

# National Cardiac Arrest Audit (NCAA): in-hospital cardiac arrests for paediatric patients

Peter-Marc Fortune  
NCAA Steering Group member



Supported by Resuscitation Council (UK) and ICNARC

# NCAA and scope of data collection

- NCAA is the national clinical audit of in-hospital cardiac arrest in the UK and Ireland
- Scope for data collection -  
*...all individuals (excluding neonates) receiving chest compression(s) and/or defibrillation and attended by the hospital-based resuscitation team in response to a 2222 call...*

# Paediatric

- For these analyses, paediatric was defined as an individual aged less than 16 years

# Children's hospitals

- Participation for children's hospitals is presented as:
  - Standalone children's hospitals
  - Combined children's hospitals

# Standalone children's hospitals

(children's hospital participates as separate site)

- 5 of 9 standalone children's hospitals participate

## Participants

- Alder Hey Children's Hospital
- Great Ormond Street Hospital
- Royal Manchester Children's Hospital
- Sheffield Children's Hospital
- Birmingham Children's Hospital

## Non-participants

- Royal Aberdeen Children's Hospital
- Royal Hospital for Sick Children, Edinburgh
- Royal Hospital for Sick Children, Glasgow
- Royal Belfast Hospital for Sick Children

# Combined children's hospitals

(children's hospital participates as combined site)

- 10 of 13 combined children's hospitals participate

## Participants

- Oxford Children's Hospital
- Southampton Children's Hospital
- Queen Mary's Hospital for Children
- Nottingham Children's Hospital
- Bristol Royal Hospital for Children
- Great North Children's Hospital
- Leeds Children's Hospital
- Evelina London Children's Hospital
- Derbyshire Children's Hospital
- Leicester Children's Hospital

## Non-participants

- Royal Alexandra Children's Hospital
- Tayside Children's Hospital
- The Noah's Ark Children's Hospital for Wales

# Paediatric arrest analyses

- Paediatric arrests are categorised by:
  - those occurring in children's hospitals (standalone and combined children's hospitals)
  - those occurring in non-children's hospitals (all other participating acute general hospitals)
- Paediatric arrests are presented for the five-year period from:
  - 1 April 2011 to 31 March 2016

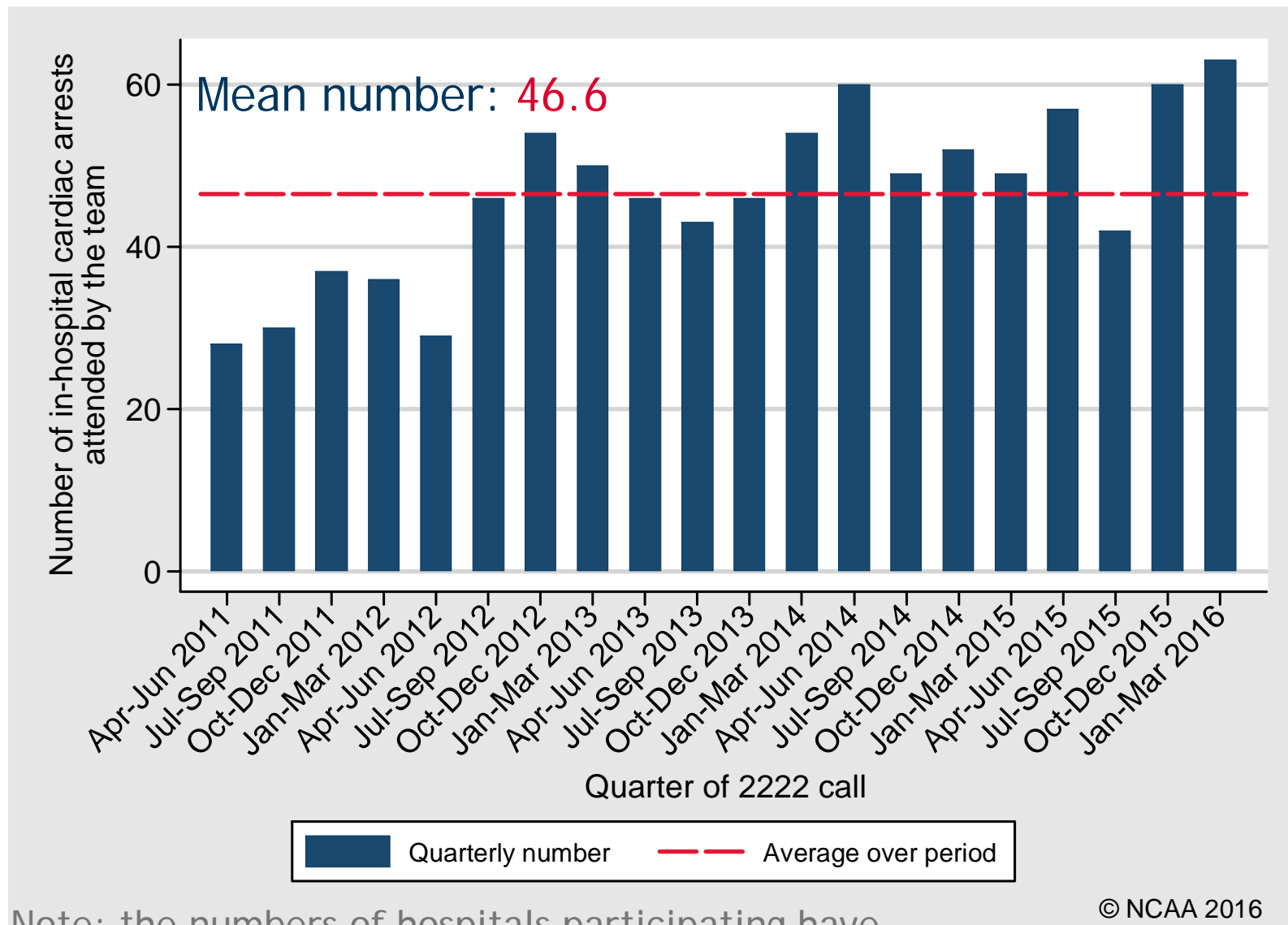
# Number of paediatric arrests

	Children's hospitals [N=15]	Acute general hospitals [N=122]	Total
1 April 2011 - 31 March 2012	59	72	131
1 April 2012 - 31 March 2013	68	111	179
1 April 2013 - 31 March 2014	62	127	189
1 April 2014 - 31 March 2015	95	115	210
1 April 2015 - 31 March 2016	103	119	222
Total	387	544	<b>931</b>

Note: the numbers of hospitals participating have increased over time



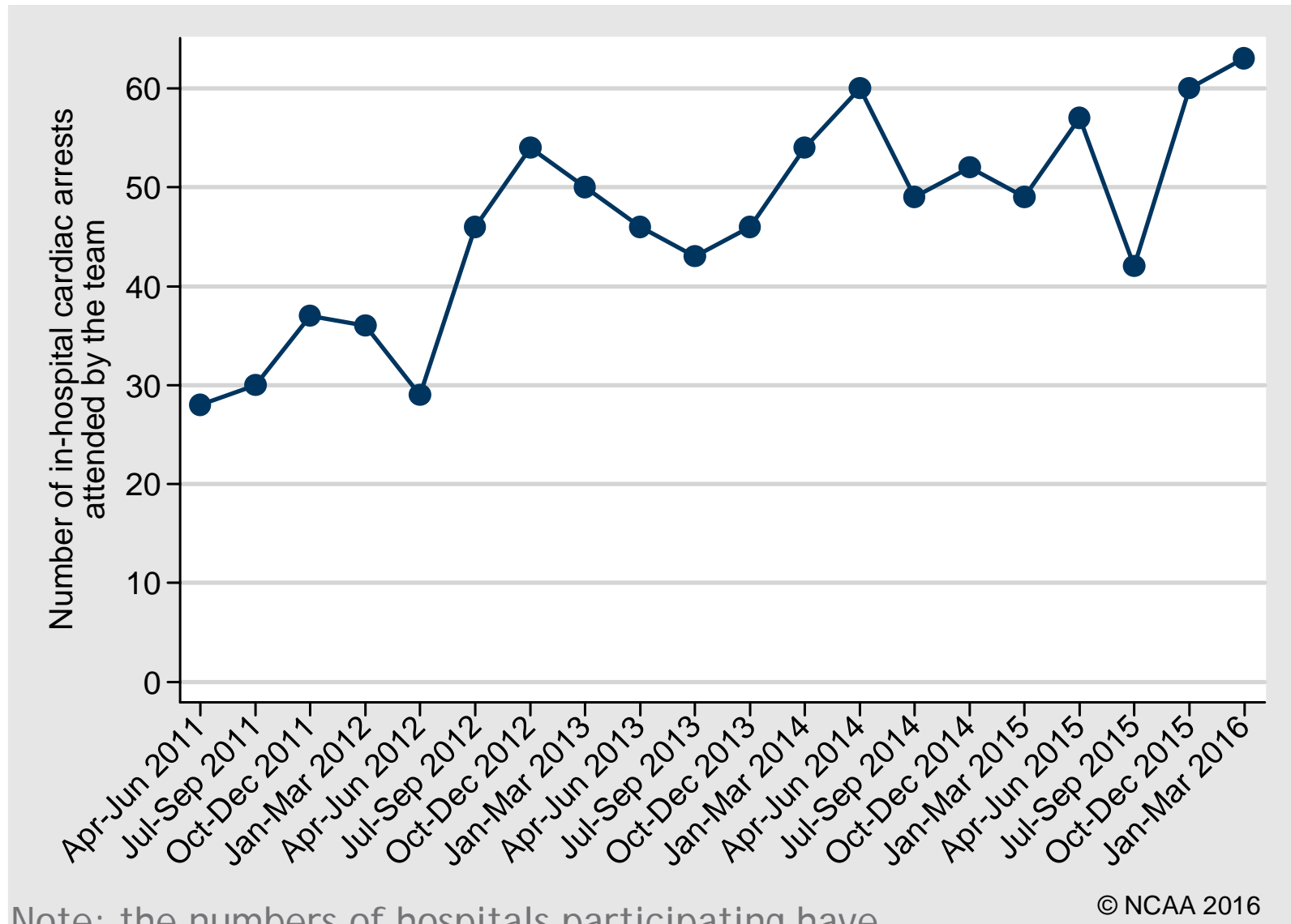
# Number of paediatric arrests



Note: the numbers of hospitals participating have increased over time

© NCAA 2016

# Number of paediatric arrests over time



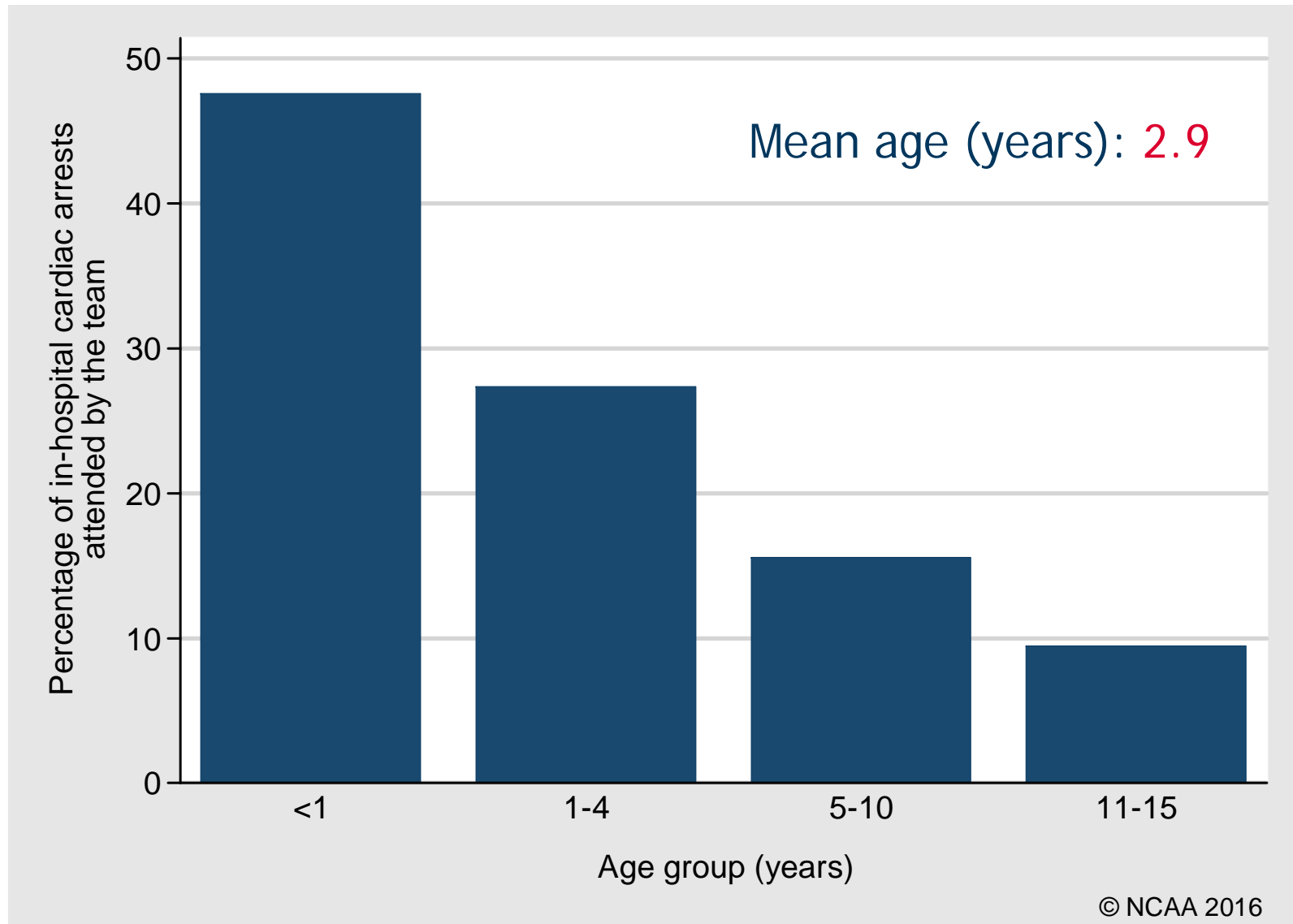
Note: the numbers of hospitals participating have increased over time

© NCAA 2016

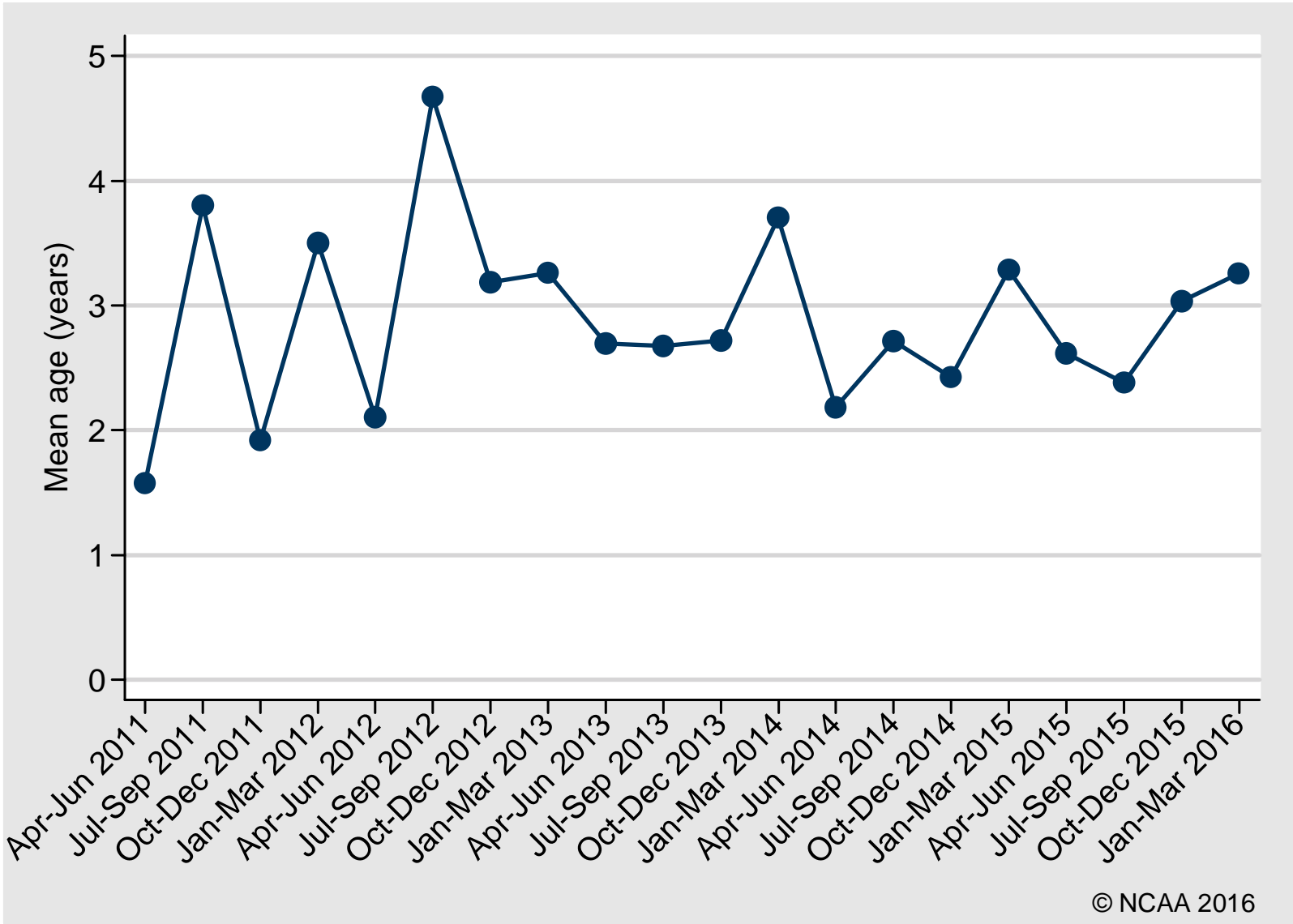
# Paediatric arrests

- Characteristics (n=931)

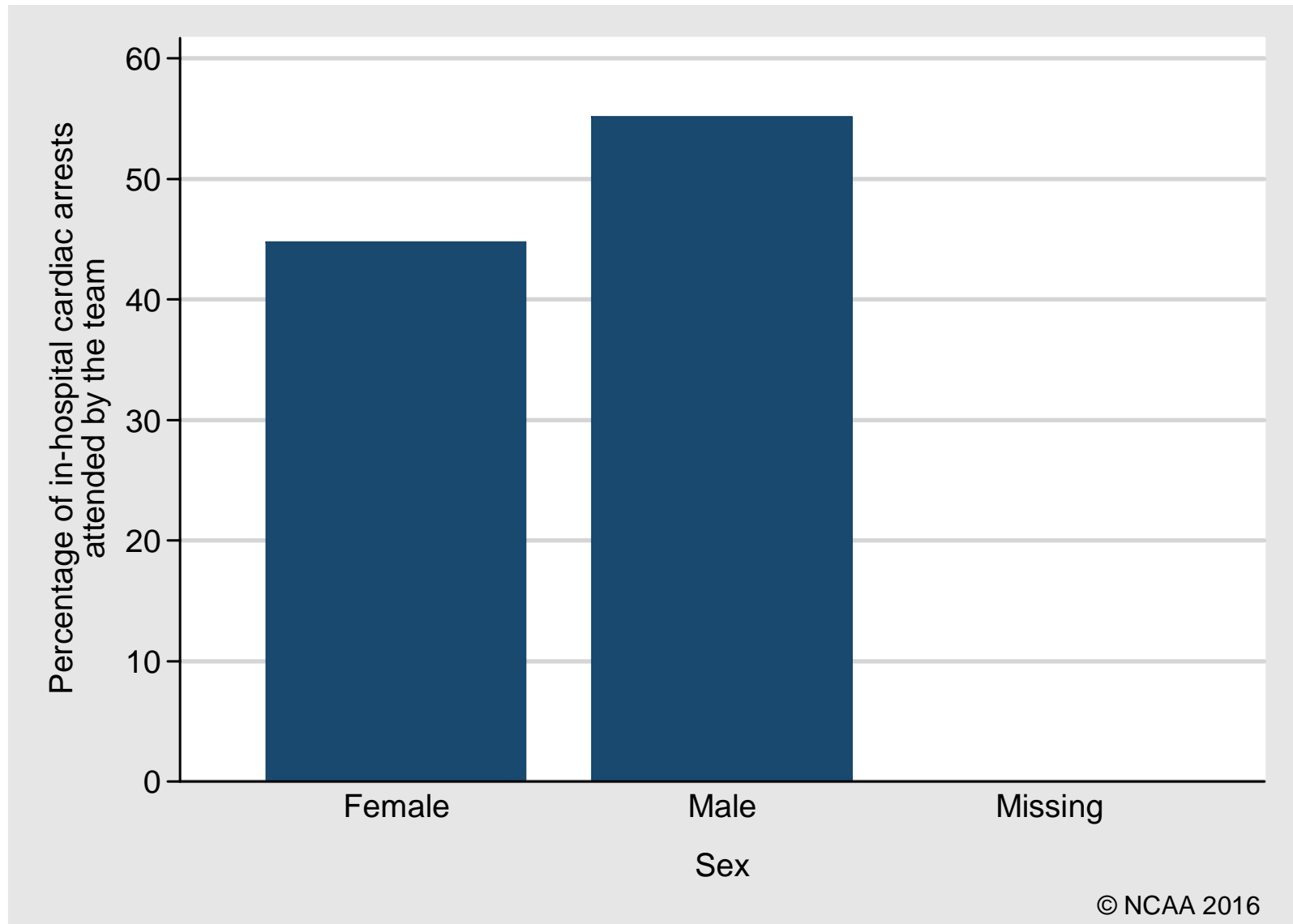
# Age (years)



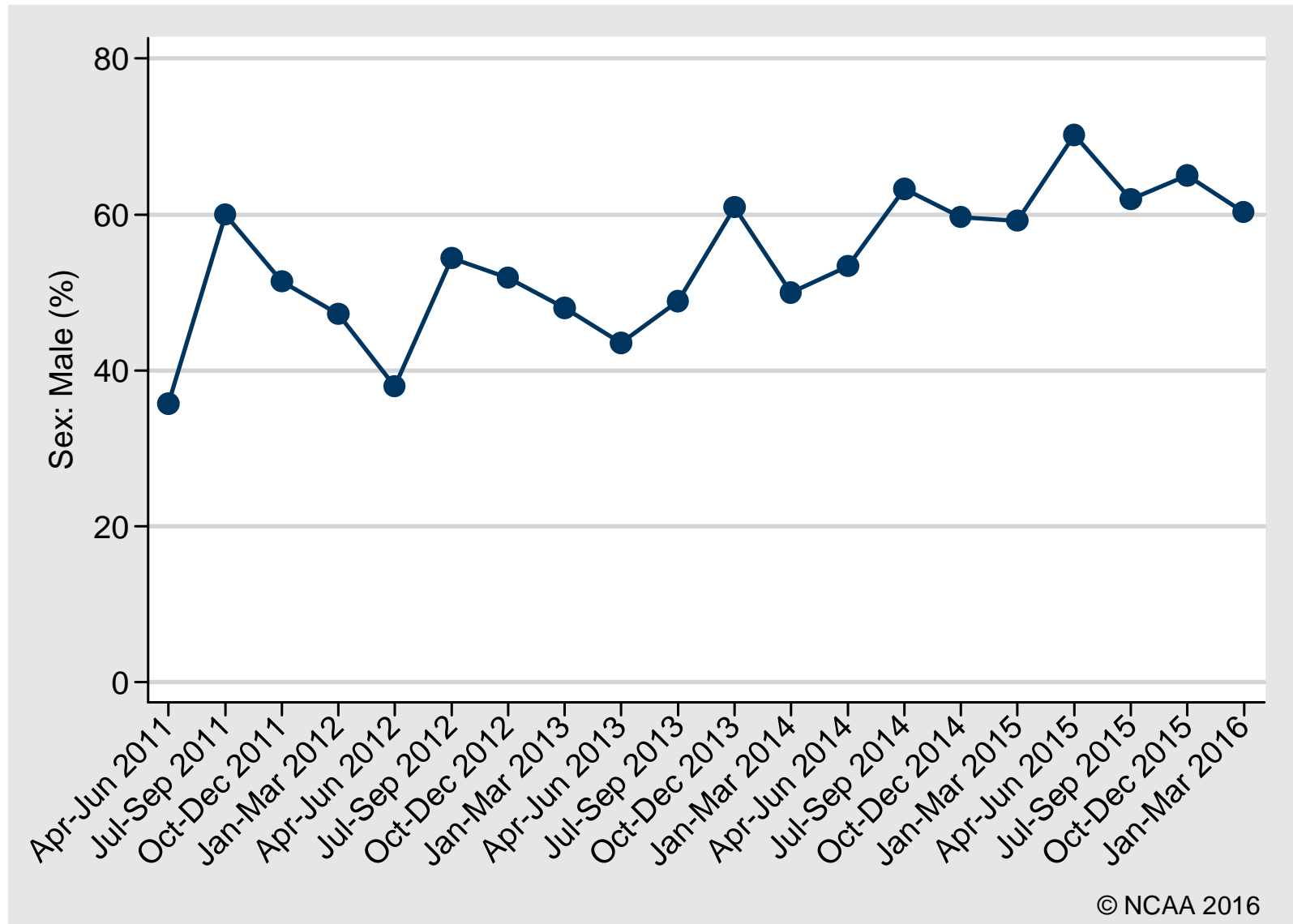
# Mean age (years) over time



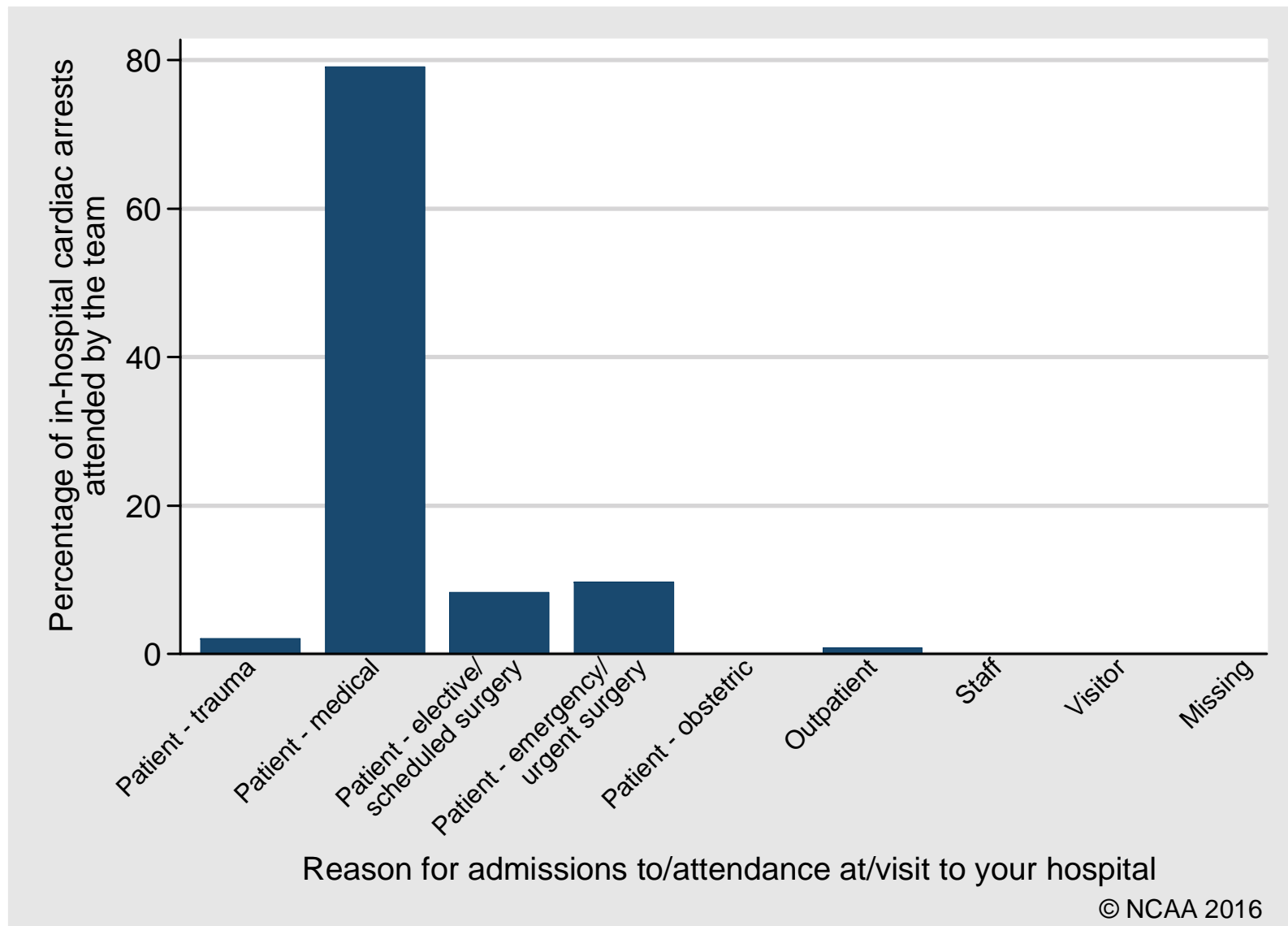
# Sex (%)



# Sex (% male) over time

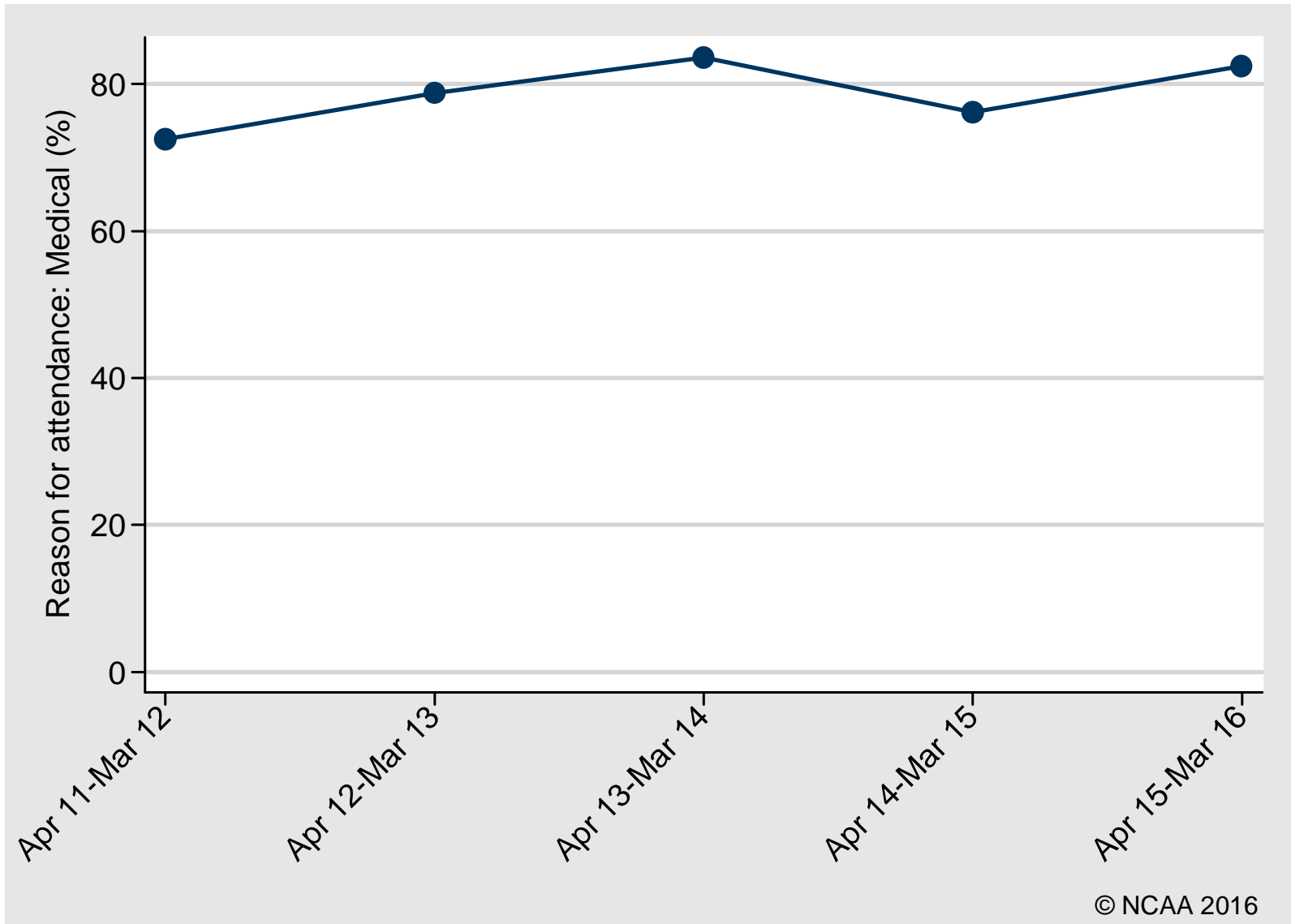


# Reason for admission to hospital (%)

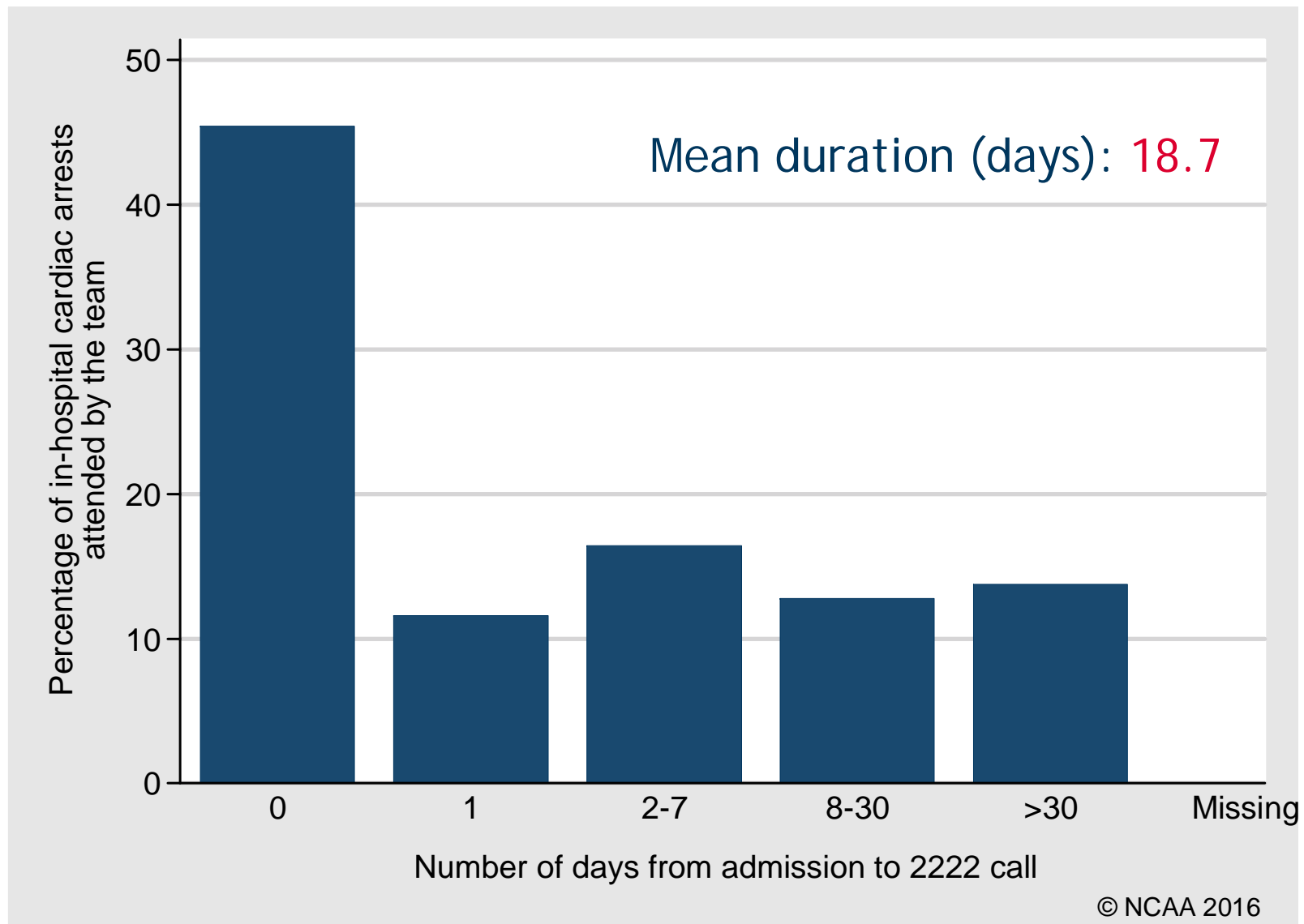




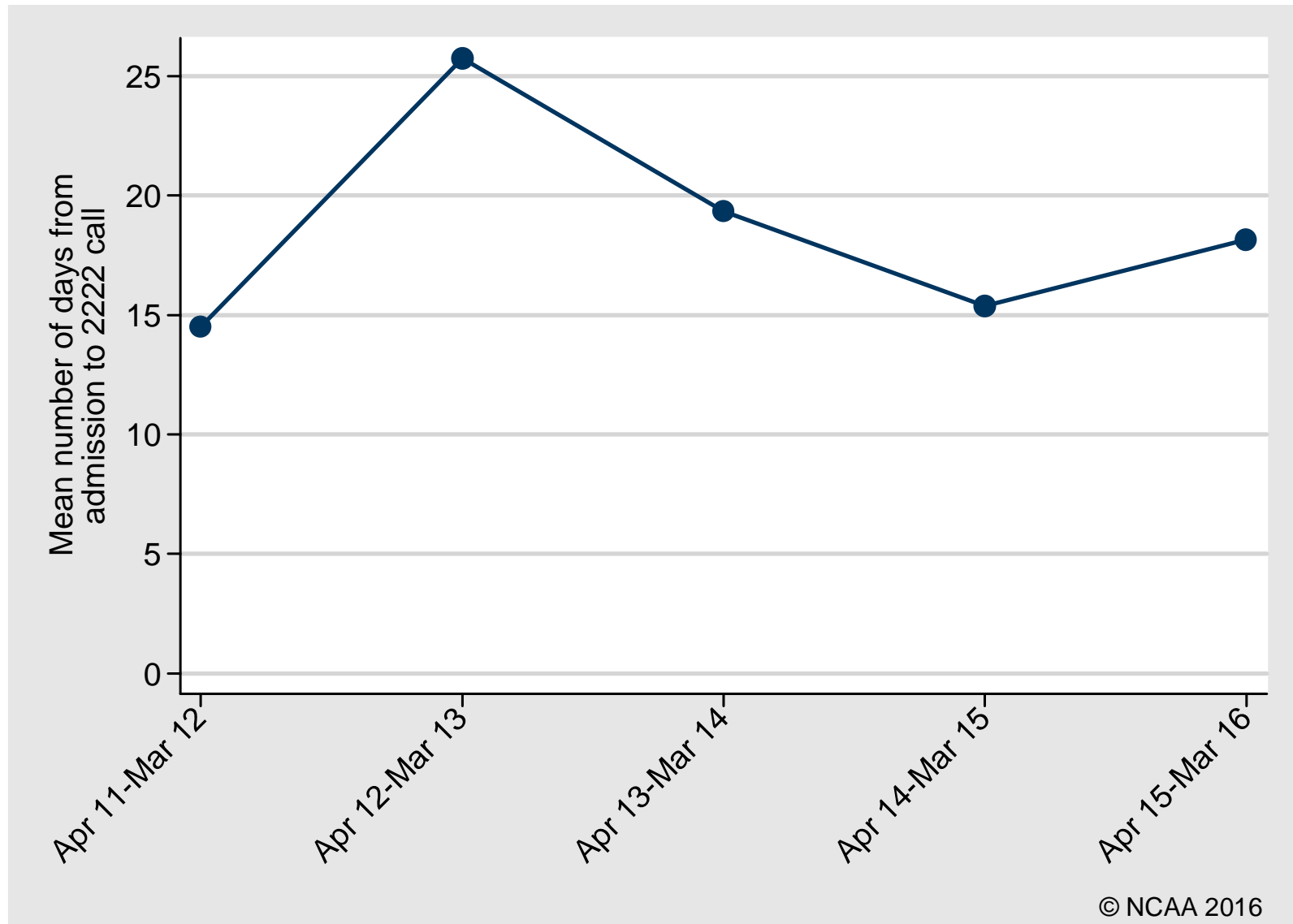
# Reason (% medical) over time



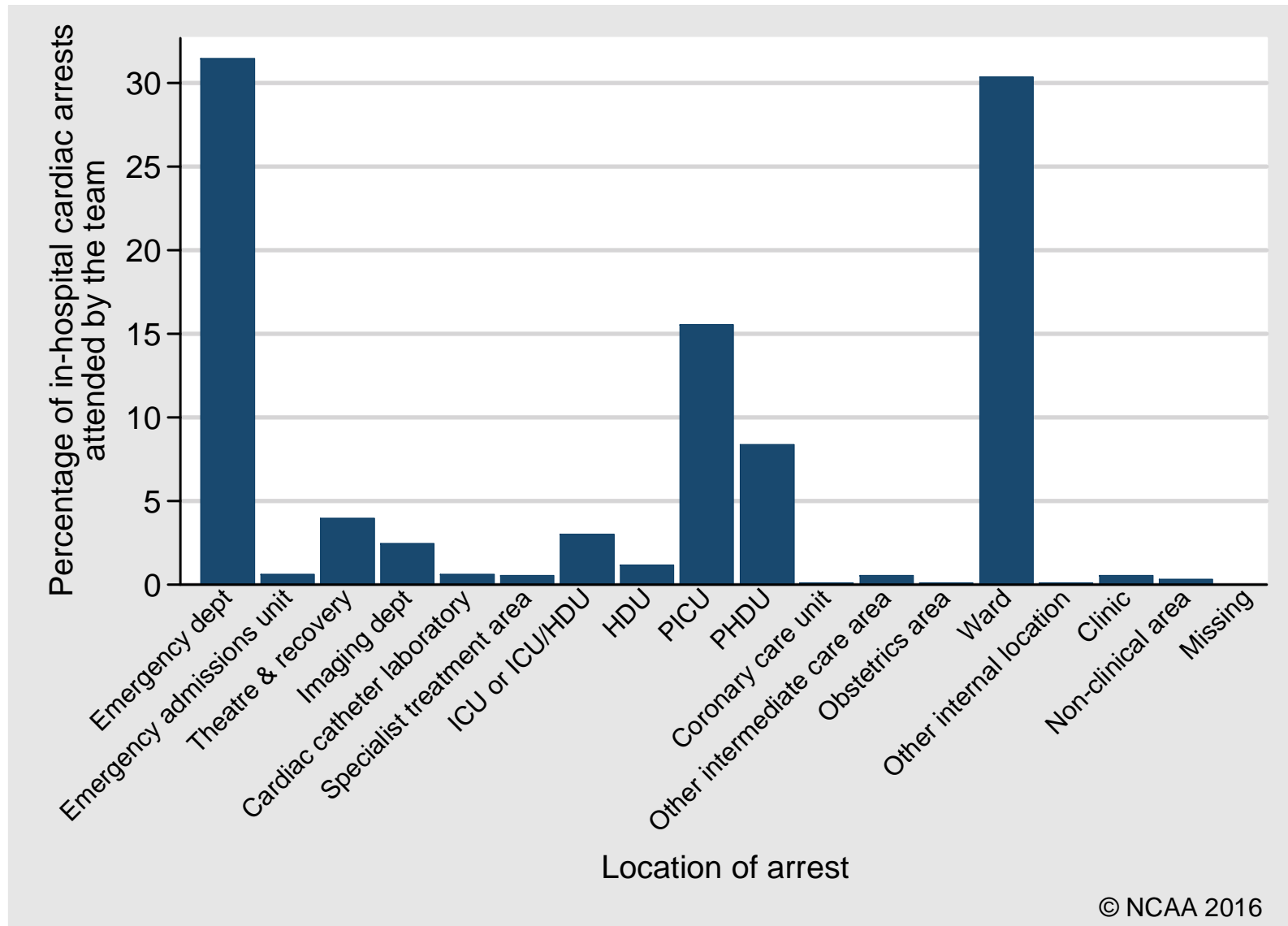
# Duration (days) from admission to 2222 call



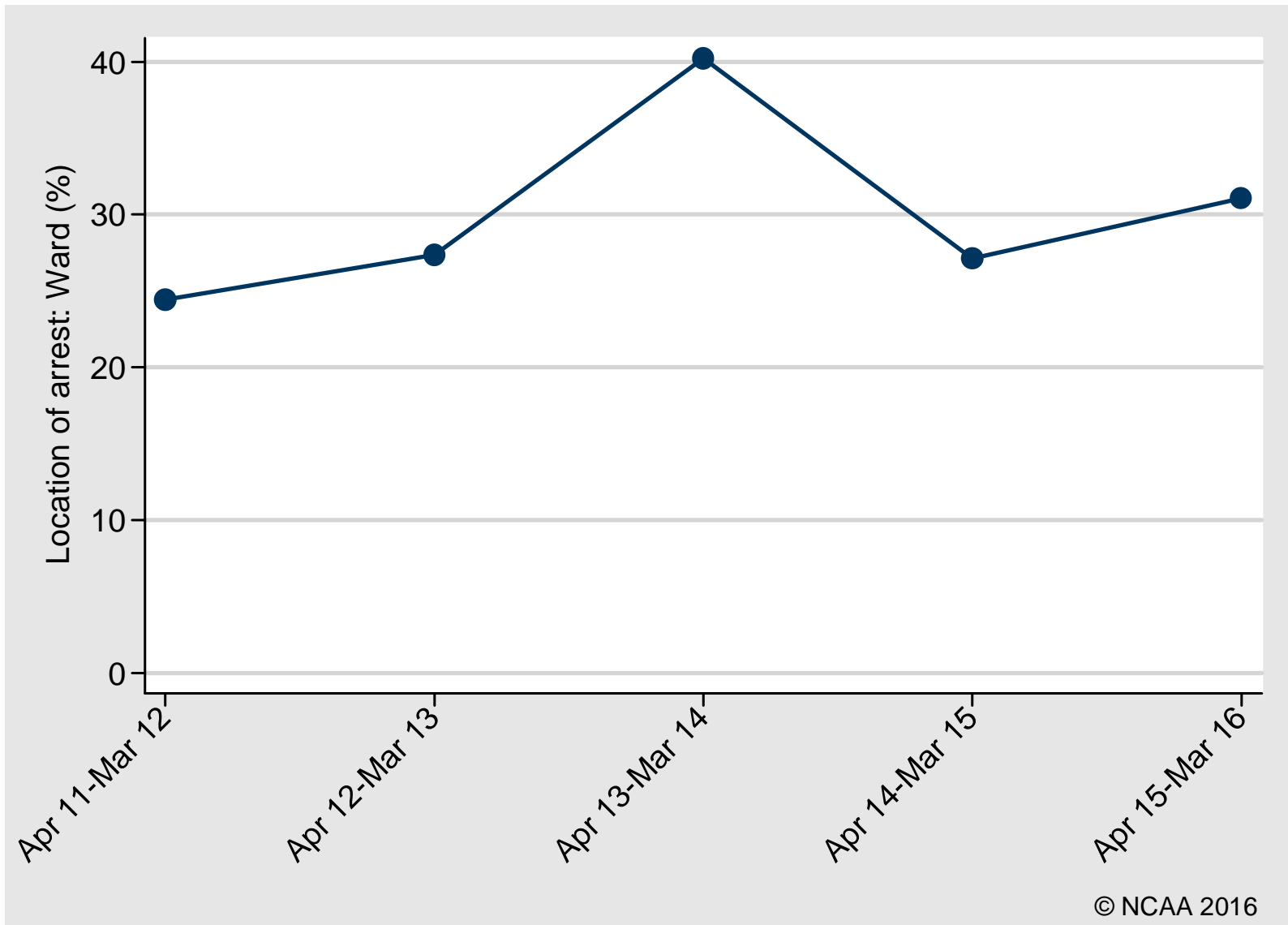
# Mean duration (days) over time



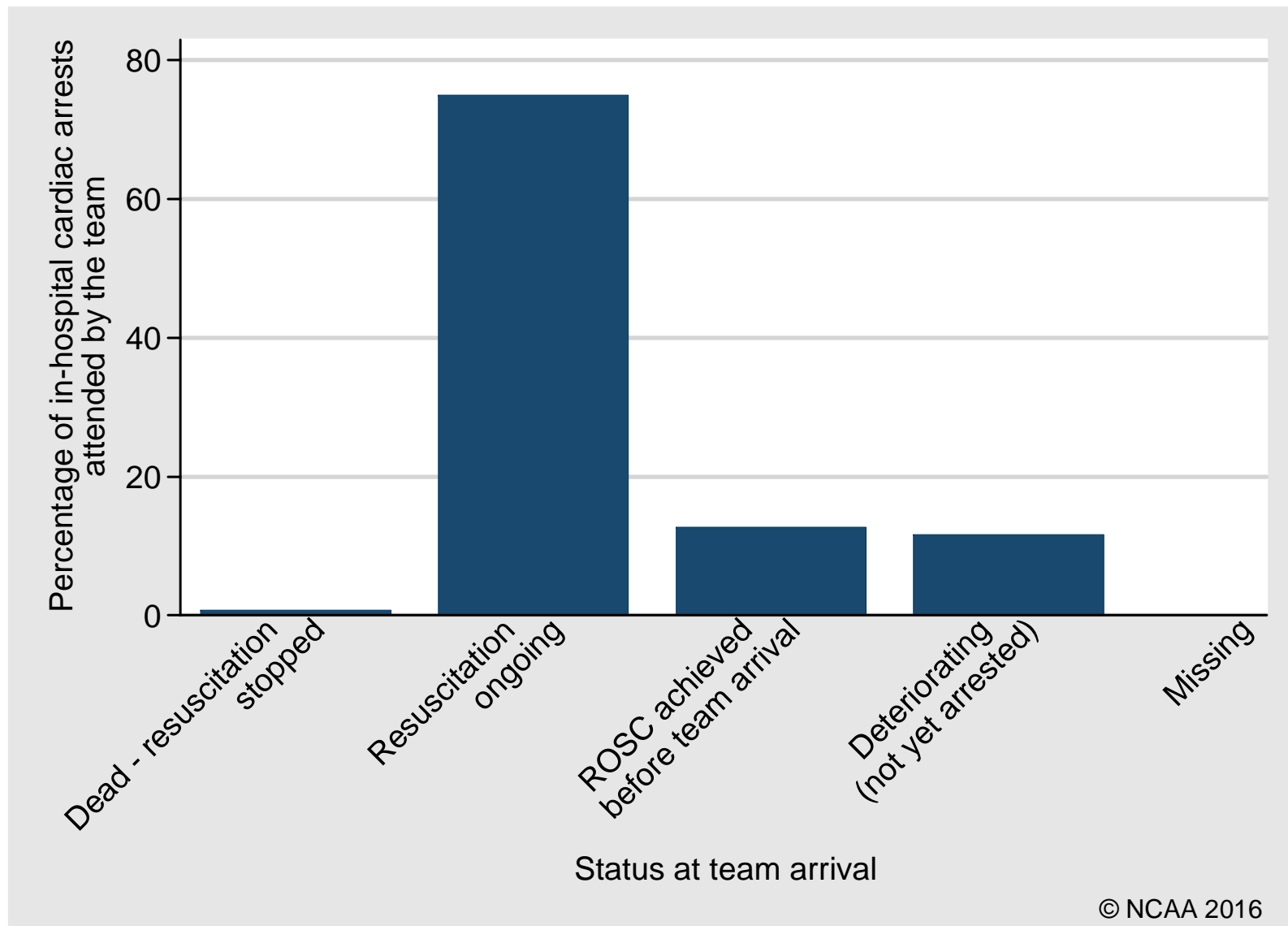
# Location of arrest (%)



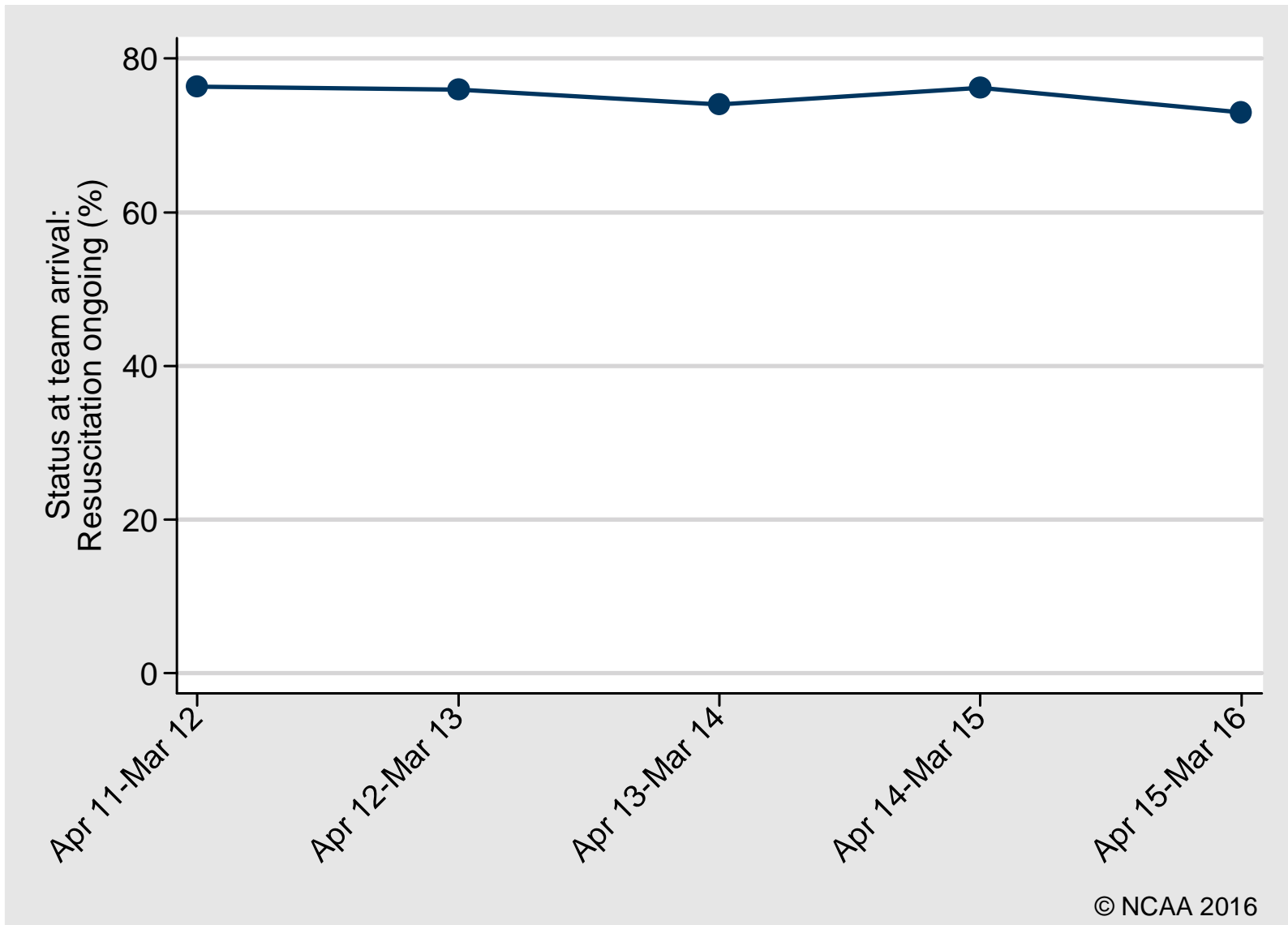
# Location (% ward) over time



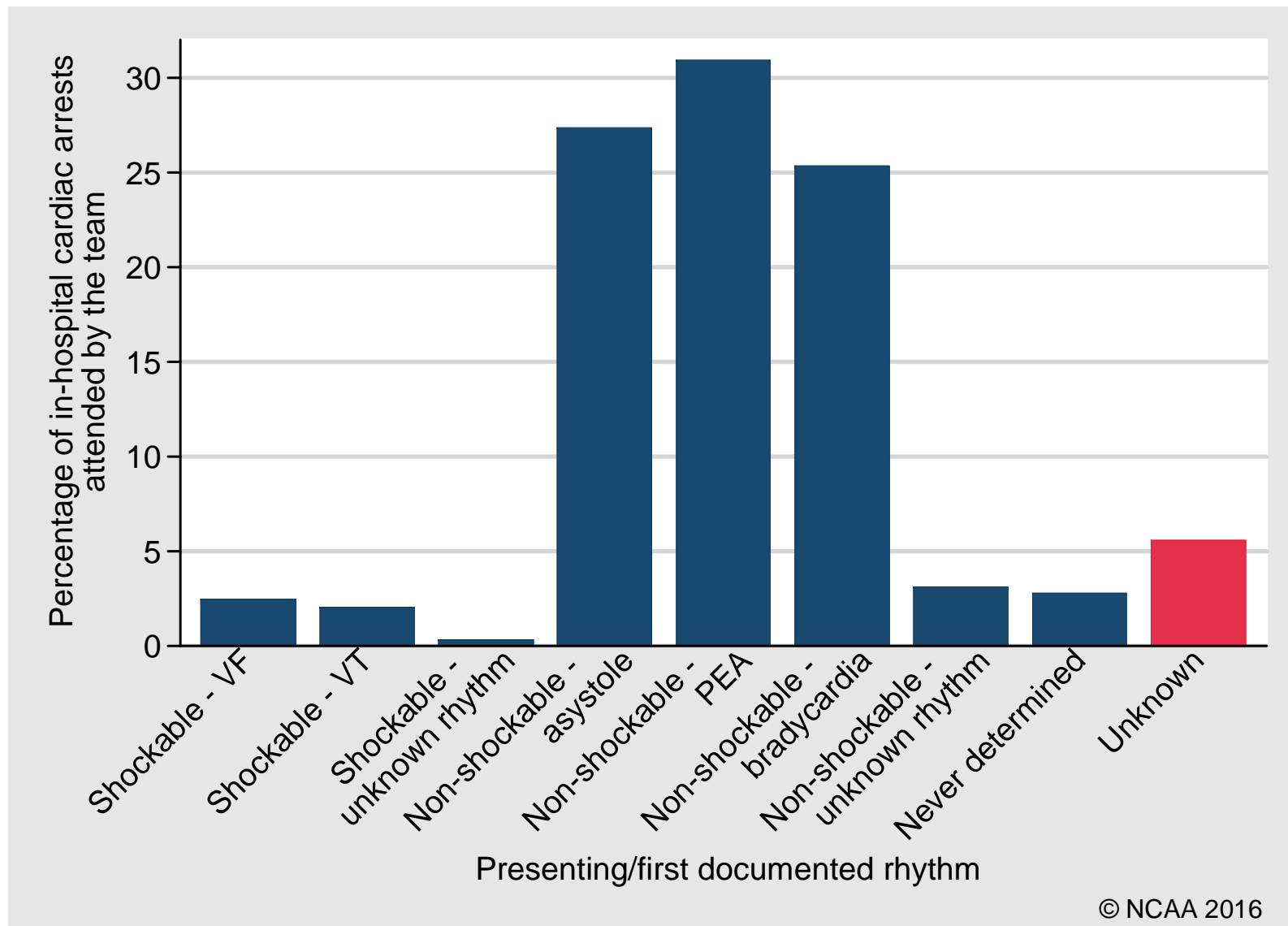
# Status at team arrival (%)



# Status (% resuscitation ongoing) over time

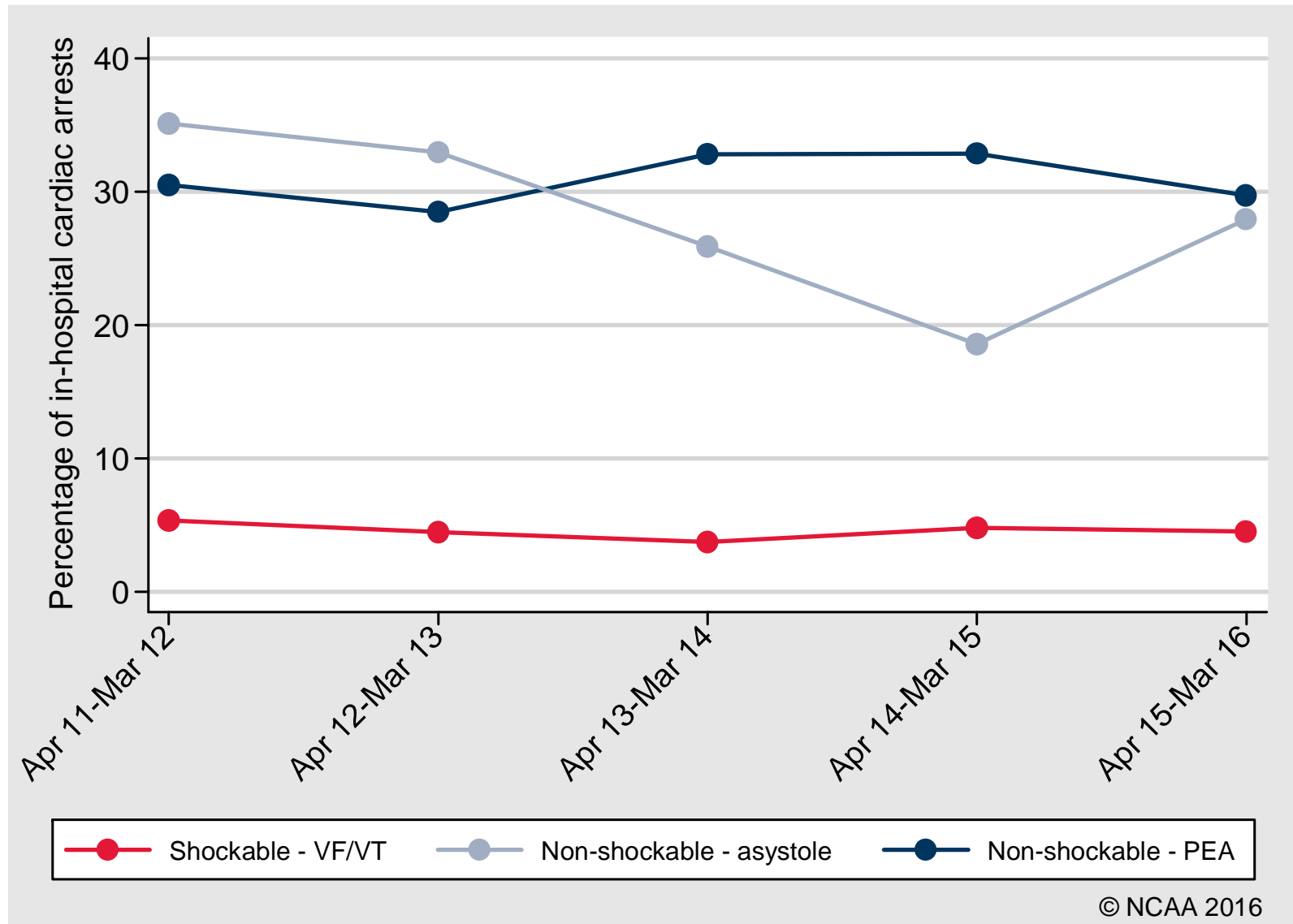


# Presenting/first documented rhythm (%)

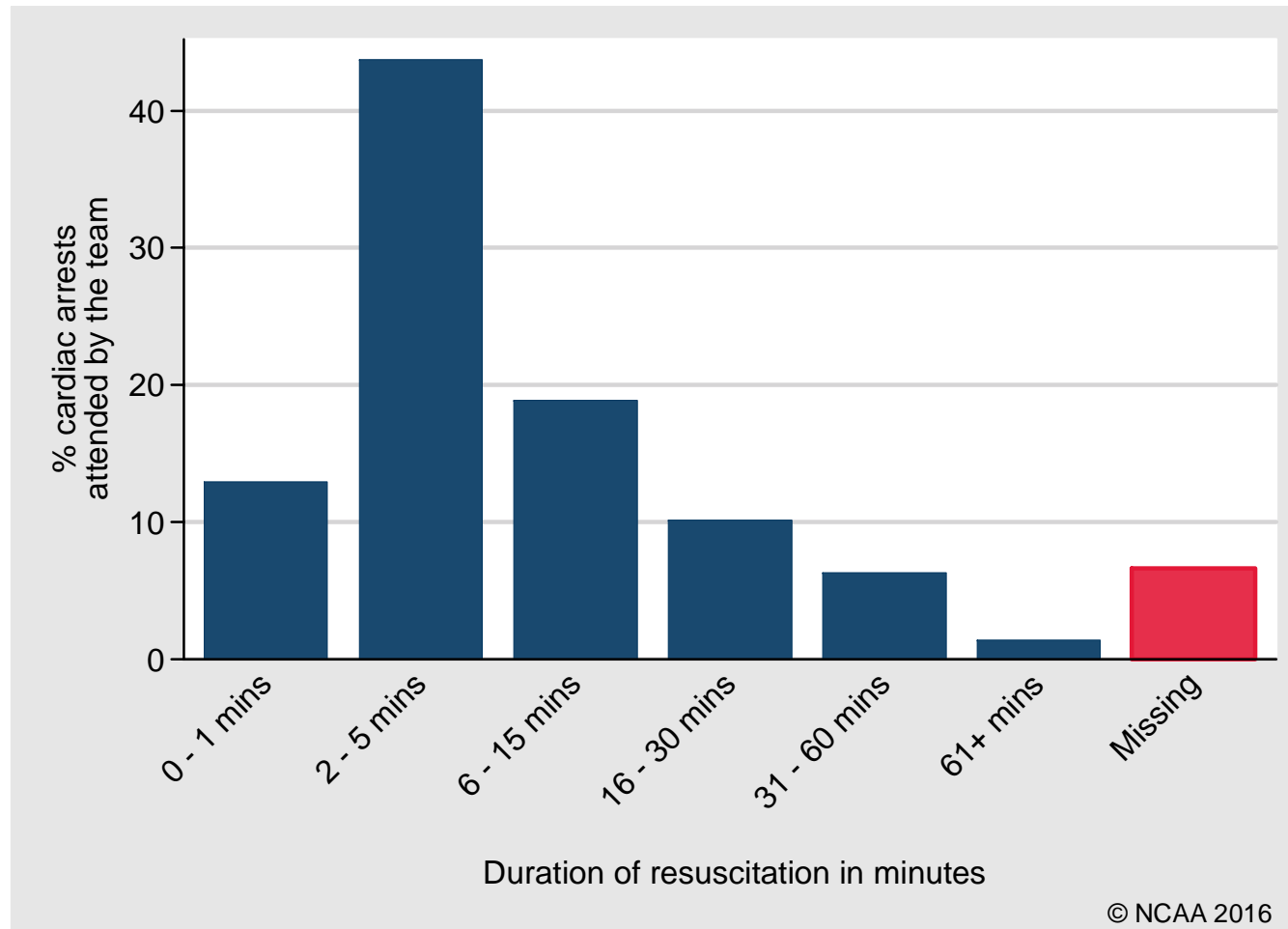




# Documented rhythm (%) over time

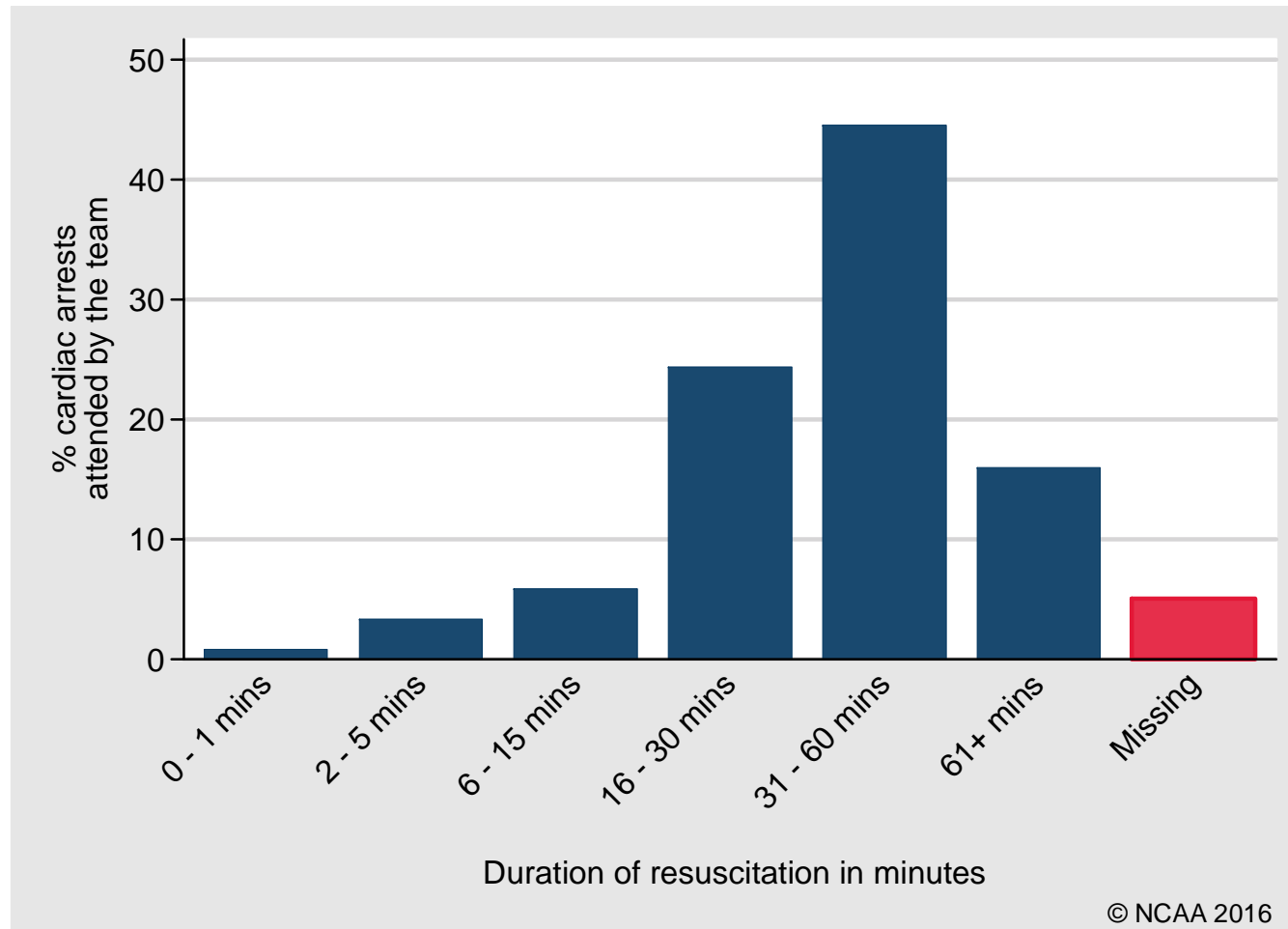


# Duration (mins) of resuscitation for those achieving ROSC > 20 mins\*



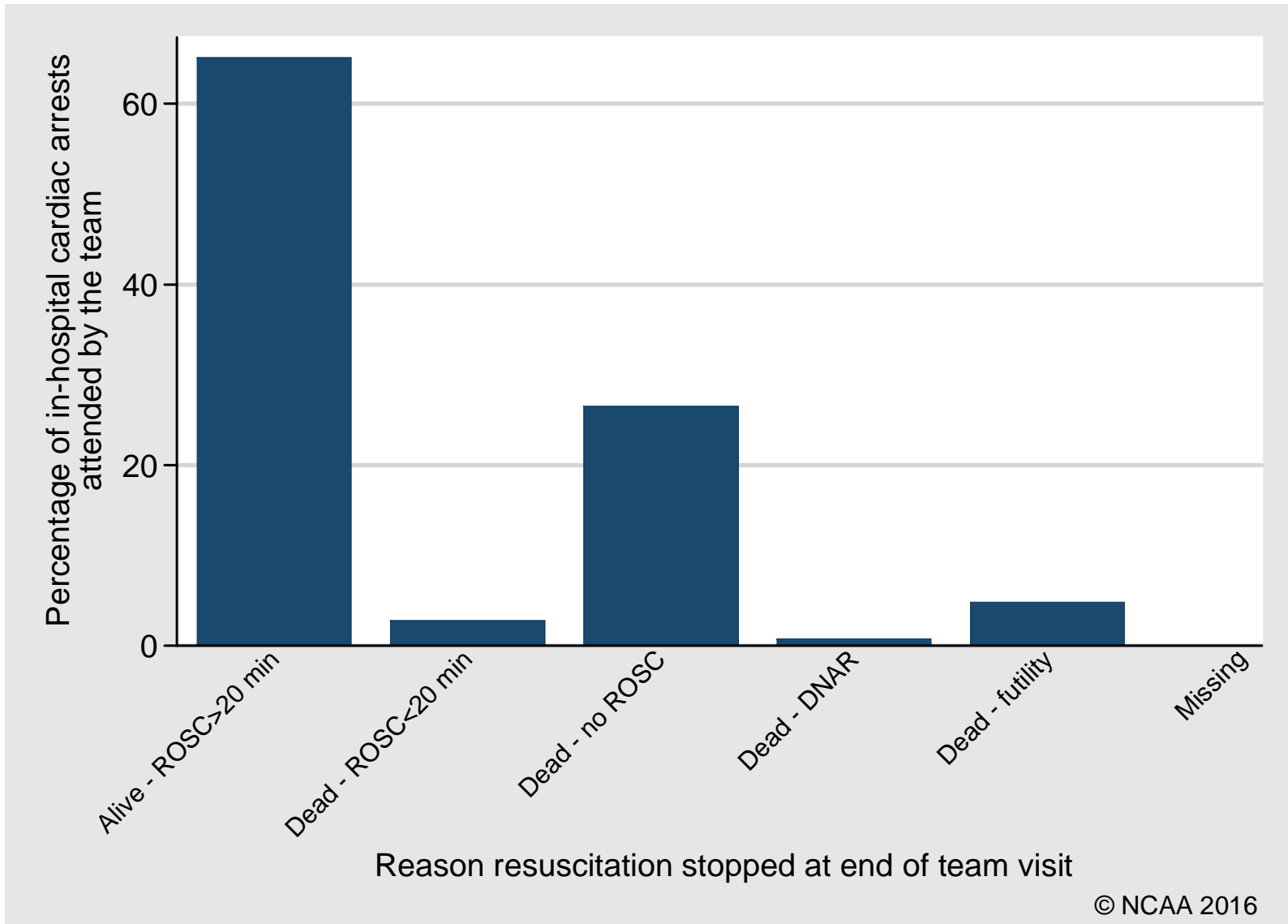
\*Excludes arrests before 1 May 2014 as fields were not collected

# Duration (mins) of resuscitation for those not achieving ROSC >20 mins\*

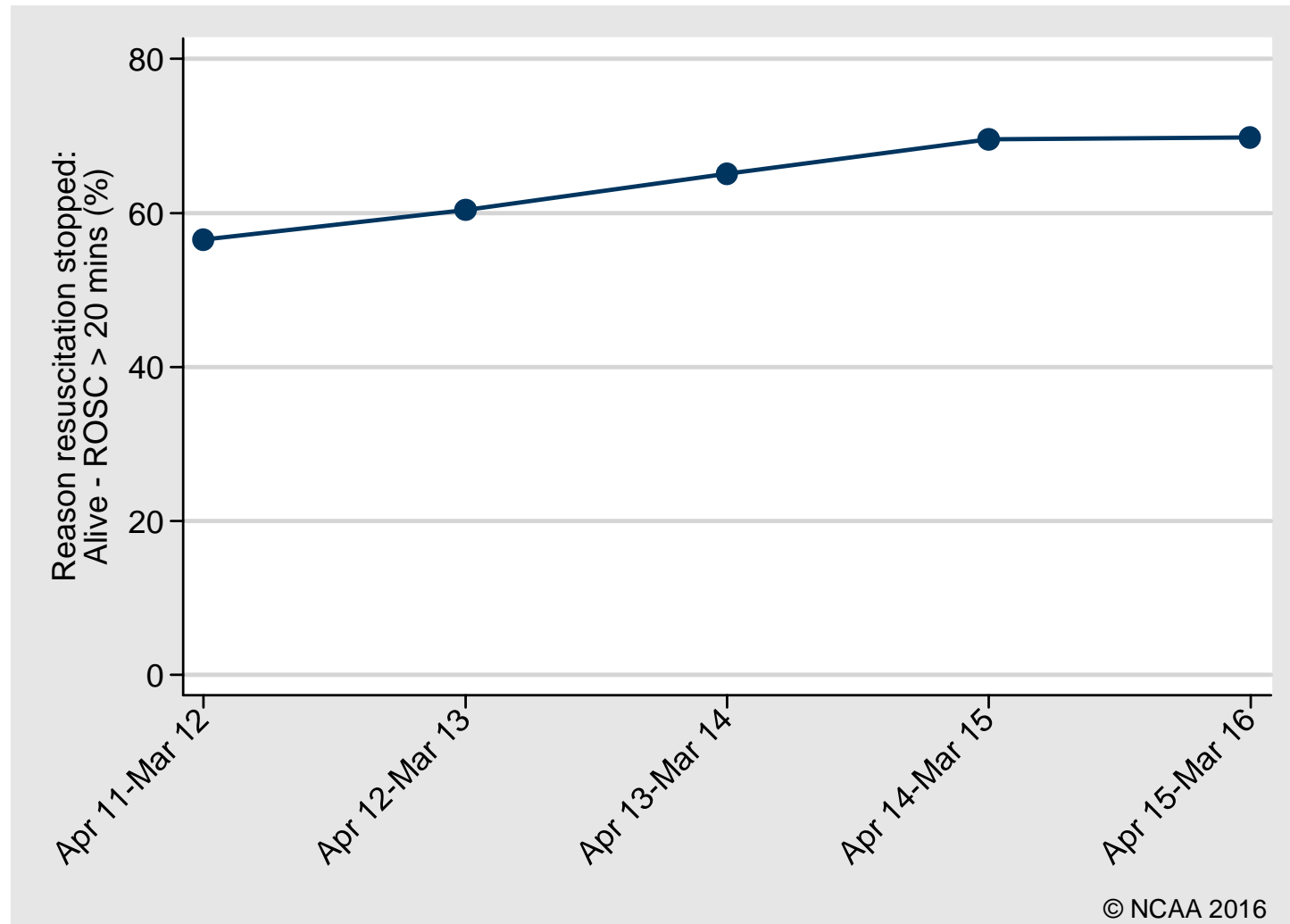


\*Excludes arrests before 1 May 2014 as fields were not collected

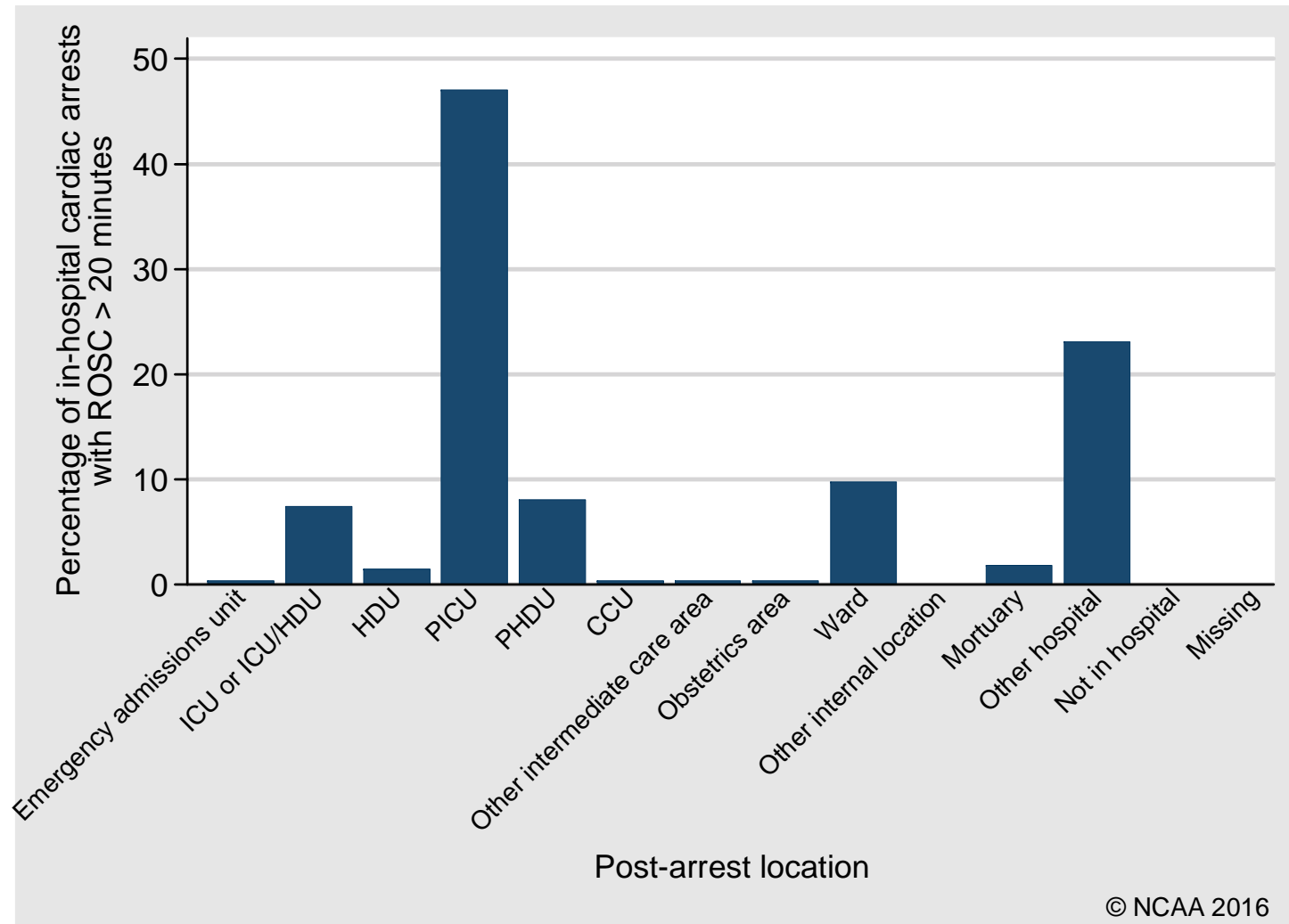
# Reason resuscitation stopped (%)



# Reason (% ROSC > 20 mins) resuscitation stopped over time

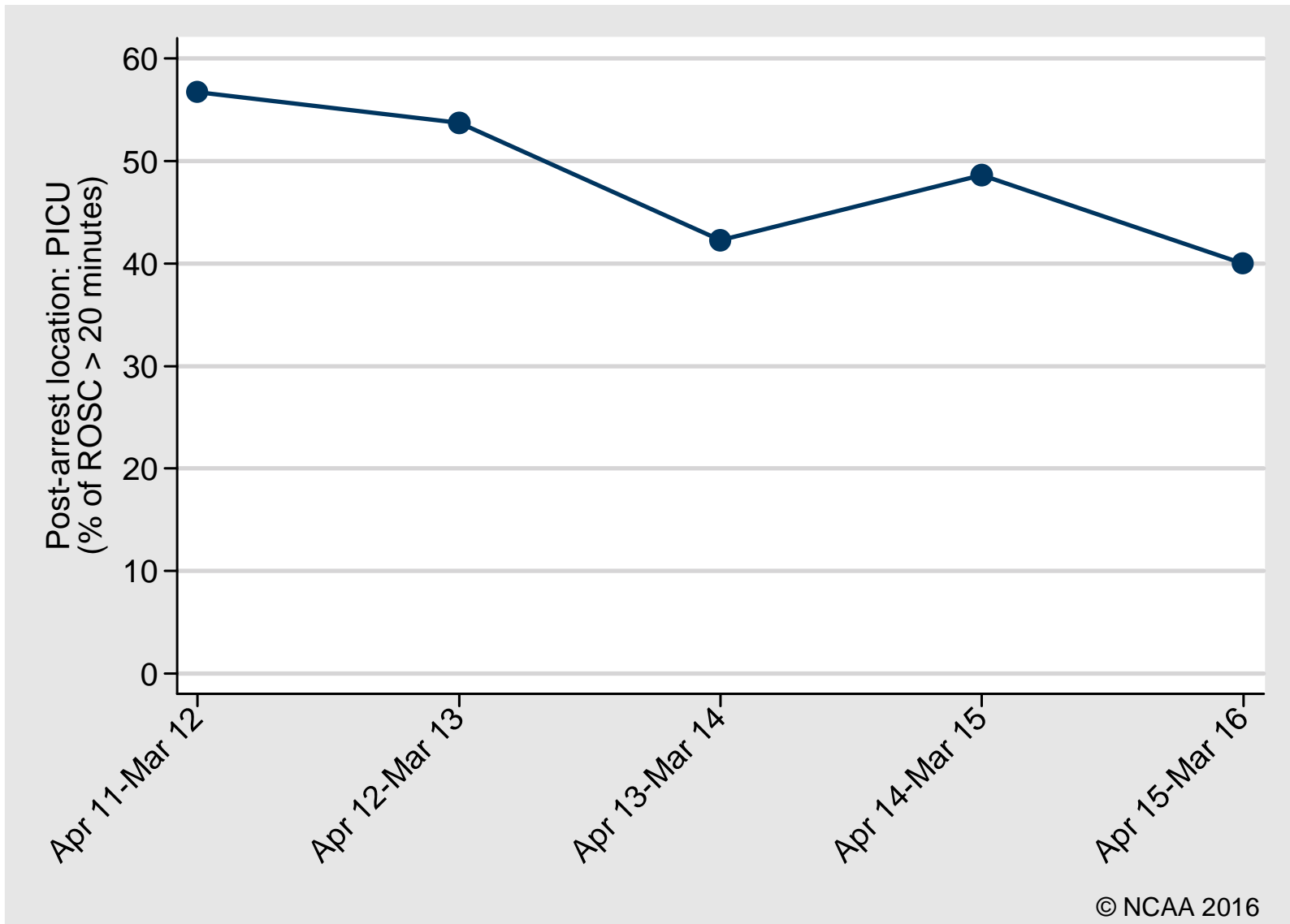


# Post-arrest location for those achieving ROSC > 20 mins



© NCAA 2016

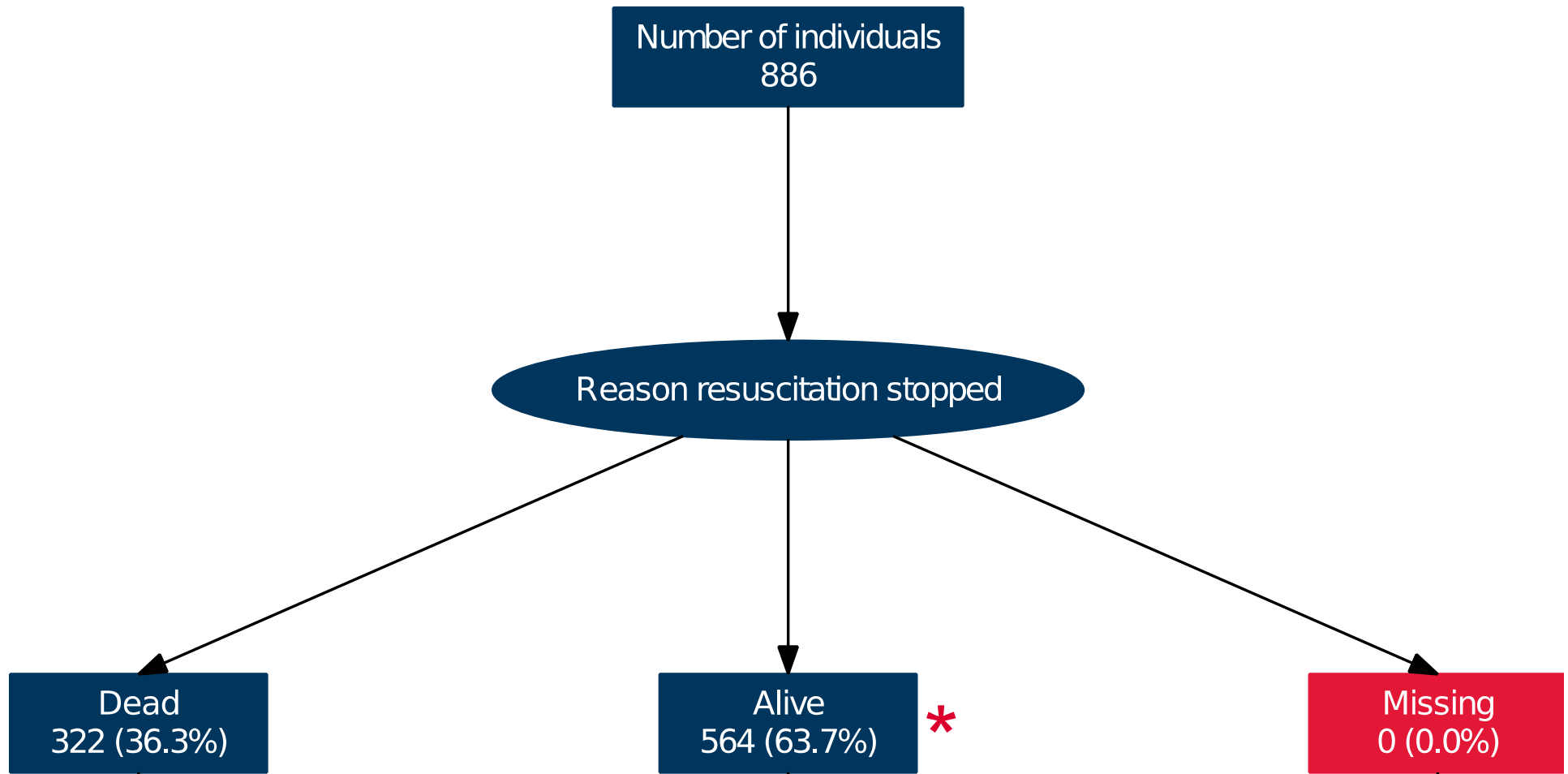
# Post-arrest location (% PICU) over time



# Paediatric arrests

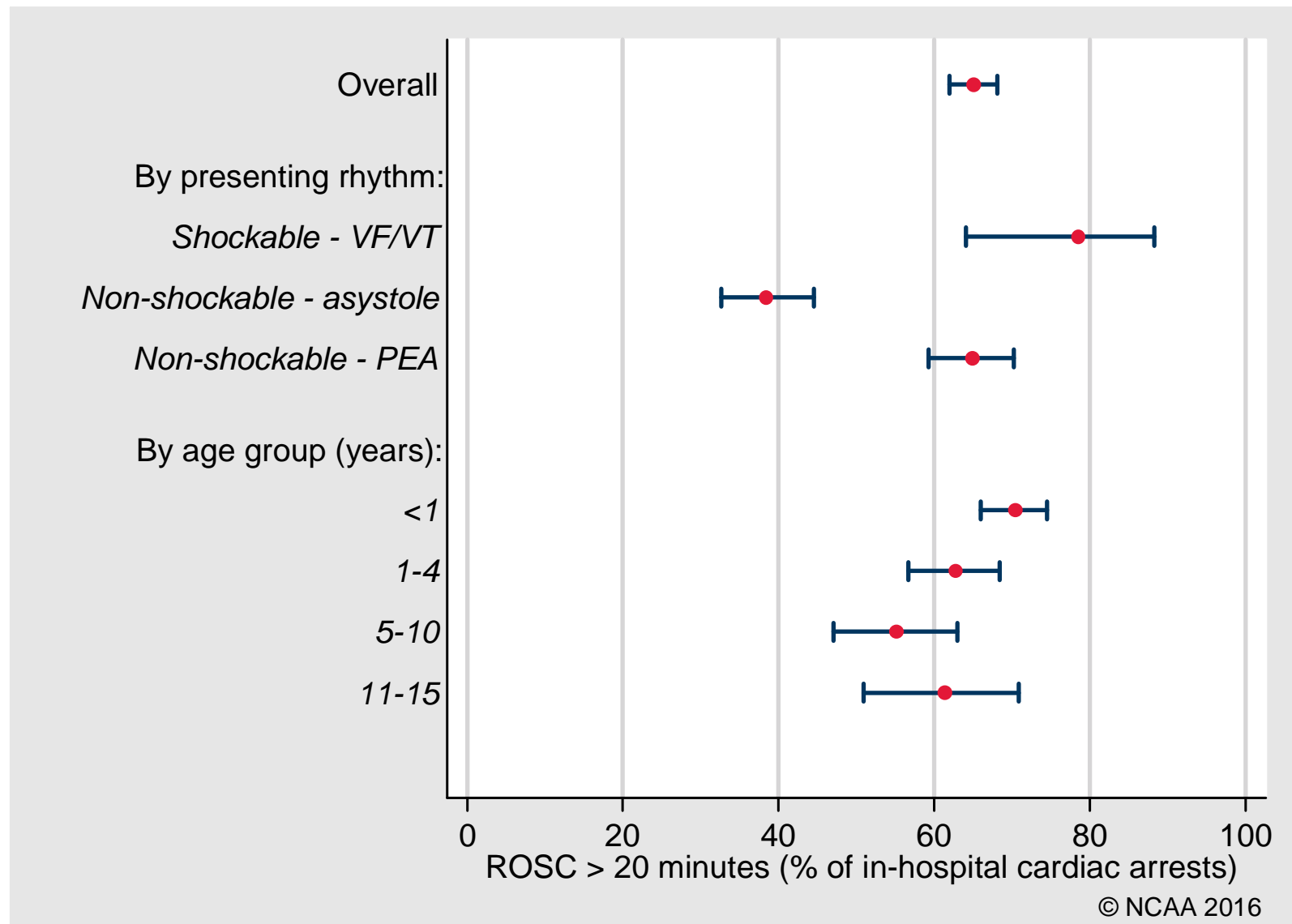
- Characteristics (n=931)
- Outcomes
  - ROSC > 20 mins (n=931)
  - Hospital survival (n=886 excluding re-arrests)



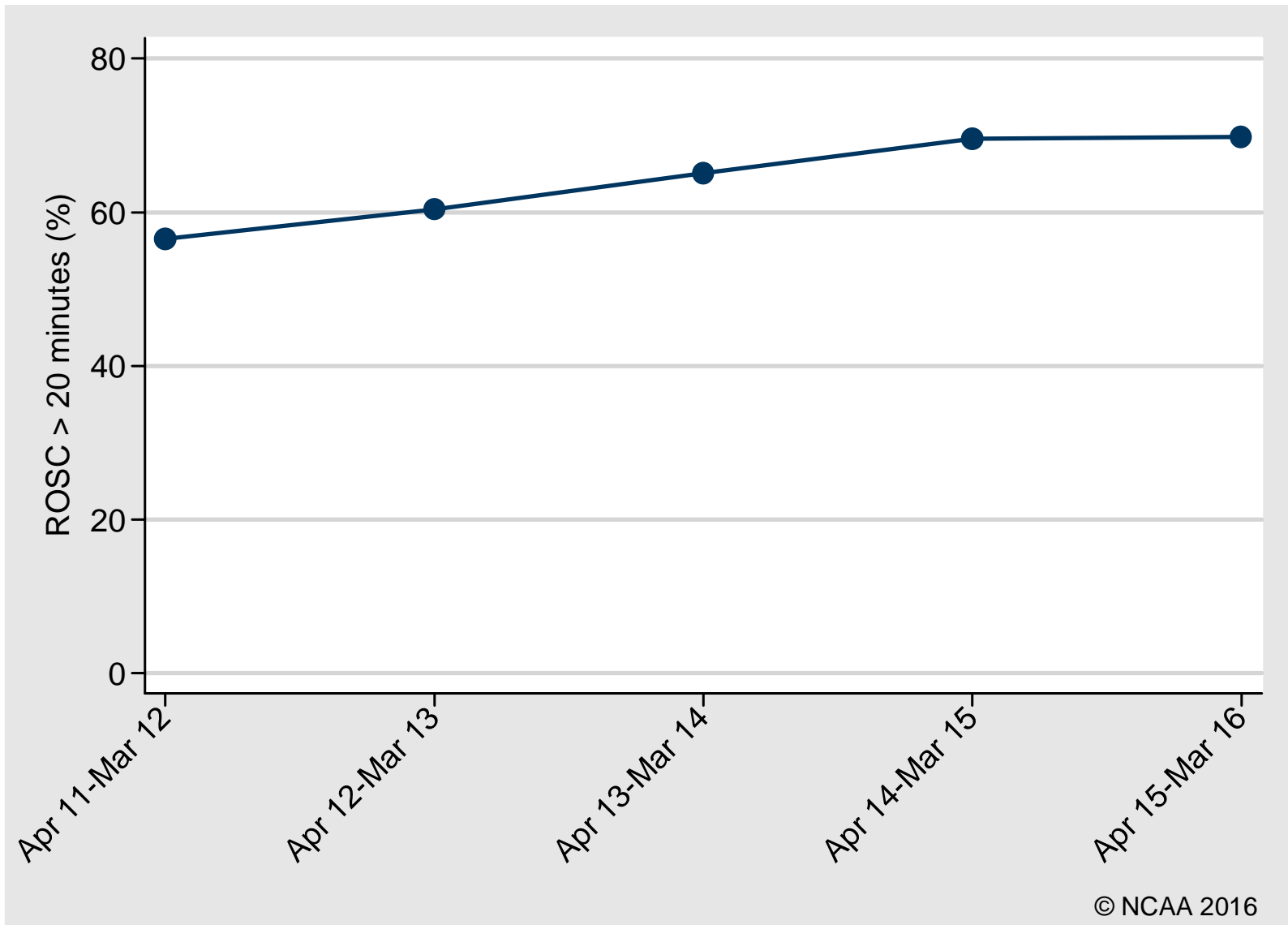


\* Alive = ROSC > 20 minutes

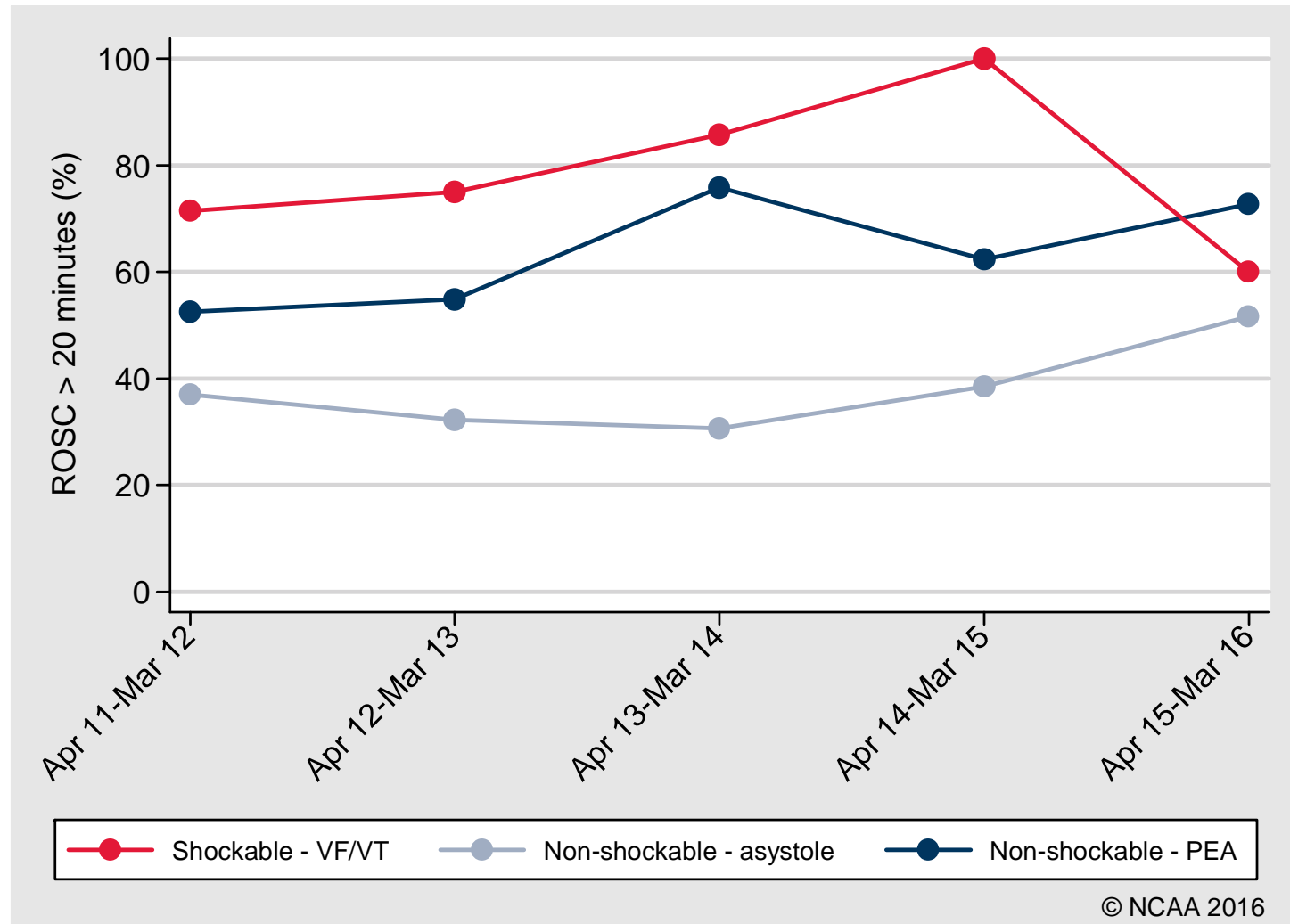
# ROSC > 20 mins (%) by patient characteristics



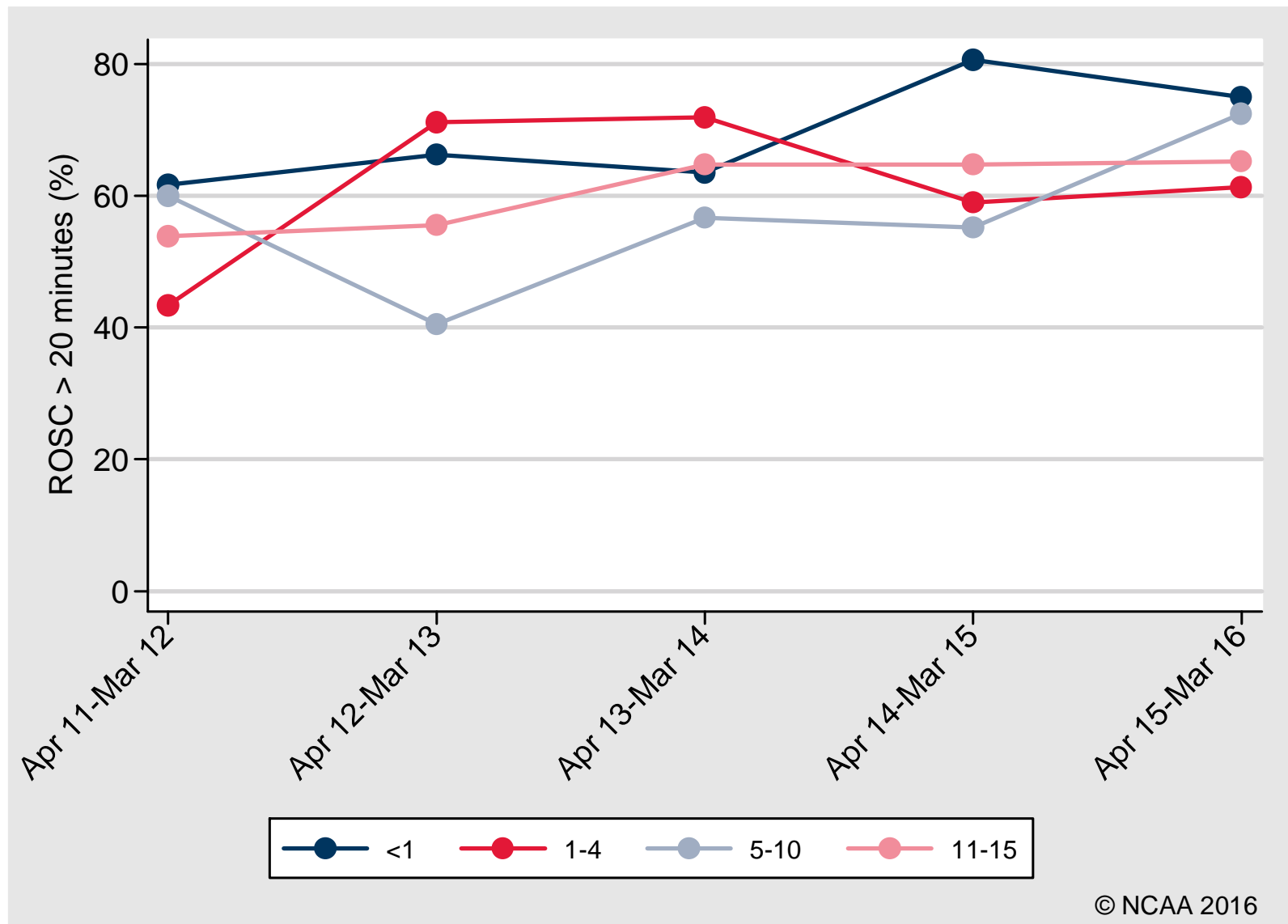
# ROSC > 20 mins (%) over time



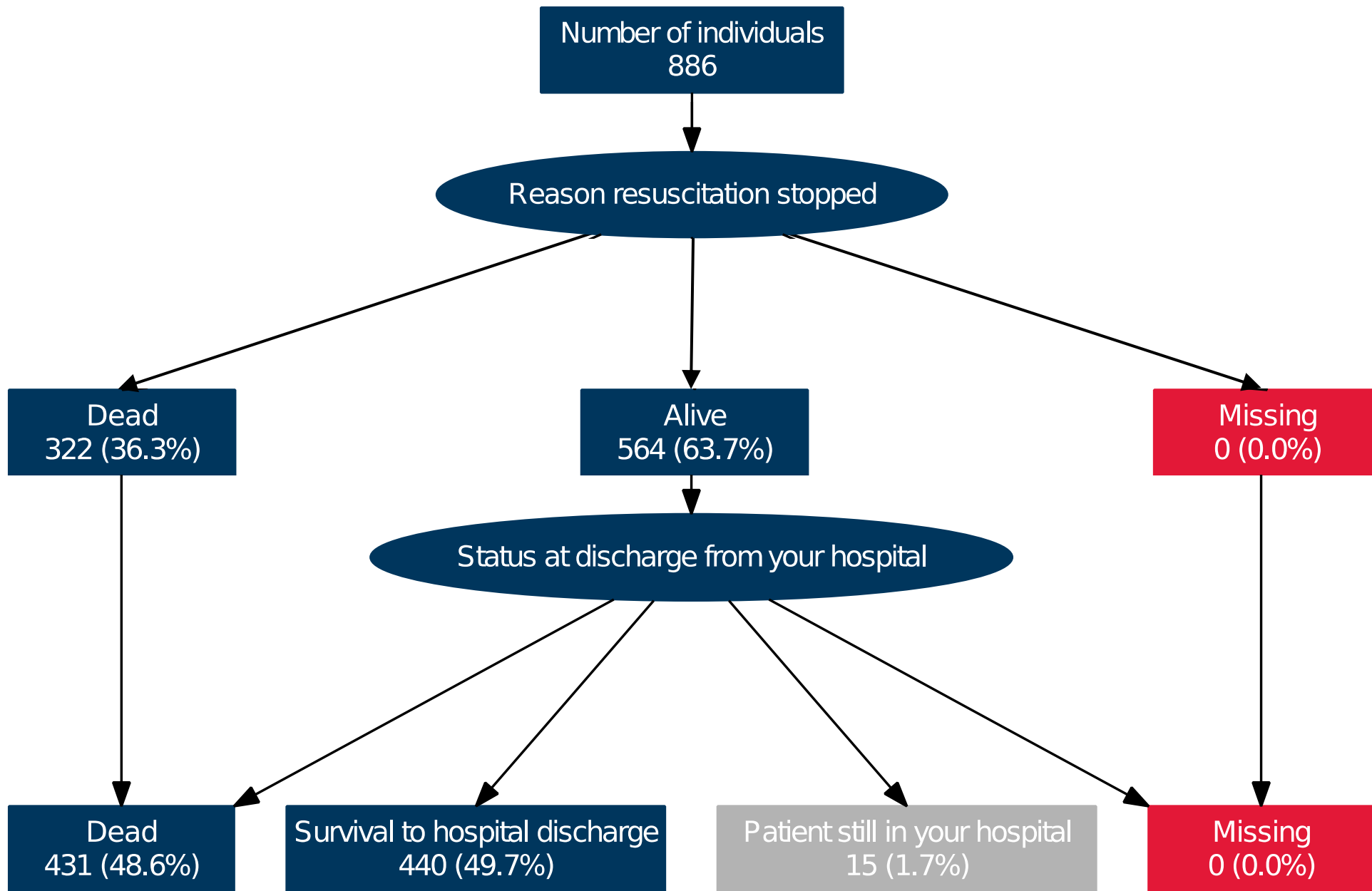
# ROSC > 20 mins (%) by documented rhythm over time



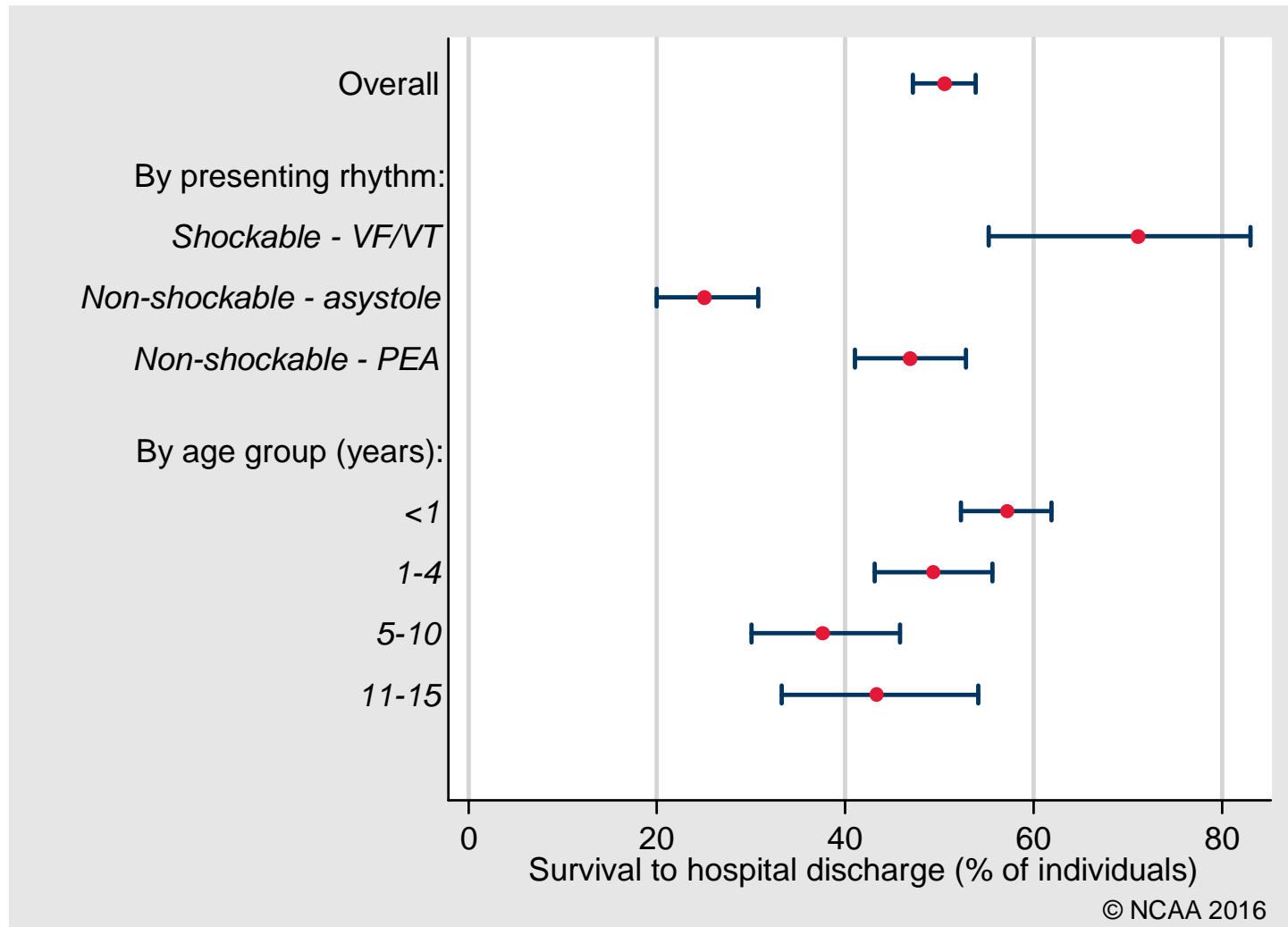
# ROSC > 20 mins (%) by age over time



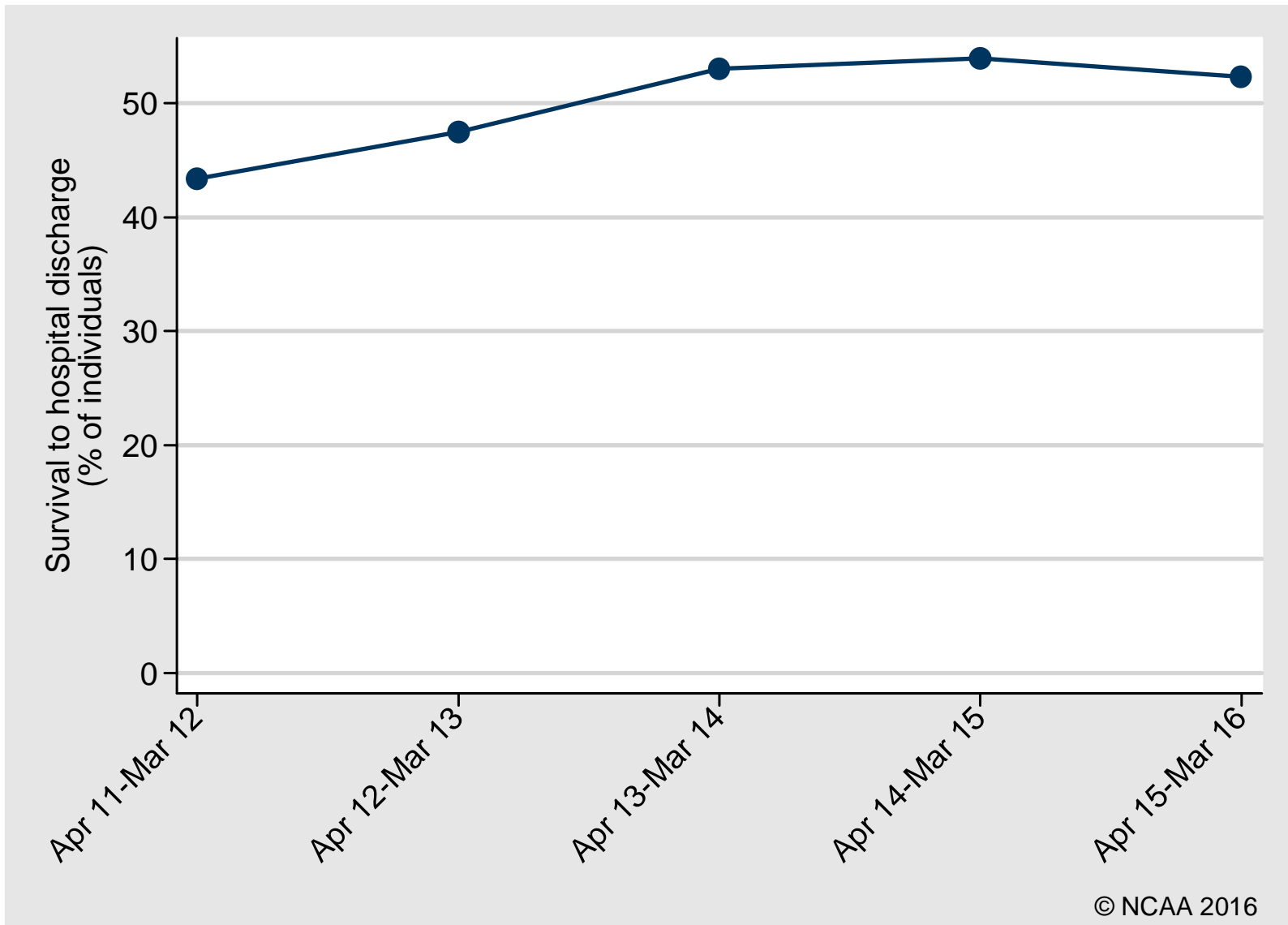
© NCAA 2016



# Hospital survival (%) by patient characteristics

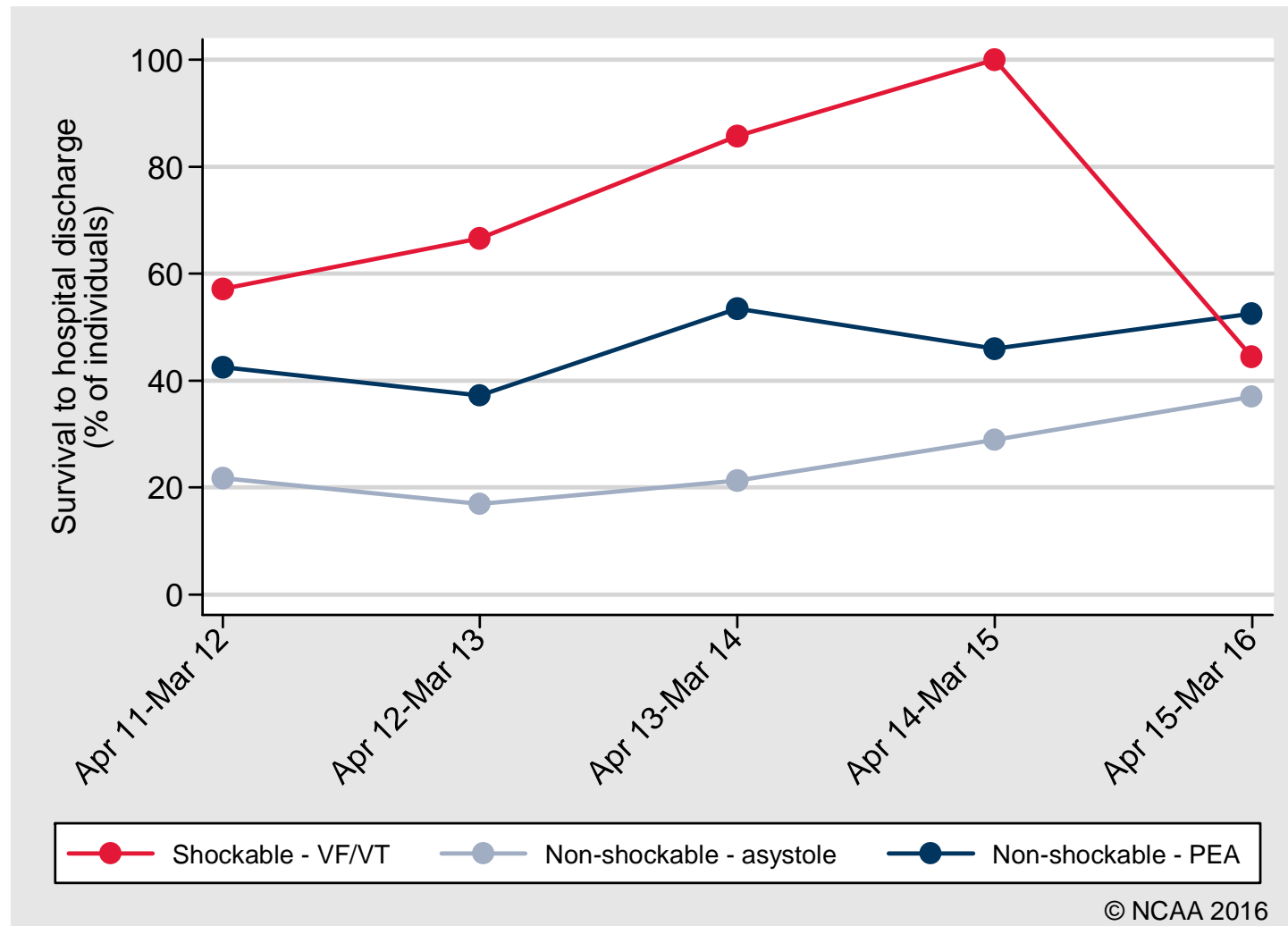


# Hospital survival (%) over time

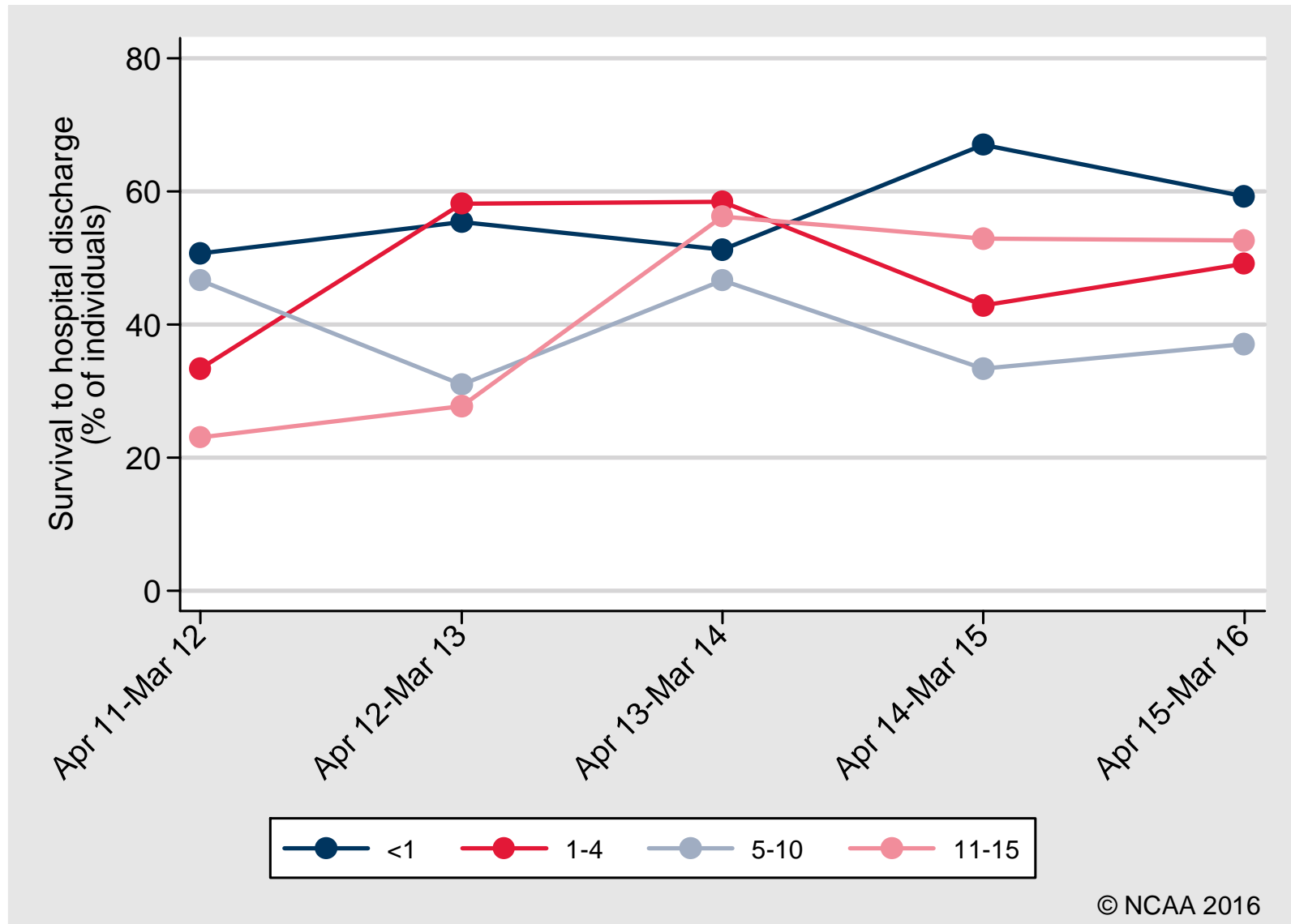




# Hospital survival (%) by documented rhythm over time

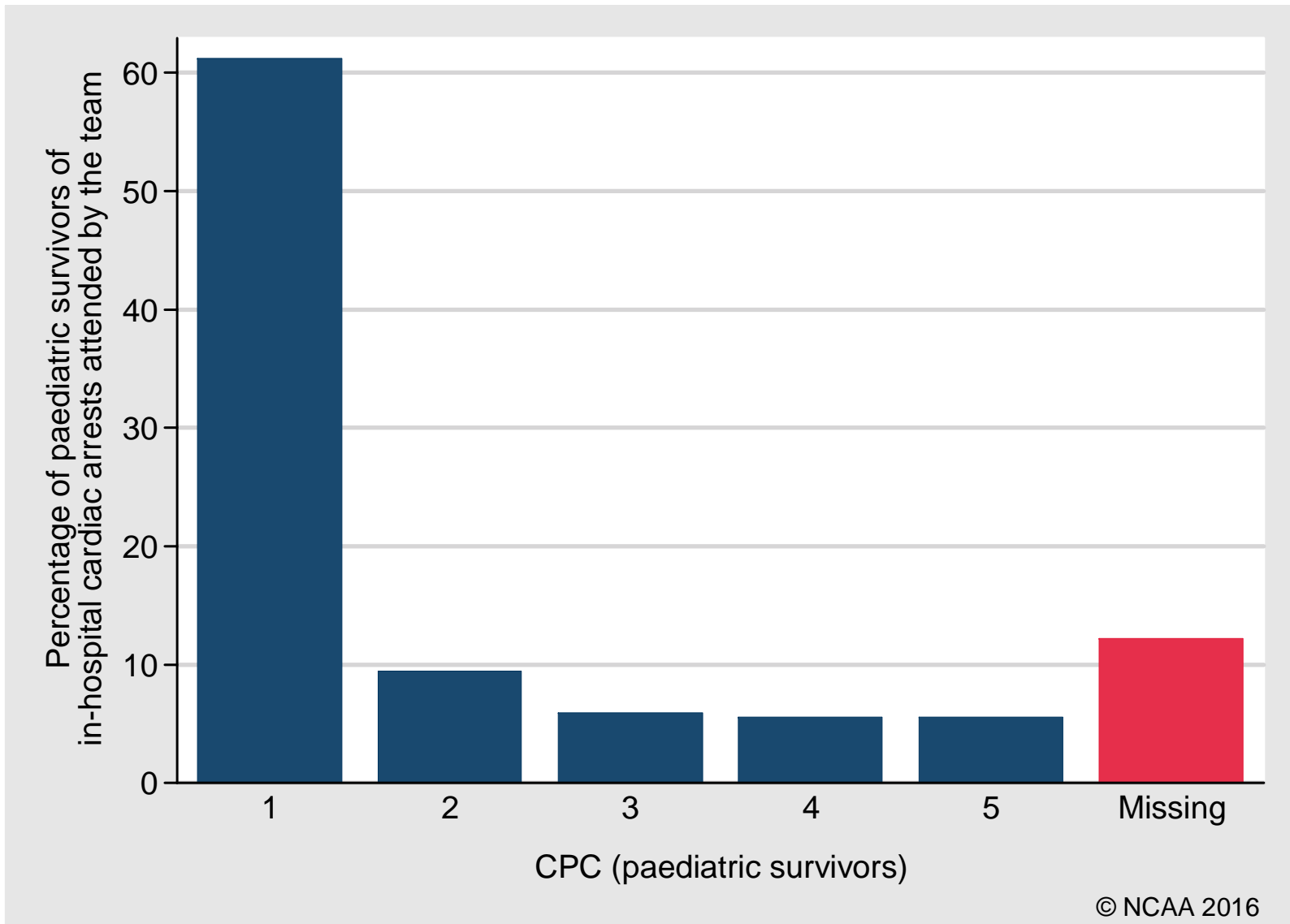


# Hospital survival (%) by age over time

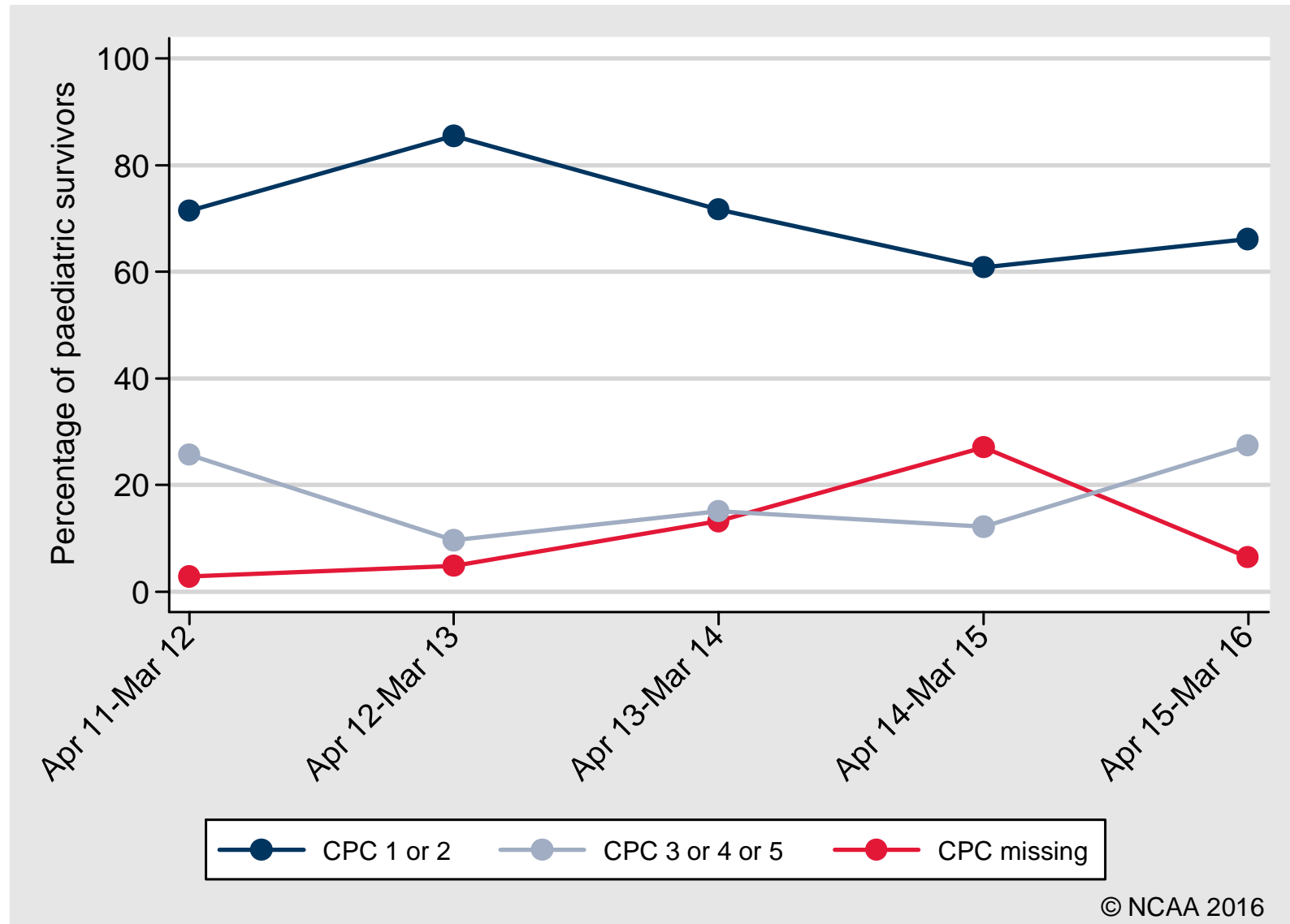


© NCAA 2016

# CPC at hospital discharge (%)



# CPC at hospital discharge (%) over time



Any questions for NCAA...  
...please email: [ncaa@icnarc.org](mailto:ncaa@icnarc.org)



Supported by Resuscitation Council (UK) and ICNARC