



Key statistics from the
National Cardiac Arrest Audit:
Paediatric arrests
April 2016 to March 2021

Data collection scope (NCAA Version 1.4)

NCAA data are collected on any resuscitation event commencing in-hospital where an individual receives chest compression(s) and/or defibrillation and is attended by the hospital-based resuscitation team (or equivalent) in response to a 2222 call.

Note: The data collection scope changed on 1 April 2018

Available data

This report is based on data for in-hospital cardiac arrests of children aged less than 16 years in NHS paediatric and acute general hospitals. The following team visits were therefore excluded:

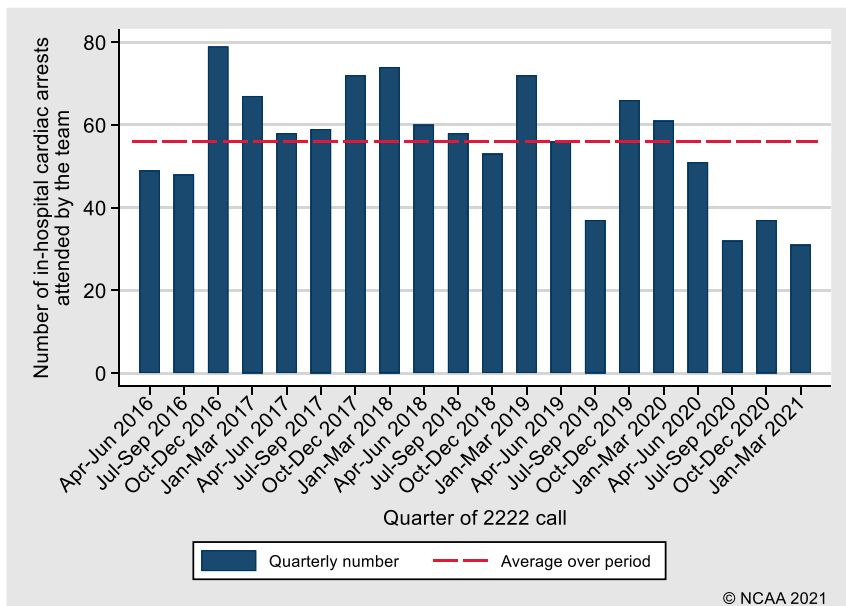
- Team visits taking place in specialist or non-acute hospitals
- Team visits to adults aged 16 years and above
- Team visits (meeting the scope of NCAA) in response to pre-hospital cardiac arrests

Time period	Children's hospitals		Acute general hospitals	
	Number of children's hospitals participating in NCAA	Total number of reported paediatric in-hospital cardiac arrests	Number of acute general hospitals participating in NCAA	Total number of reported paediatric in-hospital cardiac arrests
April 2016 – March 2021	16	537	186	583
April 2020 – March 2021*	16	77	160	74
April 2019 – March 2020	16	98	165	122
April 2018 – March 2019	16	122	176	121
April 2017 – March 2018	15	120	173	143
April 2016 – March 2017	15	120	173	123

Note: Number of hospitals participating in NCAA includes those submitting data for all or part of the specified period

Note that 2020/21 will be affected by the COVID-19 pandemic. Overall numbers of hospital admissions and team visits will be lower than usual and case mix and outcome will be impacted.

Number of paediatric in-hospital cardiac arrests attended by the team



Note: number of hospitals participating in NCAA has increased over time

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Patient characteristics

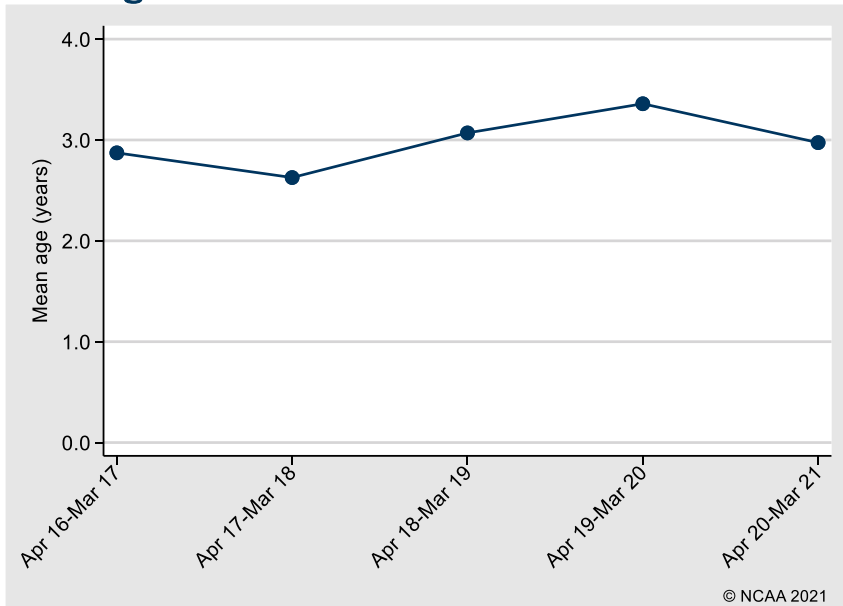
Age (years), n (%)	
<1	555 (49.6)
1-4	288 (25.7)
5-10	148 (13.2)
11-15	129 (11.5)
Mean (SD)	3.0 (4.4)
Median (IQR)	1 (0, 4)
Sex, n (%)	
Female	483 (43.1)
Male	637 (56.9)
Reason for admission to/attendance at/visit to your hospital, n (%)	
Patient - trauma	25 (2.2)
Patient - medical	932 (83.2)
Patient - elective/scheduled surgery	83 (7.4)
Patient - emergency/urgent surgery	70 (6.3)
Outpatient	7 (0.6)
Visitor	3 (0.3)

IQR, interquartile range; SD, standard deviation.

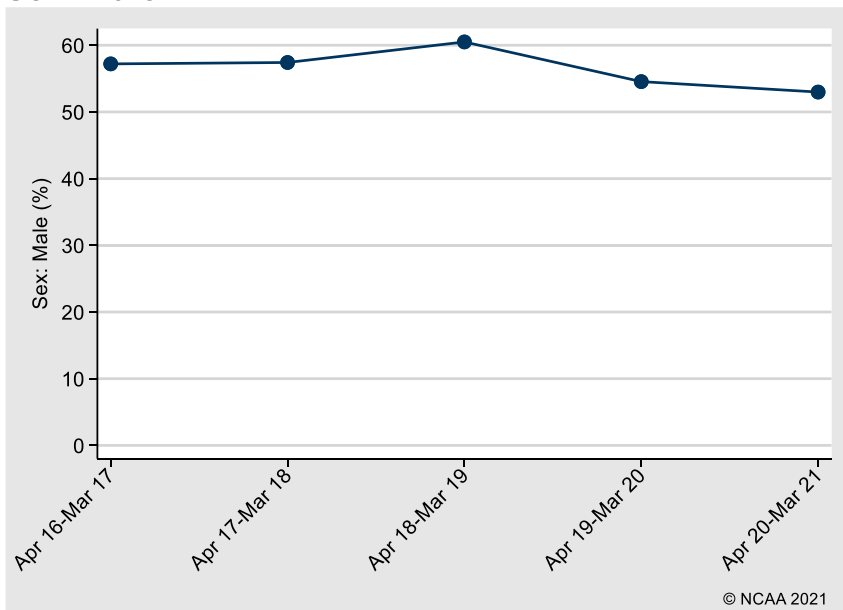
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Trends in patient characteristics

Mean age

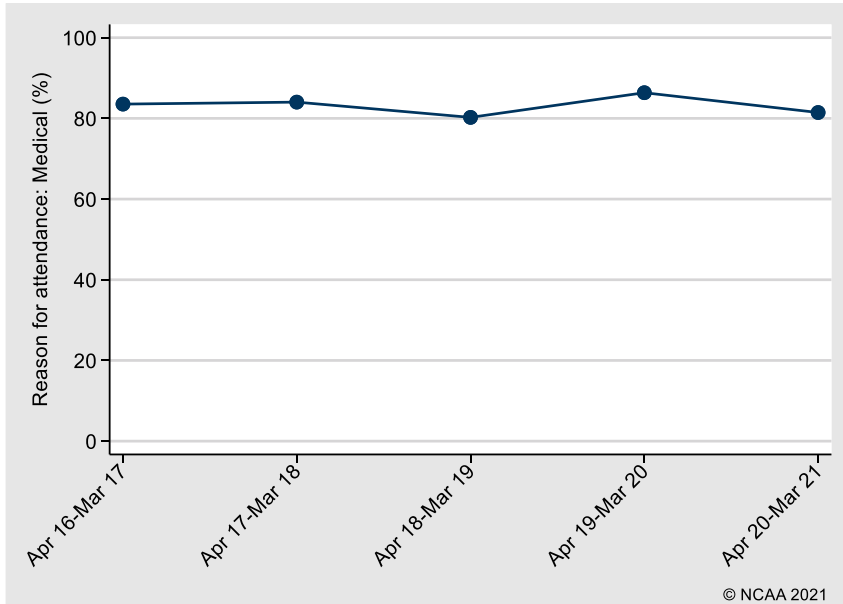


Sex: Male



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Reason for attendance: Medical



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Team visit characteristics

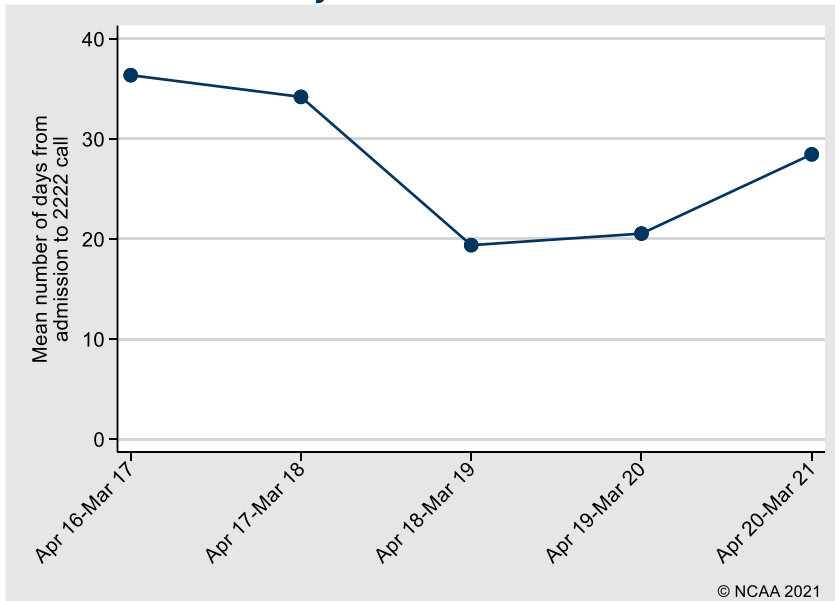
Number of days from admission to 2222 call, n (%)	
0	447 (39.9)
1	139 (12.4)
2-7	191 (17.1)
8-30	124 (11.1)
>30	219 (19.6)
Mean (SD)	28.0 (72.3)
Median (IQR)	1 (0, 16)
Location of arrest, n (%)	
Emergency department	290 (25.9)
Emergency admissions unit	13 (1.2)
Theatre & recovery	55 (4.9)
Imaging department	14 (1.3)
Cardiac catheter laboratory	7 (0.6)
Specialist treatment area	3 (0.3)
ICU or ICU/HDU	17 (1.5)
HDU	34 (3.0)
PICU	193 (17.2)
PHDU	84 (7.5)
Coronary care unit	2 (0.2)
Other intermediate care area	7 (0.6)
Ward	392 (35.0)
Other internal location	1 (0.1)
Clinic	5 (0.4)
Non-clinical area	3 (0.3)
Status at team arrival, n (%)	
Dead - resuscitation stopped	0 (0.0)
Resuscitation ongoing	777 (69.4)
ROSC achieved before team arrival	193 (17.2)
Deteriorating (not yet arrested)	150 (13.4)
Presenting/first documented rhythm, n (%)	
Shockable - VF	36 (3.2)
Shockable - VT	19 (1.7)
Shockable - unknown rhythm	2 (0.2)
Non-shockable - asystole	198 (17.7)
Non-shockable - PEA	356 (31.8)
Non-shockable - bradycardia	324 (28.9)
Non-shockable - unknown rhythm	56 (5.0)
Never determined	57 (5.1)
Unknown	72 (6.4)

HDU, high dependency unit; ICU, intensive care unit; IQR, interquartile range; PEA, pulseless electrical activity; PHDU, paediatric high dependency unit; PICU, paediatric intensive care unit; ROSC, return of spontaneous circulation; SD, standard deviation; VF, ventricular fibrillation; VT, ventricular tachycardia.

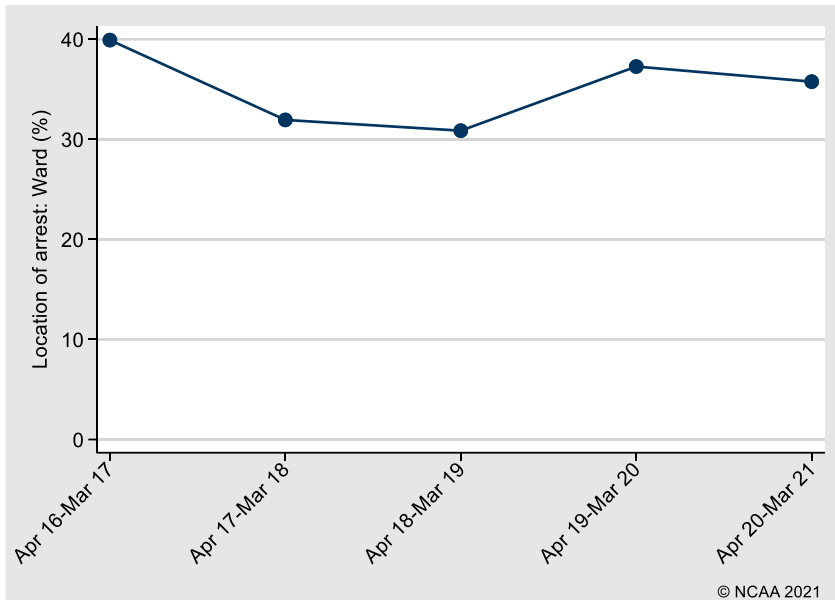
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Trends in team visit characteristics

Mean number of days from admission to 2222 call

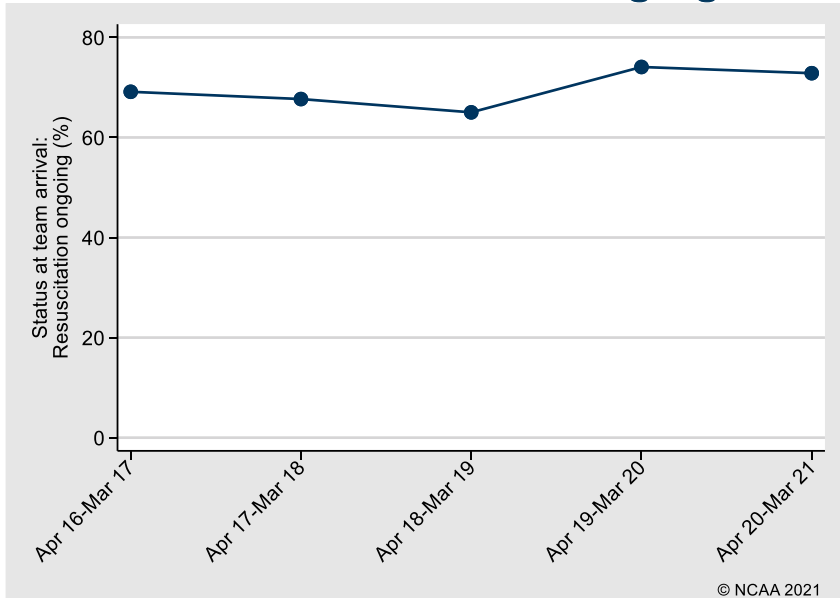


Location of arrest: Ward

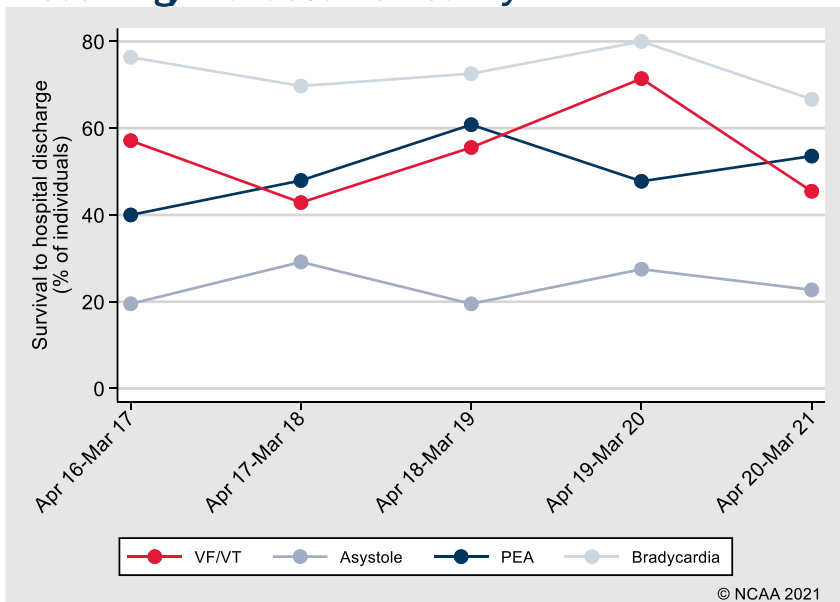


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Status at team arrival: Resuscitation ongoing



Presenting/first documented rhythm



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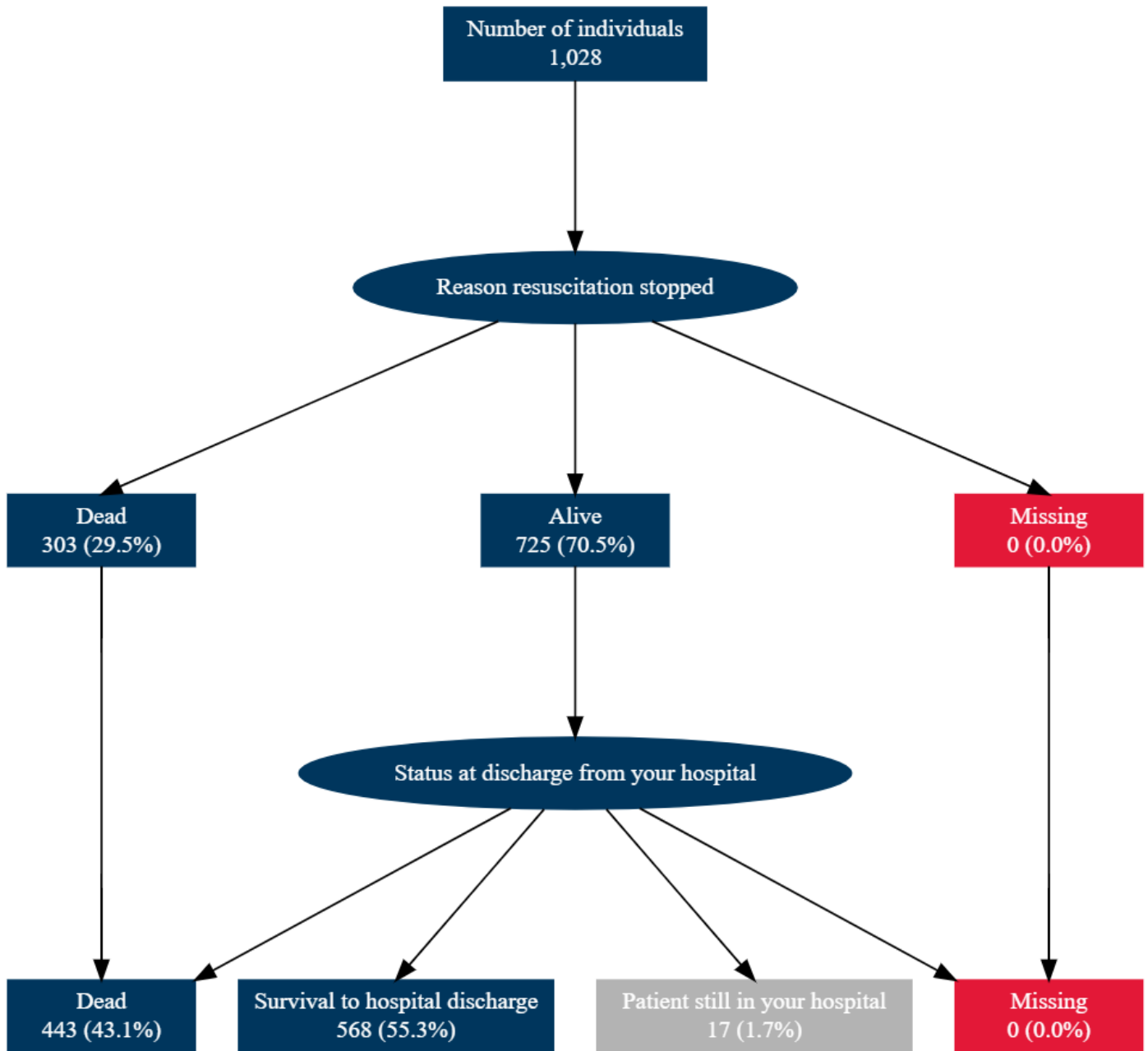
Outcomes

Reason resuscitation stopped at end of team visit, n (%)	
Alive - ROSC > 20 minutes	808 (72.1)
Dead - ROSC < 20 minutes	26 (2.3)
Dead - no ROSC	274 (24.5)
Dead - DNACPR	2 (0.2)
Dead - futility	10 (0.9)
Post-arrest location, n (% of ROSC > 20 minutes)	
Emergency admissions unit	3 (0.4)
ICU or ICU/HDU	56 (6.9)
HDU	25 (3.1)
PICU	361 (44.7)
PHDU	47 (5.8)
CCU	6 (0.7)
Other intermediate care area	5 (0.6)
Obstetrics area	0 (0.10)
Ward	97 (12.0)
Other internal location	1 (0.1)
Mortuary	16 (2.0)
Other hospital	190 (23.5)
Not in hospital	1 (0.1)
Paediatric CPC at hospital discharge, n (% of survivors)	
1	128 (34.1)
2	35 (9.3)
3	31 (8.3)
4	15 (4.0)
5	46 (12.3)
Missing	120 (32.0)

CPC, cerebral performance category; DNACPR, do not attempt cardiopulmonary resuscitation; HDU, high dependency unit; ICU, intensive care unit; PHDU, paediatric high dependency unit; PICU, paediatric intensive care unit; ROSC, return of spontaneous circulation.

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Outcome flow

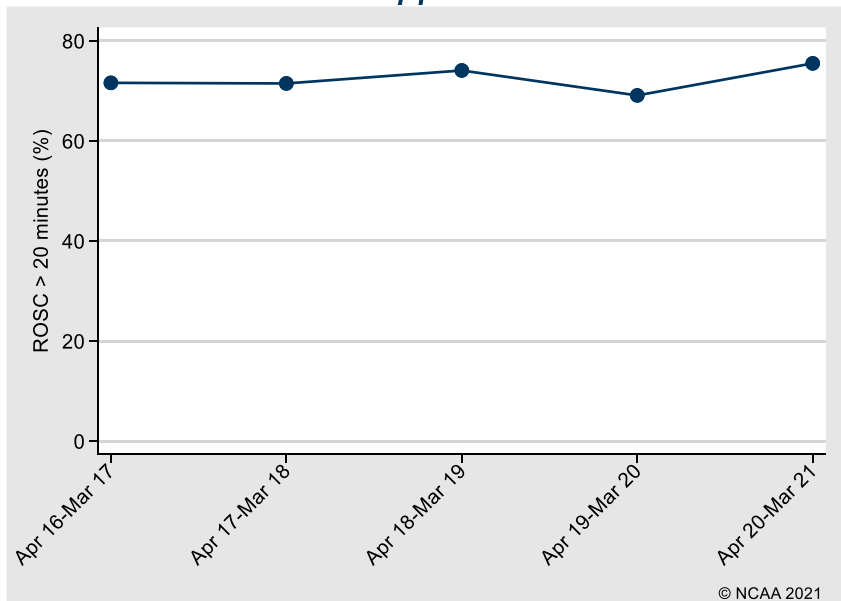


All percentages are reported as the percentage of all individuals (N=1028).

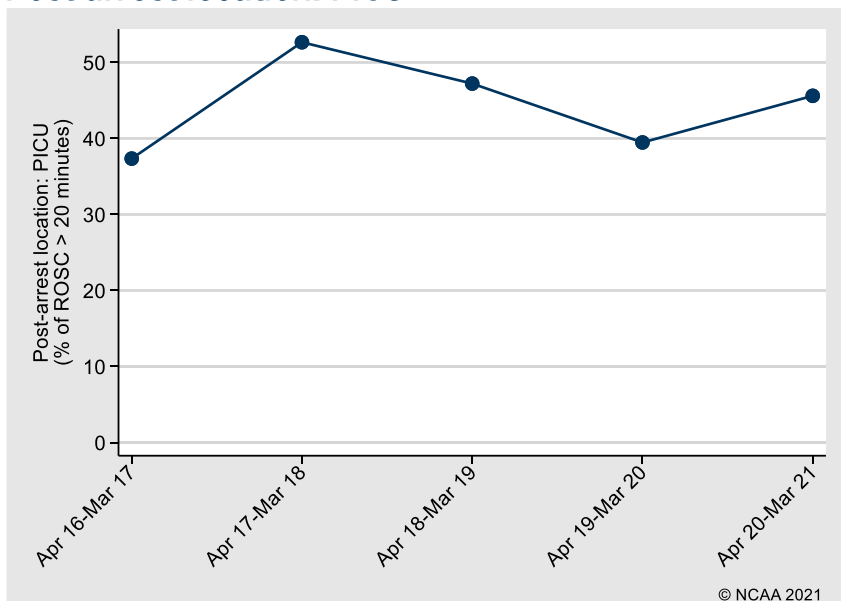
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Trends in outcomes

Reason resuscitation stopped: ROSC > 20 minutes

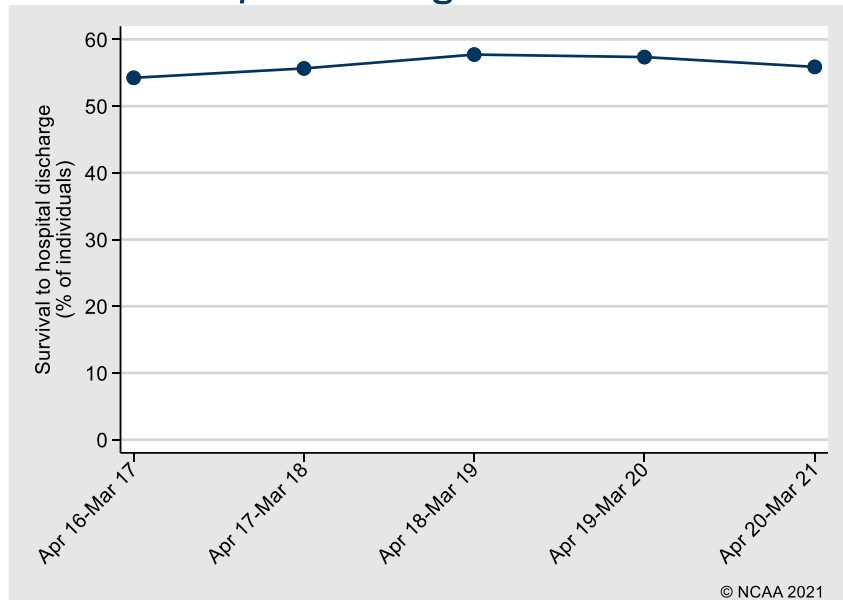


Post-arrest location: PICU

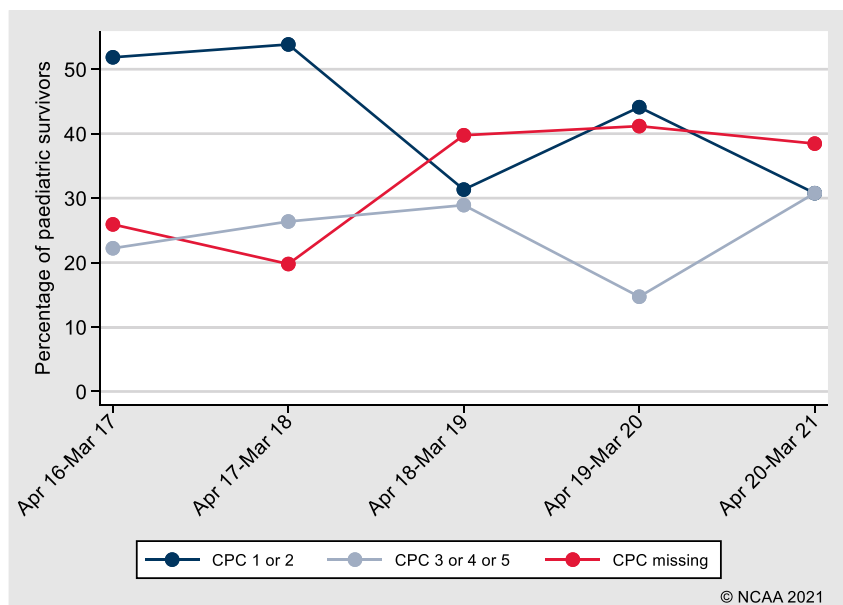


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Survival to hospital discharge



Paediatric CPC at hospital discharge (survivors)



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Outcomes by patient subgroups

ROSC > 20 minutes

Subgroup	Number of in-hospital cardiac arrests	Number with ROSC > 20 min	Percentage (95% confidence interval)
Overall	1,120	808	72.1 (69.4, 74.7)
By presenting rhythm:			
Shockable - VF/VT	55	39	70.9 (57.9, 81.2)
Non-shockable - asystole	198	75	37.9 (31.4, 44.8)
Non-shockable - PEA	356	238	66.9 (61.8, 71.5)
Non-shockable - bradycardia	324	294	90.7 (87.1, 93.4)
By age group (years):			
<1	555	430	77.5 (73.8, 80.8)
1-4	288	194	67.4 (61.7, 72.5)
5-10	148	101	68.2 (60.4, 75.2)
11-15	129	83	64.3 (55.8, 72.1)

PEA, pulseless electrical activity; ROSC, return of spontaneous circulation; VF, ventricular fibrillation; VT, ventricular tachycardia.

Survival to hospital discharge

Subgroup	Number of individuals*	Number of hospital survivors	Percentage (95% confidence interval)
Overall	1,011	568	56.2 (53.1, 59.2)
By presenting rhythm:			
Shockable - VF/VT	48	27	56.3 (42.3, 69.3)
Non-shockable - asystole	192	46	24.0 (18.5, 30.5)
Non-shockable - PEA	335	168	50.1 (44.8, 55.5)
Non-shockable - bradycardia	268	196	73.1 (67.5, 78.1)
By age group (years):			
<1	479	287	59.9 (55.5, 64.2)
1-4	265	143	54.0 (47.9, 59.9)
5-10	144	81	56.3 (48.1, 64.1)
11-15	123	57	46.3 (37.8, 55.1)

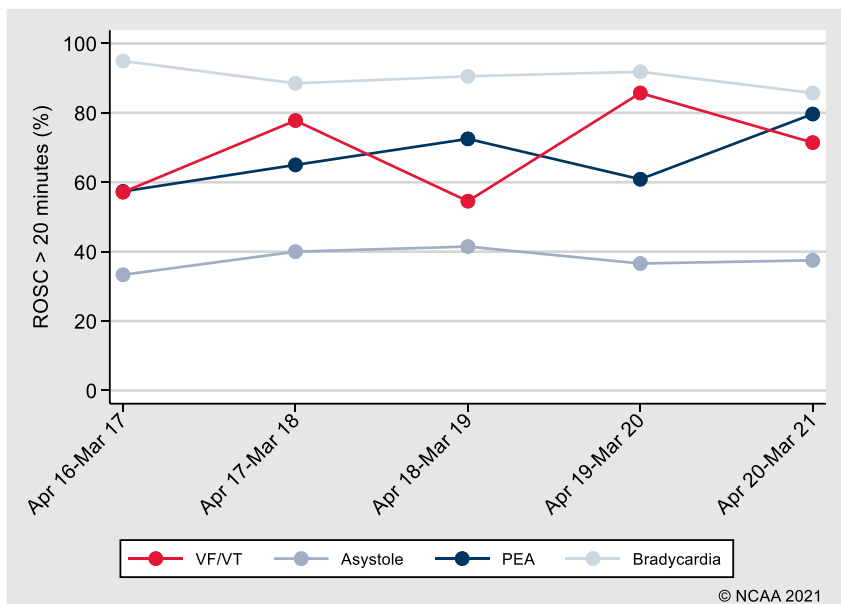
PEA, pulseless electrical activity; VF, ventricular fibrillation; VT, ventricular tachycardia.

* Excluding individuals still in hospital (N=17)

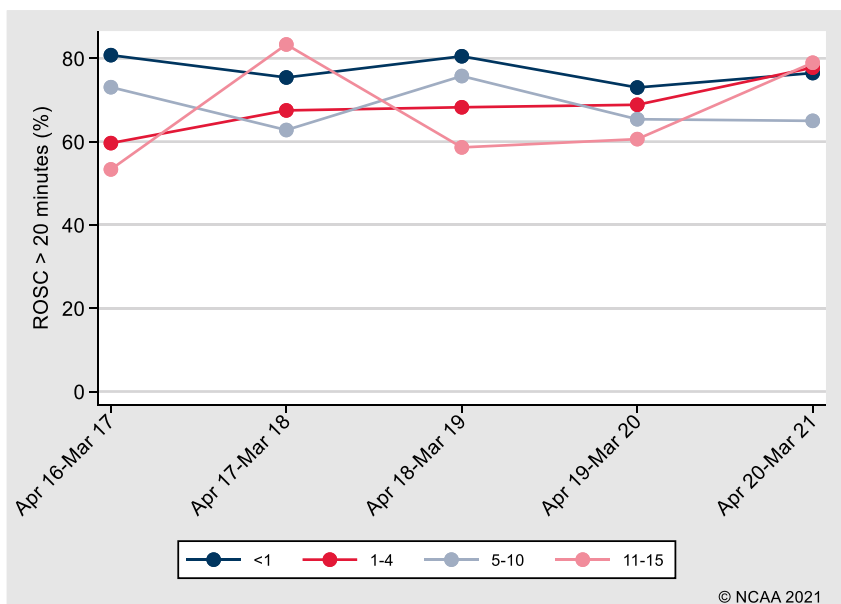
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Trends in outcomes by patient subgroups

ROSC > 20 minutes by presenting/first documented rhythm

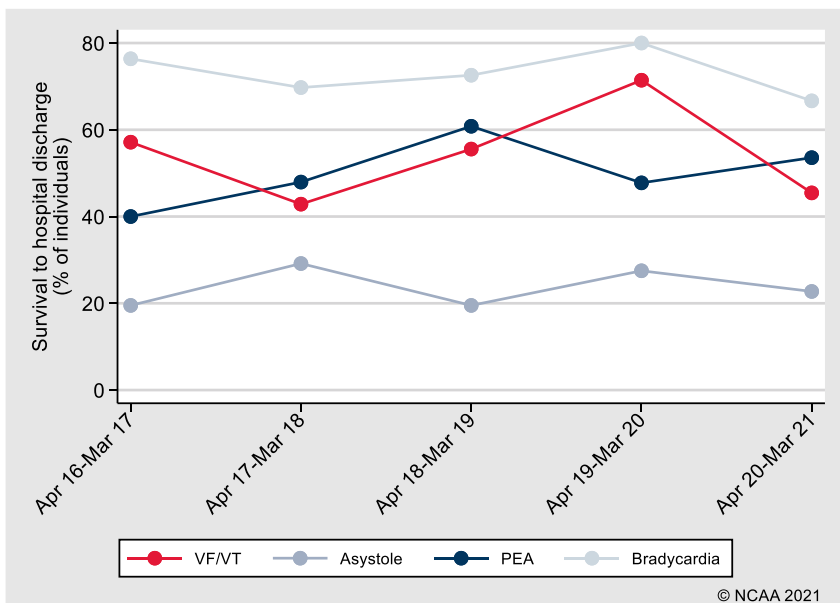


ROSC > 20 minutes by age group

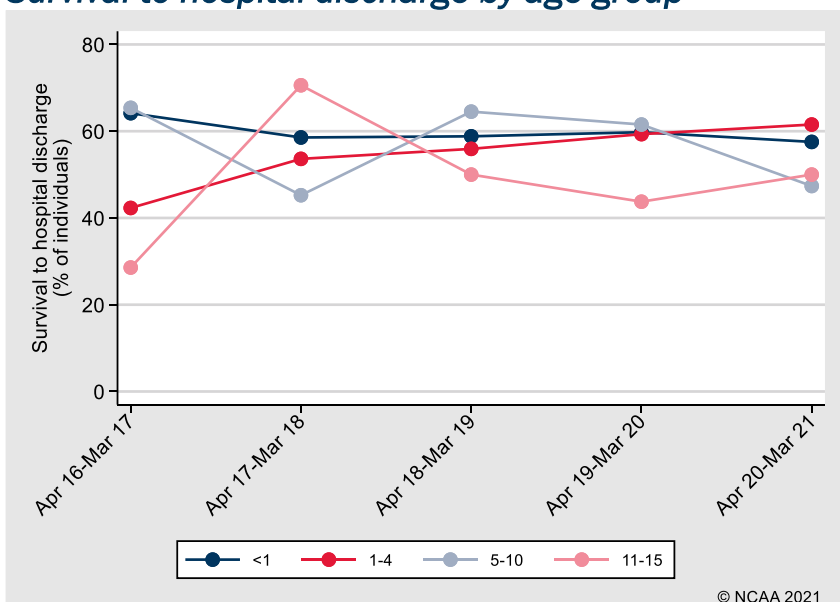


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Survival to hospital discharge by presenting/first documented rhythm



Survival to hospital discharge by age group



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