

# **Post-Cardiac Arrest Therapeutic Hypothermia in New Jersey Hospitals: Analysis of Adoption and Implementation**

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**Derek DeLia, Ph.D.<sup>a</sup>; Henry Wang, MD, MS<sup>b</sup>; Jared Kutzin, DNP,  
MPH, RN, EMT<sup>c</sup>; Mark Merlin, DO, EMT-P, FACEP<sup>d</sup>; Joel C. Cantor,  
Sc.D.<sup>a</sup>**

<sup>a</sup>Rutgers Center for State Health Policy

<sup>b</sup>University of Alabama-Birmingham: Dept of Emergency Medicine

<sup>c</sup>St. Barnabas Medical Center, UMDNJ, Englewood Hospital & Medical Center

<sup>d</sup>Newark Beth Israel Medical Center

# Acknowledgements

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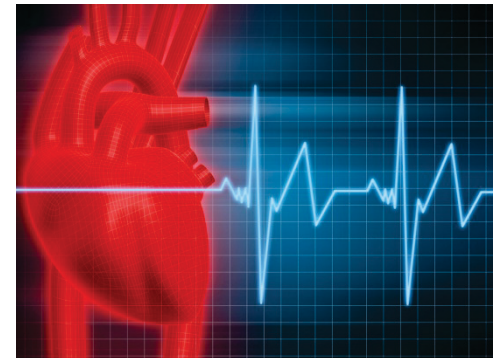
Assistance from Manisha Agrawal, Nicole DeMola, and Ayesha Aslam



# Therapeutic hypothermia (TH)

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- Fairly new & innovative treatment for out-of-hospital cardiac arrest (OHCA)
  - Reduce body temperature during post-arrest treatment
  - Improve survival & neurological outcomes
- TH now recommended treatment for OHCA
  - International Liaison Committee on Resuscitation, 2005
  - American Heart Association, 2010
- But TH is not universally used
  - Difficult to set up & maintain TH capability
  - Doubts about (limited) evidence base



# Our project (overall)

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Aim 1: Create linked database for NJ

Prehospital EMS (EHRs) → Hospital billing records → Mortality records

Aim 2: Conduct CER study of TH vs. non-TH OHCA care

- Coding of TH in hospital billing records
  - ICD-9-CM code exists
  - No reimbursement consequences
  - Likely under/no reporting
- We conducted a survey of TH use by NJ hospitals
- Today's presentation reports on survey results



# Survey of NJ hospitals

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- Fielded in Summer 2011
- Brief telephone survey (5-10 minutes)
  - ED nurse manager (or similar position)
  - TH use, protocols, related issues
  - Written protocols if available
- Fallback: 90-second version



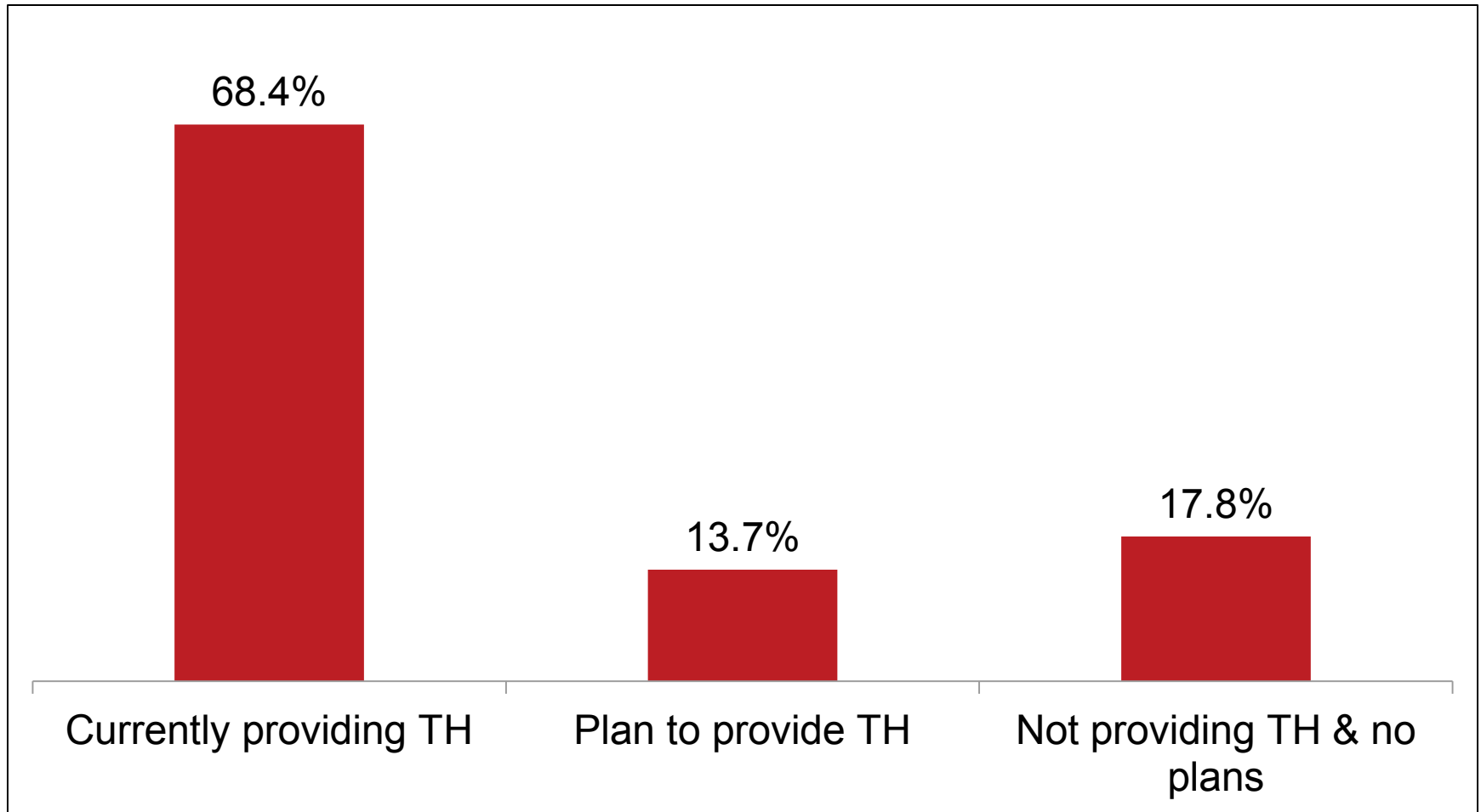
# Participation

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- Universe = 73 acute care hospitals
- 54 full interviews
- 19 brief (fallback) interviews
- 18 written protocols  
(21 hospitals)

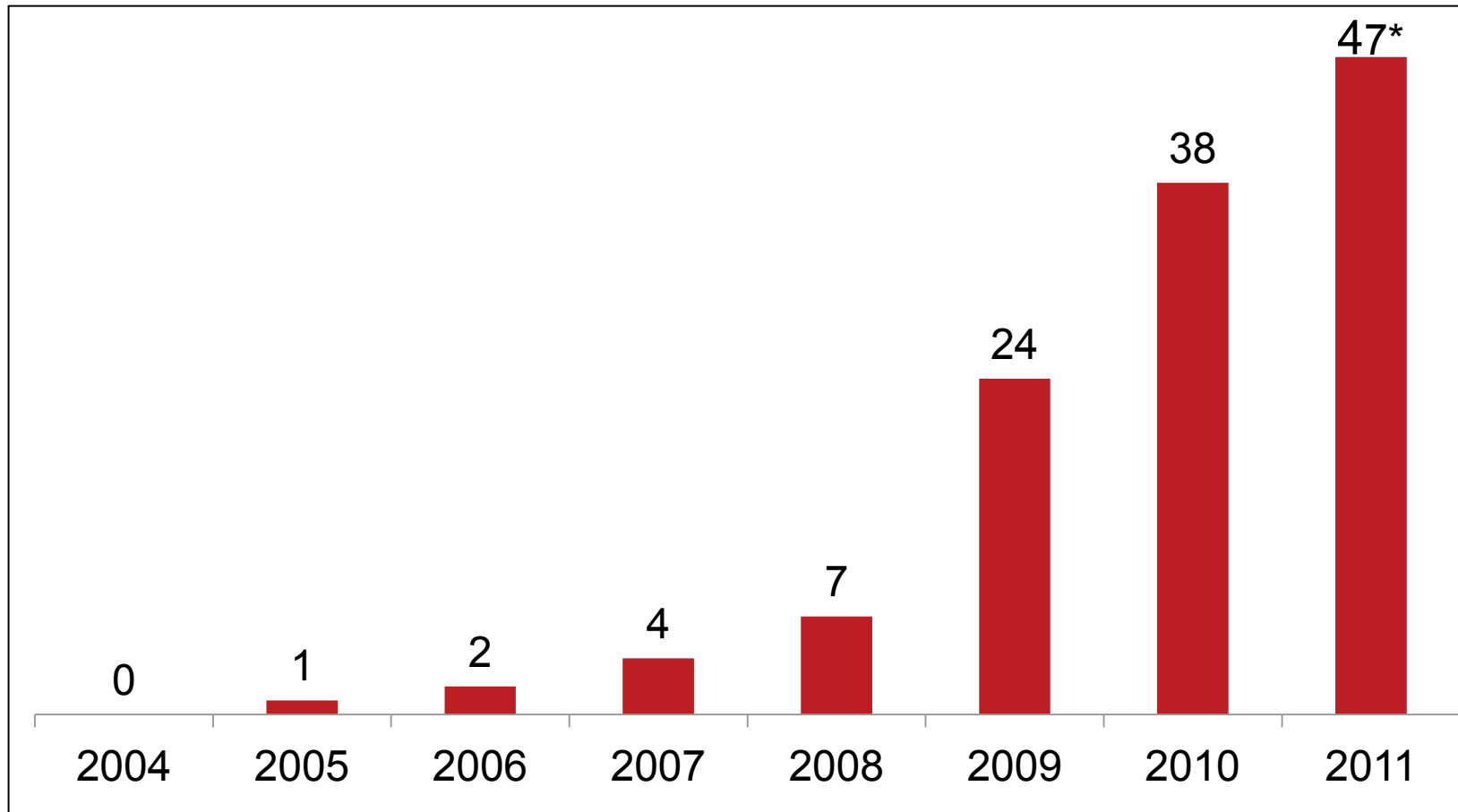


## NJ hospitals providing TH, Summer 2011



Based on 73 acute care hospitals in all NJ hospitals

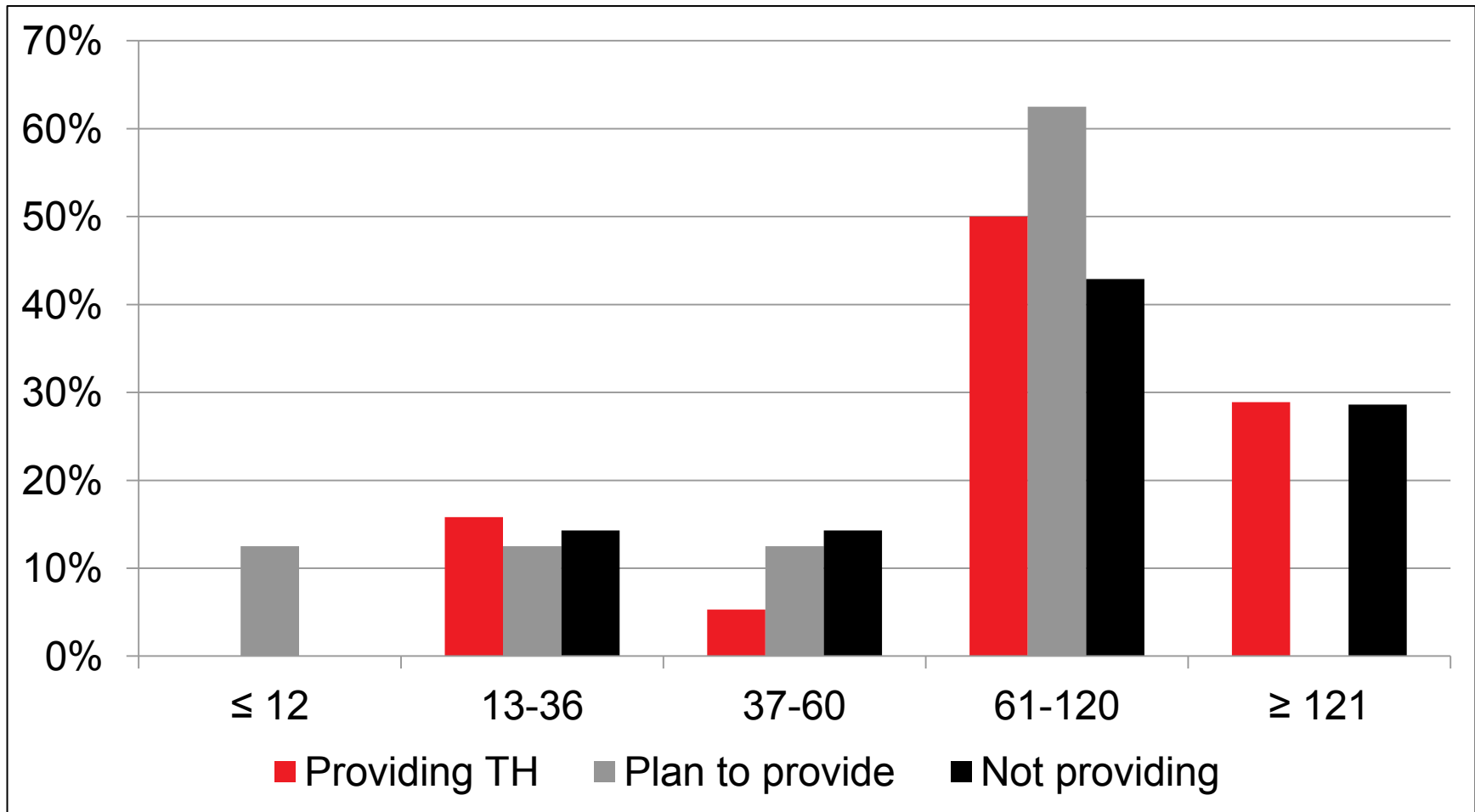
## Growth in # NJ hospitals providing TH



\* 3 additional hospitals provided TH in 2011 but could not report how long the TH program had been in place. Therefore, 2011 total is 50.



# TH provision by annual OHCA volume



Based on 54 hospitals w/full survey data.

Percentages sum to 100 within colored bars.

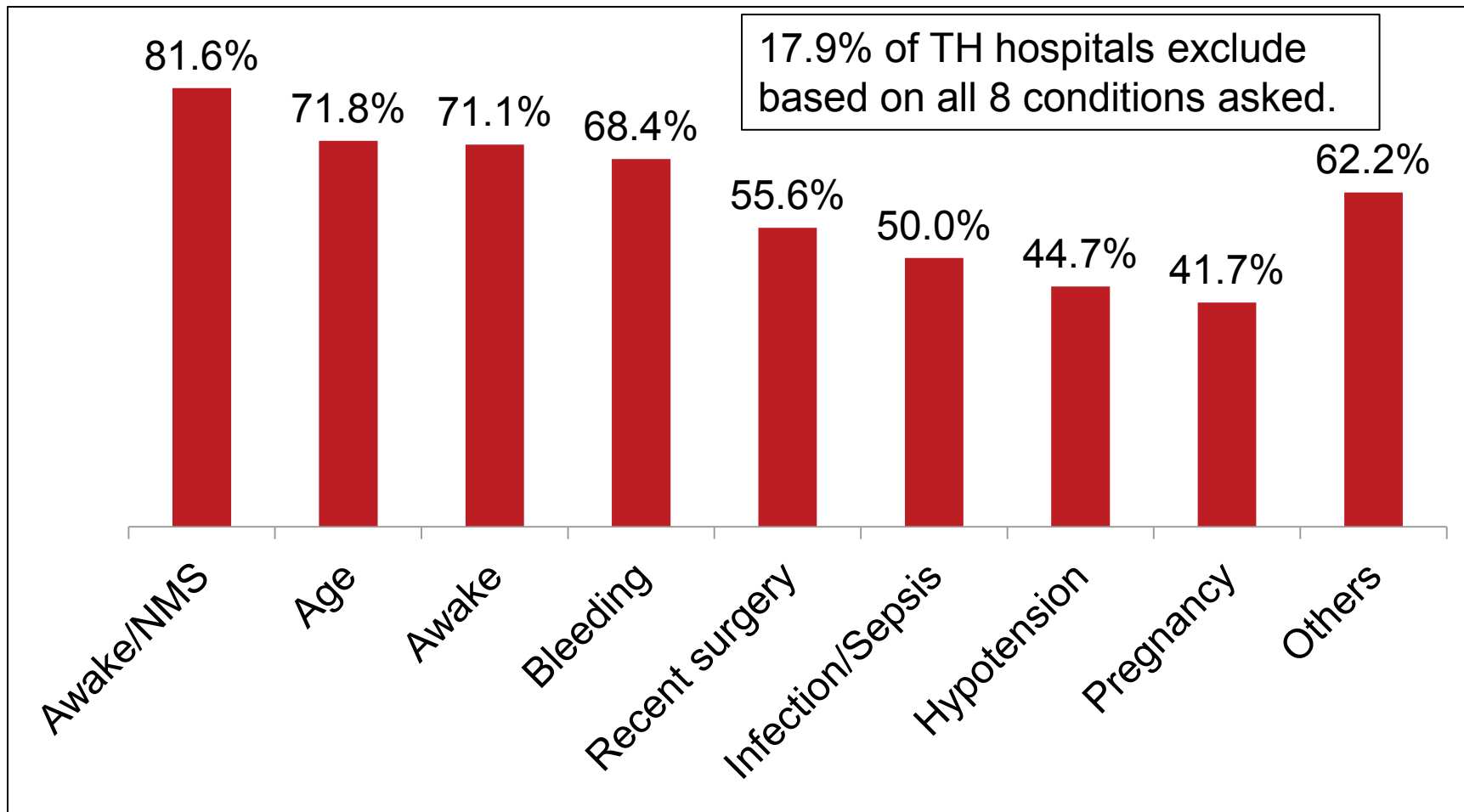
# TH provision & other hospital characteristics

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- Little or no difference by ...
  - Teaching status
  - Patient volume
  - Occupancy rate

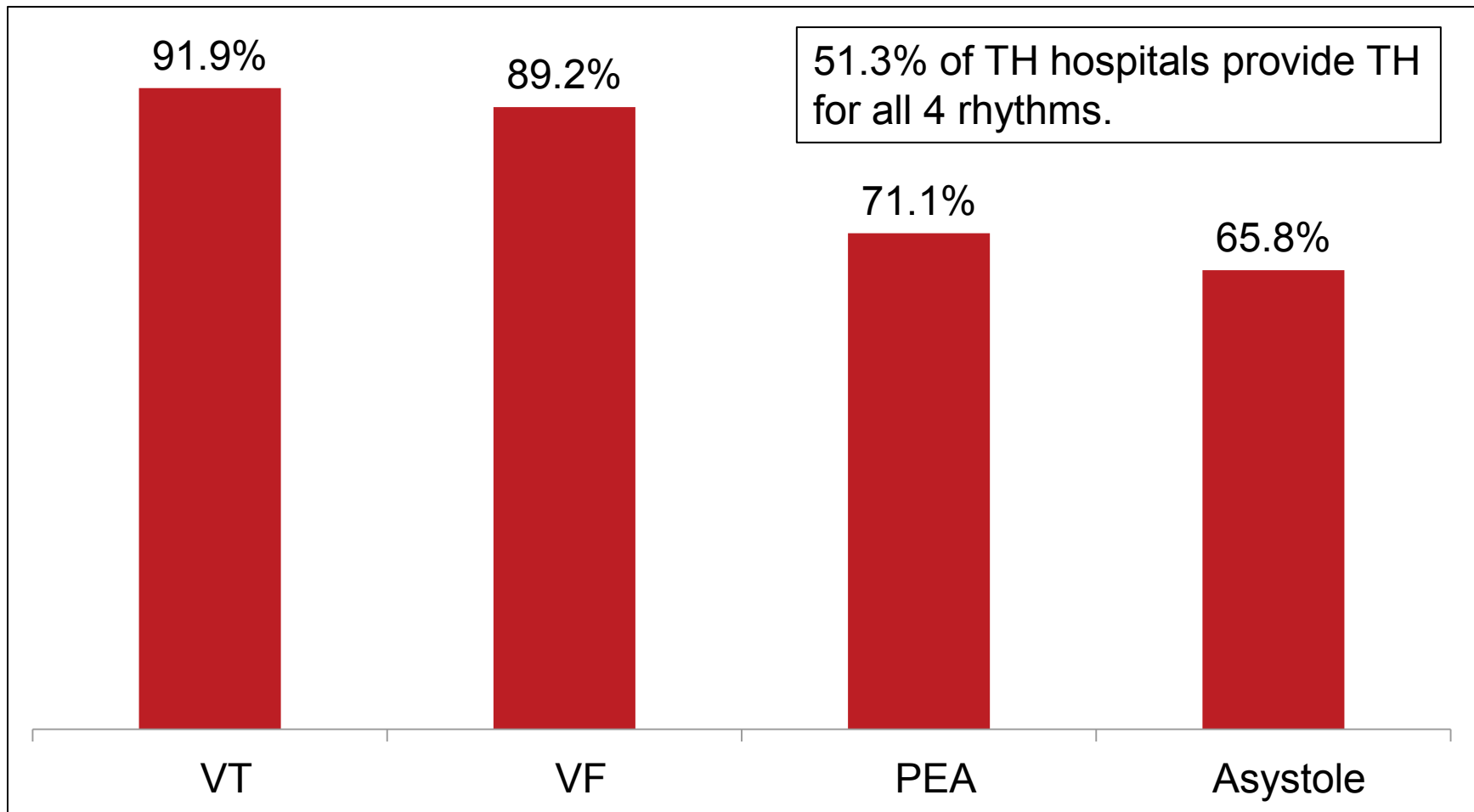


# Exclusion criteria: Patient characteristics



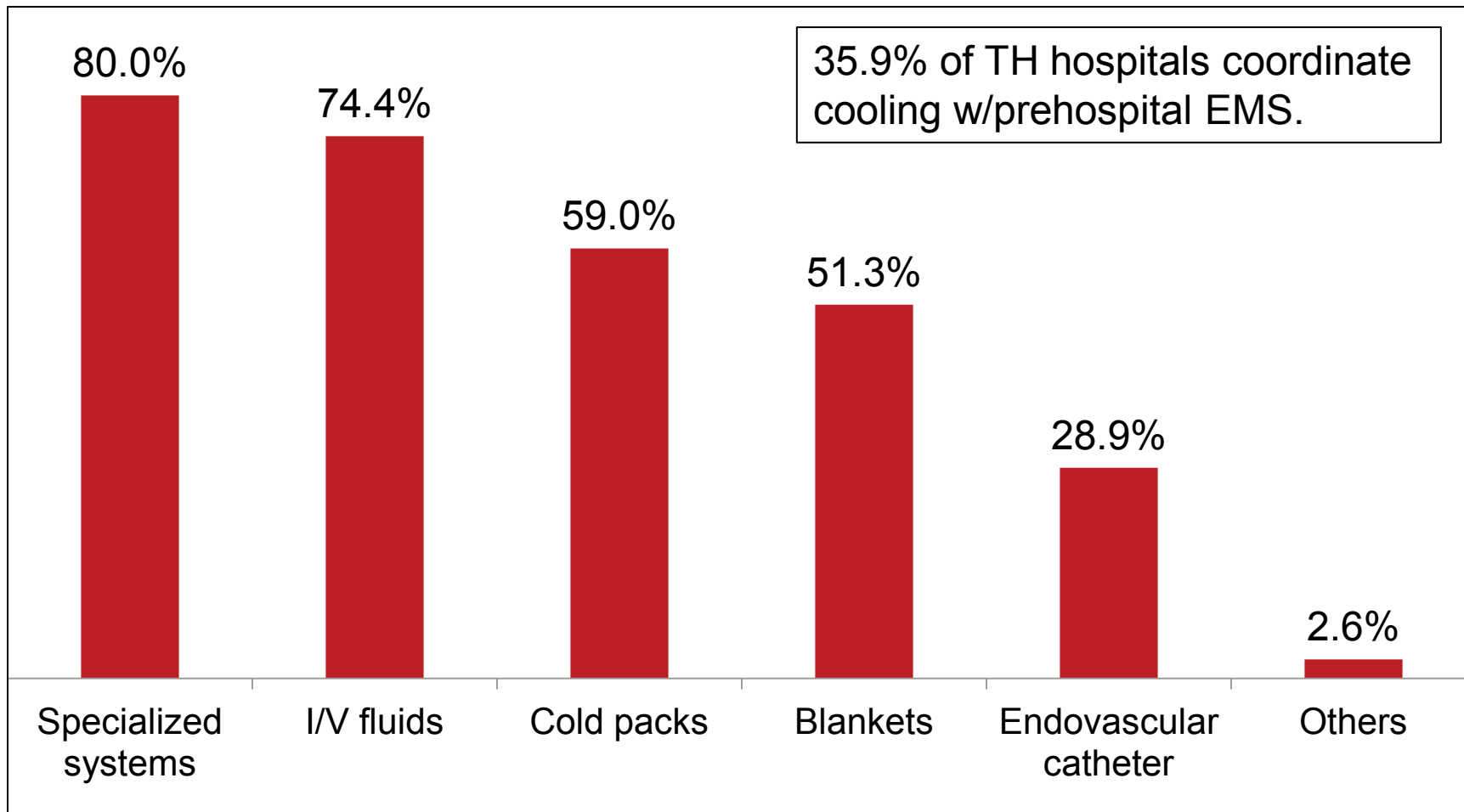
Based on 39 TH hospitals w/full survey data.

## Inclusion criteria: ECG rhythms



Based on 39 TH hospitals w/full survey data.

# Cooling methods

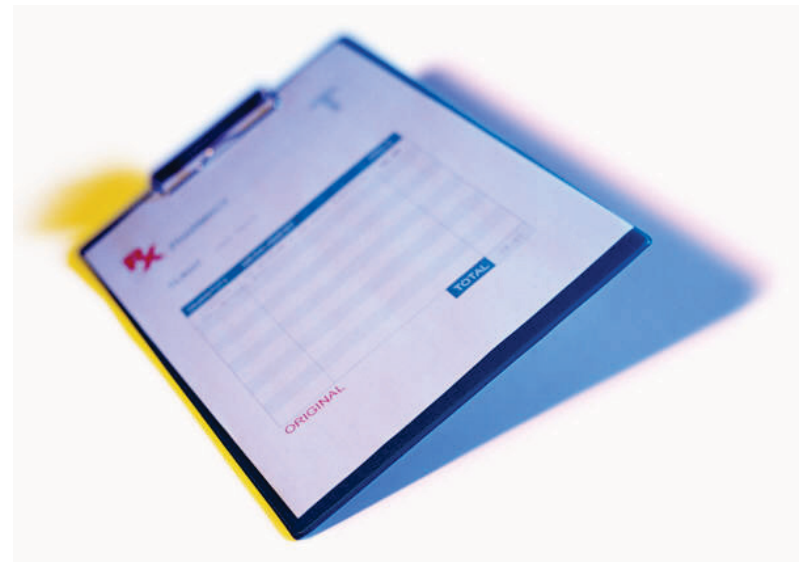


Based on 39 TH hospitals w/full survey data.

# Written protocols

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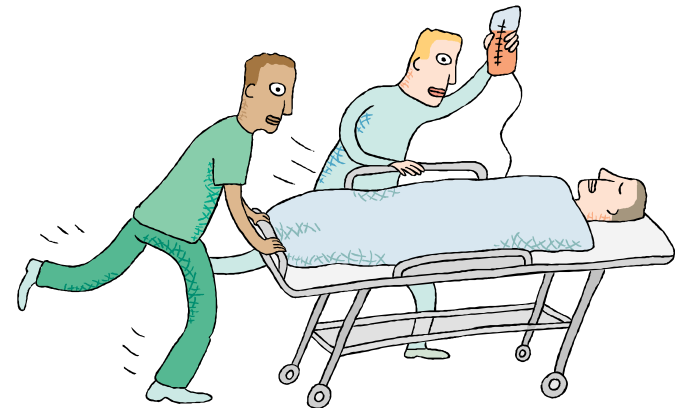
- Large variation in ...
  - Duration of TH
  - Defined start of duration time
  - Time to reach target temperature
  - Re-warming time
  - Measurement & response to patient shivering
  
- Large variation in protocol details
  - Level of detail
  - What gets mentioned



# Summary

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- Most NJ hospitals implementing TH guidelines
- Large variation in the way guidelines are implemented
- TH centers often see very low volume of OHCA patients
  - TH volume even smaller given patient exclusions
- > 1/3 of TH centers coordinate patient cooling in prehospital setting



# Implications

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- Variation in TH practice
  - Does it affect patient outcomes?
  - What does it mean to follow practice guidelines?
- Patient selection criteria ==> access disparities?
- Low TH volume & quality of care
  - Prior research ==> better outcomes if annual OHCA cases  $\geq 40$
- Factors that determine adoption of TH guidelines not well understood
  - Reputation/marketing, peer influence?



## For more information ...

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D. DeLia, H. Wang, J. Kutzin, M. Merlin, & J.C. Cantor (2012), “Post Cardiac Arrest Therapeutic Hypothermia in New Jersey Hospitals: Analysis of Adoption and Implementation.” Forthcoming in *Therapeutic Hypothermia and Temperature Management*.

D. DeLia: [ddelia@ifh.rutgers.edu](mailto:ddelia@ifh.rutgers.edu)

