Supplemental Table 1: Cardiac arrest events with ECPR by the time of day and day of week using primary definitions.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| ECPR  N (%) | All  N (%) | Day  N (%) | Night  N (%) | P Value | Weekday  N (%) | Weekend  N (%) | P Value |
| <1 year | 30 (38%) | 19 (34%) | 11 (48%) | 0.31 | 23 (41%) | 7 (30%) | 0.45 |
| 1 to <8 year | 15 (41%) | 13 (52%) | 2 (17%) | 0.07 | 14 (54%) | 1 (9%) | 0.01 |
| 8 to < 18 year | 8 (50%) | 5 (71%) | 3 (33%) | 0.31 | 8 (67%) | 0 (0%) | 0.08 |
| Overall | 53 (40%) | 37 (42%) | 16 (36%) | 0.58 | 45 (48%) | 8 (21%) | 0.006 |

ECPR, extracorporeal cardiopulmonary resuscitation

Day, definition: 07:00 to 22:59; Night, definition: 23:00 to 06:59; Weekday, definition: Monday 07:00 to Friday 22:59; Weekend, definition: Friday 23:00 to Monday 06:59.

Supplemental Table 2: Cardiac arrest events with ECPR by the time of day and day of week using alternate definitions.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| ECPR  N (%) | All  N (%) | Day  N (%) | Night  N (%) | P Value | Weekday  N (%) | Weekend  N (%) | P Value |
| <1 year | 22 (40%) | 11 (34%) | 11 (48%) | 0.41 | 9 (36%) | 2 (29%) | N/A |
| 1 to <8 year | 11 (44%) | 9 (69%) | 2 (17%) | 0.02 | 9 (75%) | 0 (0%) | N/A |
| 8 to < 18 year | 6 (43%) | 3 (60%) | 3 (33%) | 0.58 | 3 (75%) | 0 (0%) | N/A |
| Overall | 39 (42%) | 23 (46%) | 16 (36%) | 0.40 | 21 (51%) | 2 (22%) | 0.15 |

ECPR, extracorporeal cardiopulmonary resuscitation

Day, definition: 08:00 to 16:00; Night, definition: 23:00 to 06:59; Weekday, definition: Monday through Friday 08:00 to 16:00; Weekend, definition: Saturday and Sunday 08:00 to 16:00.

Supplemental Table 3: Chest Compression metrics and percent compliance with American Heart Association 2020 guidelines for chest compression rate and depth using the alternate definition of day/night and weekday/ weekend.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Age group |  | Day (n=46) | Night (n=37) | p value | Weekday (n=38) | Weekend (n=8) | p value |
| < 1 year | n | 30 | 21 |  | 24 | 6 |  |
|  | Rate (median, iqr) | 113.7 (110.1,119.0) | 119.2 (109.5,128.7) | 0.17 | 113.7 (111.1,120.0) | 112.7 (107.5,119.0) | 0.47 |
|  | Depth (median, iqr) | 2.7  (2.2,3.0) | 2.5  (2.0,2.9) | 0.28 | 2.7  (2.2,2.9) | 2.7  (2.2,3.0) | 0.61 |
|  | CCF (%) | 81.7 (69.8,89.8) | 72.3 (57.9,87.3) | 0.22 | 78.8 (67.8,90.5) | 86.5 (83.9,89.8) | 0.29 |
|  | % compliant--all 3 parameters | 0 | 0 | N/A | 0 | 0 | N/A |
|  | % Compliance --Rate/CCF Only | 23 | 14 | 0.49 | 21 | 33 | 0.60 |
| 1 year to <8 | n | 11 | 12 |  | 10 | 1 |  |
|  | Rate (median, iqr) | 113.9 (108.8,118.5) | 110.0 (104.9,114.0) | 0.16 | 112.1 (108.8,118.5) | 117.9 (117.9,117.9) | N/A |
|  | Depth (median, iqr) | 3.3  (2.9,4.3) | 3.4  (3.0,3.8) | 0.83 | 3.8  (2.9,4.3) | 3.0  (3.0,3.0) | N/A |
|  | CCF (%) | 76.9 (64.2,92.9) | 86.3 (79.4,92.5) | 0.41 | 74.6 (64.2,92.9) | 86.8 (86.8,86.8) | N/A |
|  | % compliant--all 3 parameters | 9 | 0 | 0.48 | 10 | 0 | N/A |
|  | % Compliance --Rate/CCF Only | 27 | 42 | 0.67 | 30 | 0 | N/A |
| 8 to <18 years | n | 5 | 4 |  | 4 | 1 |  |
|  | Rate (median, iqr) | 114.6 (114.1,119.3) | 122.2 (113.7,125.0) | N/A | 116.7 (113.0,125.1) | 114.6 (114.6,114.6) | N/A |
|  | Depth (median, iqr) | 4.9  (4.2,6.0) | 4.9  (3.6,5.8) | N/A | 5.1  (4.1,6.3) | 4.9  (4.9,4.9) | N/A |
|  | CCF (%) | 75.2 (66.3,75.7) | 92.0 (86.4,95.5) | N/A | 70.7 (64.6,75.4) | 80.9 (80.9,80.9) | N/A |
|  | % compliant--all 3 parameters | 20 | 0 | N/A | 0 | 100 | N/A |
|  | % Compliance --Rate/CCF Only | 40 | 25 | N/A | 25 | 100 | N/A |

Day, definition: 08:00 to 16:00; Night, definition: 23:00 to 06:59; Weekday, definition: Monday through Friday 08:00 to 16:00; Weekend, definition: Saturday and Sunday 08:00 to 16:00.

Supplemental Table 4: Outcomes by the time of day using alternate definition of day/ night and weekday/weekend.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Day  N (%) | Night  N (%) | P value | Weekday  N (%) | Weekend  N (%) | P value |
| ROSC |  |  |  |  |  |  |
| <1 year | 16 (50%) | 8 (35%) | 0.29 | 12 (48%) | 4 (57%) | 1.00 |
| 1 to <8 year | 1 (8%) | 6 (50%) | 0.03 | 1 (8%) | 0 (0%) | N/A |
| 8 to < 18 year | 1 (20%) | 0 (0%) | 0.36 | 0 (0%) | 1 (100%) | N/A |
| Overall | 18 (36%) | 14 (32%) | 0.83 | 13 (32%) | 5 (56%) | 0.25 |
| ROC |  |  |  |  |  |  |
| <1 year | 27 (84%) | 19 (83%) | 1 | 21 (84%) | 6 (86%) | 1.00 |
| 1 to <8 year | 9 (69%) | 8 (67%) | 1 | 9 (75%) | 0 (0%) | N/A |
| 8 to < 18 year | 4 (80%) | 3 (33%) | 0.27 | 3 (75%) | 1 (100%) | N/A |
| Overall | 40 (80%) | 30 (68%) | 0.24 | 33 (80%) | 7 (78%) | 1.00 |
| SHD |  |  |  |  |  |  |
| <1 year | 17 (53%) | 11 (48%) | 0.79 | 15 (60%) | 2 (29%) | 0.21 |
| 1 to <8 year | 5 (38%) | 3 (25%) | 0.67 | 5 (42%) | 0 (0%) | N/A |
| 8 to < 18 year | 1 (20%) | 1 (11%) | 1 | 1 (25%) | 0 (0%) | N/A |
| Overall | 23 (46%) | 15 (34%) | 0.29 | 21 (51%) | 2 (22%) | 0.15 |
| SHD favorable neurologic outcome |  |  |  |  |  |  |
| <1 year | 15 (48%) | 8 (40%) | 0.58 | 13 (54%) | 2 (29%) | 0.39 |
| 1 to <8 year | 4 (31%) | 3 (25%) | 1 | 4 (33%) | 0 (0%) | N/A |
| 8 to < 18 year | 1 (20%) | 0 (0%) | 0.36 | 1 (25%) | 0 (0%) | N/A |
| Overall | 20 (41%) | 11 (27%) | 0.19 | 18 (45%) | 2 (22%) | 0.28 |
| SHD favorable neurologic outcome (alternate) |  |  |  |  |  |  |
| <1 year | 11 (35%) | 8 (40%) | 0.77 | 11 (46%) | 0 (0%) | 0.03 |
| 1 to <8 year | 3 (23%) | 2 (17%) | 1 | 3 (25%) | 0 (0%) | N/A |
| 8 to < 18 year | 1 (20%) | 0 (0%) | 0.36 | 1 (25%) | 0 (0%) | N/A |
| Overall | 15 (31%) | 10 (24%) | 0.64 | 15 (38%) | 0 (0%) | 0.03 |

Day, definition: 08:00 to 16:00; Night, definition: 23:00 to 06:59; Weekday, definition: Monday through Friday 08:00 to 16:00; Weekend, definition: Saturday and Sunday 08:00 to 16:00.

Supplemental Table 5: Multivariable analysis of outcomes using alternate definition of day/night.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome | Day | P value | Weekday | P value | Age category  (8 to <18) | P value | CPR duration | P value | Illness Category  Cardiac Surgical | P value |
| ROSC | 1.06 (0.24,4.62) | 0.94 | 0.53 (0.12,2.3) | 0.39 | 0.05  (0, 0.76) | 0.03 | 0.91 (0.87,0.95) | <0.001 | 0.51  ( 0.13,1.98) | 0.33 |
| ROC | 1.33 (0.41,4.3) | 0.63 | 2.49 (0.74,8.38) | 0.14 | 0.15 (0.03,0.67) | 0.01 | 0.99 (0.97,1.01) | 0.47 | 2.49  ( 0.82,7.55) | 0.11 |
| SHD | 0.99 (0.32,3.09) | 0.99 | 4.56 (1.29,16.1) | 0.02 | 0.13 (0.02,0.81) | 0.03 | 0.99 (0.97,1.02) | 0.56 | 6.02  (2.01,18.02) | 0.002 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SHD with favorable neurologic  outcome | 1.62  (0.44,5.94) | 0.46 | 3.43  (0.87,13.51) | 0.08 | 0.09  (0.01,0.95) | 0.05 | 0.99  (0.96, 1.01) | 0.34 | 10.03  (2.66,37.81) | <0.001 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SHD with favorable neurologic  outcome (alternate) | 0.71 (0.18,2.86) | 0.62 | 6.35 (1.36,29.) | 0.02 | 0.12 (0.01,1.25) | 0.08 | 0.98 (0.95,1.01) | 0.16 | 12.31 (2.72,55.72) | 0.001 |

N=88. All values written as OR (95%CI)

Day, definition: 08:00 to 16:00; Night, definition: 23:00 to 06:59; Weekday, definition: Monday through Friday 08:00 to 16:00; Weekend, definition: Saturday and Sunday 08:00 to 16:00.

Supplemental Table 6: Multivariable analysis of outcomes using alternate definition of weekday/ weekend.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcome | Weekday | P value | Age category  (8 to <18) | P value | CPR duration | P value | Illness Category  Cardiac Surgical | P value |
| ROSC | 0.37  (0.03, 3.15) | 0.52 | 0.32  (0.00, 11.08) | 1.00 | 0.93  (0.88, 0.96) | <0.0001 | - | - |
| ROC | 1.37 (0.10,13.18) | 1.00 | 1.41  (0.09, 84.27) | 1.00 | - | - | 13.63  (1.65, 647.55) | 0.0077 |
| SHD | 6.29 (0.74,90.63) | 0.11 | 0.21  (0.00, 4.06) | 0.49 | - | - | 10.30  (2.23, 62.88) | 0.0009 |
| SHD with favorable neurologic outcome | 4.47  (0.54,62.16) | 0.22 | 0.29  (0.00,5.50) | 0.68 | - | - | 9.72  (2.10, 59.43) | 0.0014 |
| SHD with favorable neurologic  outcome (alternate definition) | 11.70  (1.94, >999) | 0.009 | 0.43  (0.01, 10.64) | 0.99 | - | - | 15.26  (2.50, 176.71) | 0.0008 |

N=50. All values are written as OR (95%CI)

The presence of “-“ indicates that that variable was not included in the model given the limitations from our sample size.

Weekday, definition: Monday through Friday 08:00 to 16:00; Weekend, definition: Saturday and Sunday 08:00 to 16:00.