferior AMI
- Be careful in all AMI pts who receive NTG



Injury 2015 in press

Is the ATLS guideline to decompress tension pneumothorax via the 2nd ICS in the midclavicular line with a 5cm angiocath optimal?

- Meta-analysis of 13 studies
- 6,192 insertions at different anatomic sites
- measured failure rates at 3 sites
- 2nd ICS MCL; 4/5 ICS MAL, 4/5 ICS AAL



Injury 2015 in press

Failure Rate for Needle Thoracostomy

Injury 2015 in press

- 2nd ICS Mid Clavicular Line 38%
- 4/5 ICS Mid Axillary Line 31%
- 4/5 ICS Anterior Axillary Line 13%

Tension Pneumothorax

Take Homes

- Failure rates with 5 cm angiocath may be high in ATLS recommended site
- Cadaver studies show 5 cm too short in 4% to 50% of 2nd ICS MCL pts
- 4/5 ICS AAL may be superior
- For sure, if one site fails, go to another

Summary

Lay down feet up 45° Valsalva

Vasopressin gone, lidocaine back

Beware Hypotension s/p NTG

Phone alerts for CPR coming

2nd ICS MCL may not be optimal



Sedating Delirious ED Patients Ketamine

THE USE OF PREHOSPITAL KETAMINE FOR CONTROL OF AGITATION IN A METROPOLITAN FIREFIGHTER-BASED EMS SYSTEM

David Keseg, MD, Eric Cortez, MD, Douglas Rund, MD, Jeffrey Caterino, MD, MPH

ABSTRACT

Introduction. Prehospital personnel frequently encounter agitated, combative, and intoxicated patients in the field. In recent years, ketamine has been described as an effective sedative agent to treat such patients; however, a paucity of

was performed in eight (23%, 95% CI 10–40%) patients post-ketamine administration. **Conclusion.** We found that in a cohort of patients administered ketamine, paramedics reported a subjective improvement in patient condition. Endotracheal intubation was performed in 8 patients. **Key words:** pre-hospital; agitation; ketamine

Prehospital Emerg Care 2015;19:110-15

- Ketamine for excited delirium
- 35 agitated patients from Columbus EMS
- Only admitted by EMS supervisors
- 4mg/kg IM (mean dose=324mg; 100-500mg)
- 2 mg/kg IV
- 8 patients got pre-ketamine sedation / 6 post

THE USE OF PREHOSPITAL KETAMINE FOR CONTROL OF AGITATION
IN A METROPOLITAN FIREFIGHTER-BASED EMS SYSTEM

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Prehospital Emerg Care 2015;19:110-15

Results with Ketamine

- 91% improved (32/35)
- 8.6% no improvement (3/35)
- 40% required additional sedation (benzo or taser)
- 23% (8/35) had to be intubated

Ketamine for Agitation

Reasons for Intubation

Prehospital Emerg Care 2015;19:110-15

- Agitation (4)
- Lethargic or Unresponsive (3)
- Cardiac Arrest (1)

Ketamine for Agitated Delirium

Take Homes

- 4mg/kg IM or 2 mg/kg IV
- Not a panacea
- 8/35 intubated = 23% complication rate
- Beware: again significant morbidity
- Use ketamine as a last resort, not first line

PREHOSPITAL ADMINISTRATION OF EPINEPHRINE IN PEDIATRIC ANAPHYLAXIS

Eli Carrillo, MD, H. Gene Hern, MD, Joseph Barger, MD

ABSTRACT

Anaphylaxis in the pediatric population is both serious and potentially lethal. The incidence of allergic and anaphylactic reactions has been increasing and the need for life saving intervention with epinephrine must remain an important part of Emergency Medical Services (EMS) provider training. Our aim was to characterize dosing and timing of epinephrine,

PREHOSPITAL EMERGENCY CARE 2015;Early Online:1-6

INTRODUCTION

Anaphylaxis and allergic reactions are serious and potentially lethal diseases in the pediatric population.

Prehospital Emerg Care 2015;Nov Online

How often is epinephrine given to pediatric patients with true anaphylaxis

- 205 allergic reactions, 98 had anaphylaxis
- Epinephrine given to only 54% (53/98) pts with anaphylaxis

PREHOSPITAL ADMINISTRATION OF EPINEPHRINE IN PEDIATRIC ANAPHYLAXIS

Eli Carrillo, MD, H. Gene Hern, MD, Joseph Barger, MD

Prehospital Emerg Care 2015;Nov Online

- Study looked at epinephrine use pre vs post EMS
- 53 total patients got epi
- Epi used pre EMS in 47 of these 53
- Thus in only 12% of cases (6 of remaining 51 cases) was epinephrine given by EMS for anaphylaxis!
- 71% got albuterol and/or benadryl
- 9% of anaphylaxis patients got nothing

Anaphylaxis

Take Homes

- Study after study shows low epi use
- It is safe and the drug of choice
- Non-use is the #1 cause of death in anaphylaxis
- 0.3 IM; 0.15 IM
- 1cc = 1mg

Seizures

PARENTERAL MIDAZOLAM IS SUPERIOR TO DIAZEPAM FOR TREATMENT OF PREHOSPITAL SEIZURES

Brian M. Clemency, DO, Jamie A. Ott, MA, Christopher T. Tanski, MD, Joseph A. Bart, DO, Heather A. Lindstrom, PhD

ABSTRACT

Introduction. Diazepam and midazolam are commonly used by paramedics to treat seizures. A period of drug scarcity was used as an opportunity to compare their effectiveness in treating prehospital seizures. **Methods.** A retrospective

INTRODUCTION

Seizures are a common reason for emergency medical services (EMS) requests.^{1,2} Benzodiazepines are the first-line treatment for seizures, but the recommended medication and dose vary.³⁻⁷ The most com-

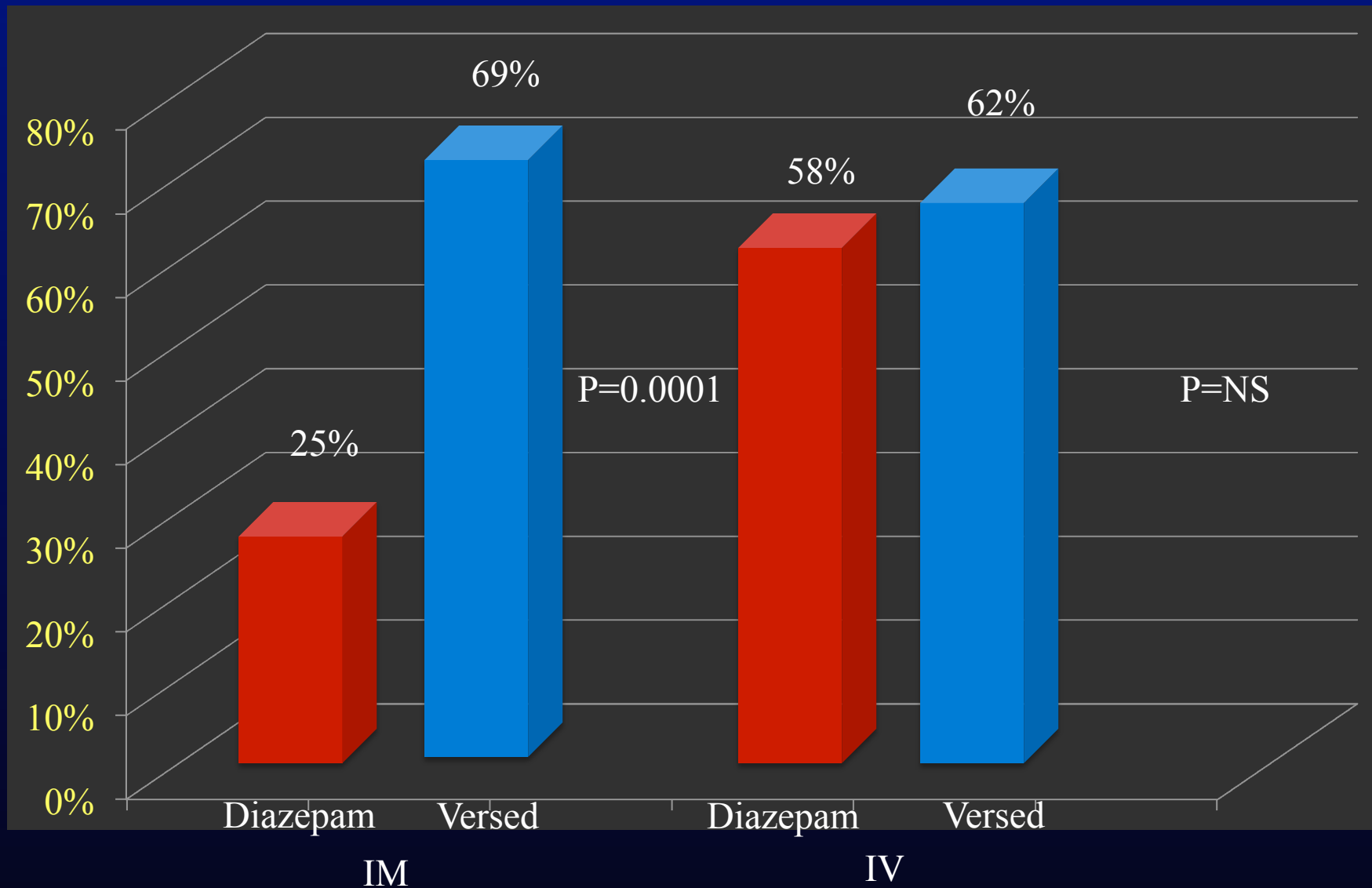
Prehospital Emerg Care 2015;19:218-23

Is midazolam (Versed) really superior to diazepam (Valium) for seizures?

- 577 anti-seizure administration for seizures
- Buffalo, NY EMS System, Adult pts only
- Compared IM and IV dosing for each
- Evaluated first dose effectiveness
- Diazepam: 5mg IV/IM; Versed: 5mg IM, 2.5 mg IV

First Dose Effectiveness for Seizures

Prehospital Emerg Care 2015;19:218-23



**PARENTERAL MIDAZOLAM IS SUPERIOR TO DIAZEPAM FOR TREATMENT
OF PREHOSPITAL SEIZURES**

Brian M. Clemency, DO, Jamie A. Ott, MA, Christopher T. Tanski, MD, Joseph A. Bart, DO,
Heather A. Lindstrom, PhD

Prehospital Emerg Care 2015;Nov Online

*“This study demonstrates that midazolam
is superior to diazepam for seizure
control in the prehospital setting”*

No – this study reminds us that you should
never depend on IM valium – it’s been
known for more than a quarter of a century
that IM valium is poorly absorbed and
should not be given IM

Anti-seizure Medication

Take Homes

- Valium = Versed = Ativan when given IV
- IM: Ativan or Versed
- IN: Versed
- PR: Valium
- Know your drugs and routes!

THE UTILITY OF PREHOSPITAL ECG TRANSMISSION IN A LARGE EMS SYSTEM

Nichole Bosson, MD, MPH, Amy H. Kaji, MD, PhD, James T. Niemann, MD, Benjamin Squire, MD, MPH, Marc Eckstein, MD, William J. French, MD, Paula Rashi, RN, Richard Tadeo, RN, William Koenig, MD

ABSTRACT

Background. Prehospital identification of STEMI and activation of the catheterization lab can improve door-to-balloon (D2B) times but may lead to decreased specificity and unnecessary resource utilization. The purpose of this study was

–6%, 95%CI –9, –3%). This led to an overall system reduction in FP activations of 5% (95%CI 2, 8%). ECG transmission had no effect on D2B and FMC2B time. **Conclusion.** Prehospital ECG transmission is associated with a small reduction in false-positive field activations for STEMI and had no effect

Prehospital Emerg Care 2015;19:496-503

How does a prehospital ECG affect care in a large urban EMS system?

- 7,768 *** acute AMI *** ECGs
- 2,156 / 7,768 transmitted to base stations
- Evaluated D₂B, PCI activations and E₂B
- Retrospective study

THE UTILITY OF PREHOSPITAL ECG TRANSMISSION IN A LARGE EMS SYSTEM

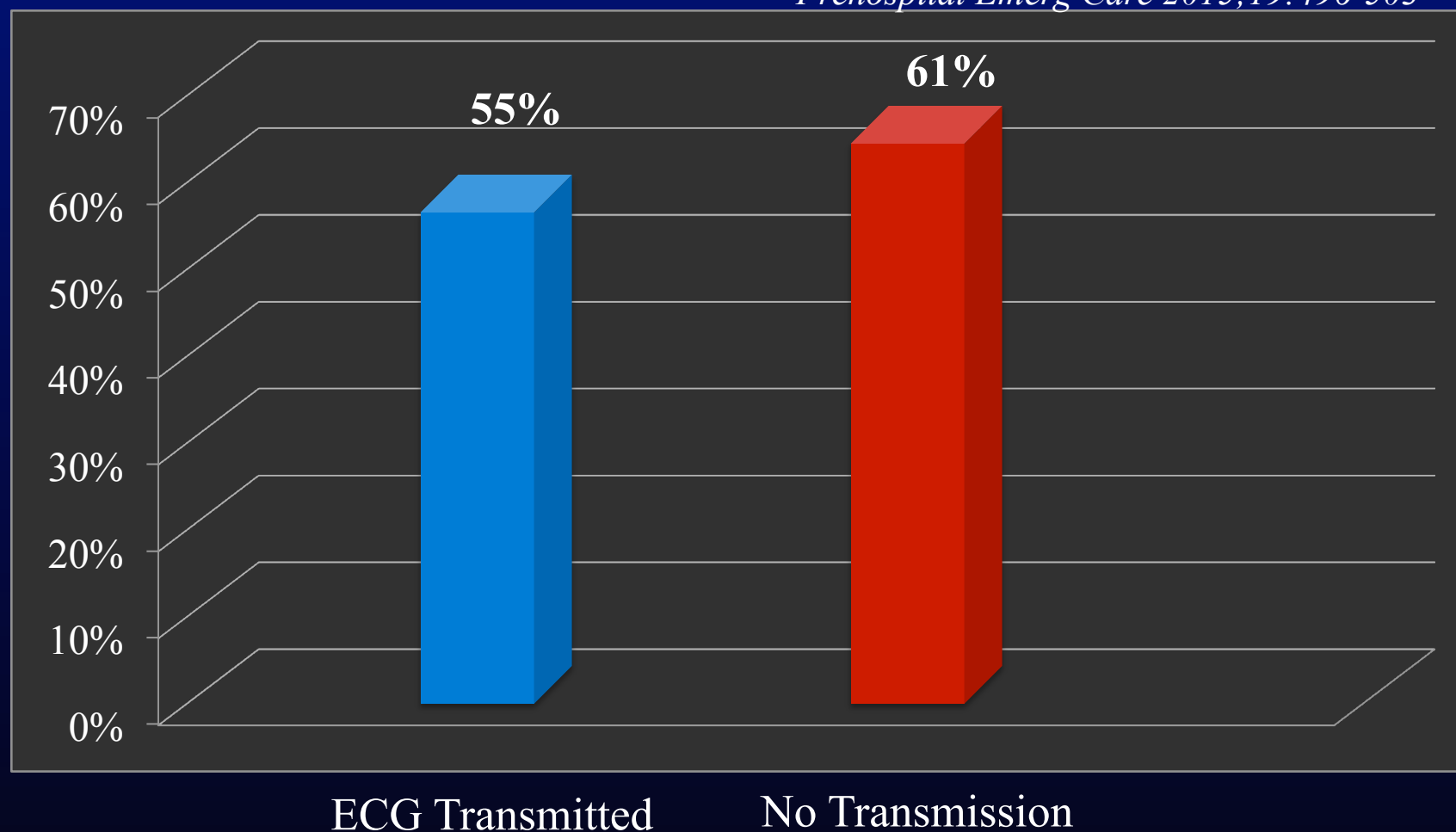
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Prehospital Emerg Care 2015;19:496-503

- Field activation decreases D₂B but may↑ false activations for non-STEMIs
- 28% of STEMI ECGs were transmitted
- PCI lab activated 78% of the time

ECG Transmission & False Activations (False activation=no PCI or CABG during hospitalization)

Prehospital Emerg Care 2015;19:496-503



Prehospital ECG Take Homes

- Cannot use **** Acute MI **** in isolation
- Very high FP rate influenced by “no PCI” not those who were not taken to PCI
- LA EMS system changing how it approaches CCL activation
- Using paramedic overreads, MD direction and patient’s clinical presentation