Supplemental Table 1. Statistical binning strategies

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Binning Strategy |  | Category Range | | | | | | | | | | | |
|  | Category | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Reference Category: Zero | | | | | | | | | | | | | |
|  | Parameter |  |  |  |  |  |  |  |  |  |  |  |  |
| Point-wise | TTCdef | 0 | 1 | 2 | 3 | 4 | 5 | 6 |  |  |  |  |  |
|  | TFCdef | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|  | TTCepi | 0 | 1 | 2 | 3 | 4 | 5 | 6 |  |  |  |  |  |
|  | TFCepi | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |  |
| Pair-wise | TTCdef | 0 | 1-2 | 3-4 | 5-6 |  |  |  |  |  |  |  |  |
|  | TFCdef | 0 | 1-2 | 3-4 | 5-6 | 7-8 | 9-11 |  |  |  |  |  |  |
|  | TTCepi | 0 | 1-2 | 3-4 | 5-6 |  |  |  |  |  |  |  |  |
|  | TFCepi | 0 | 1-2 | 3-4 | 5-6 | 7-9 |  |  |  |  |  |  |  |
| Biphasic |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Peak | TTCdef | 0 | 1 | 2-6 |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0 | 1 | 2-11 |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0 | 1 | 2-6 |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0 | 1 | 2-9 |  |  |  |  |  |  |  |  |  |
| Peak, Split | TTCdef | 0 | 1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |
|  | TFCdef | 0 | 1 | 2-3 | 4-6 | 7-11 |  |  |  |  |  |  |  |
|  | TTCepi | 0 | 1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |
|  | TFCepi | 0 | 1 | 2-3 | 4-6 | 7-9 |  |  |  |  |  |  |  |
| One-crossing | TTCdef | 0 | 1 | 2-6 |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0 | 1-2 | 3-11 |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0 | 1-2 | 3-6 |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0 | 1-3 | 4-9 |  |  |  |  |  |  |  |  |  |
| One-crossing, Split | TTCdef | 0 | 1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |
|  | TFCdef | 0 | 1-2 | 3-5 | 6-8 | 9-11 |  |  |  |  |  |  |  |
|  | TTCepi | 0 | 1-2 | 3-4 | 5-6 |  |  |  |  |  |  |  |  |
|  | TFCepi | 0 | 1-3 | 4-5 | 6-9 |  |  |  |  |  |  |  |  |
| Three-wise | TTCdef | 0 | 1-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0 | 1-3 | 4-6 | 7-9 | 10-11 |  |  |  |  |  |  |  |
|  | TTCepi | 0 | 1-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0 | 1-3 | 4-6 | 7-9 |  |  |  |  |  |  |  |  |
| Reference Category: 0-1: Same as dichotomous peak below | | | | | | | | | | | | | |
| Reference Category: 0-2 | | | | | | | | | | | | | |
| Dichotomous | TTCdef | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-2 | 3-11 |  |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-2 | 3-9 |  |  |  |  |  |  |  |  |  |  |
| Split | TTCdef | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-2 | 3-6 | 7-11 |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-2 | 3-6 | 7-9 |  |  |  |  |  |  |  |  |  |
| Three-wise | TTCdef | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-2 | 3-5 | 6-8 | 9-11 |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-2 | 3-5 | 6-9 |  |  |  |  |  |  |  |  |  |
| Combined | TTC | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFC | 0-2 | 3-5 | 6-8 | 9-11 |  |  |  |  |  |  |  |  |
| Reference Category: 0-3 | | | | | | | | | | | | | |
| Dichotomous | TTCdef | 0-3 | 4-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-3 | 4-11 |  |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-3 | 4-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-3 | 4-9 |  |  |  |  |  |  |  |  |  |  |
| Split | TTCdef | 0-3 | 4-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-3 | 4-6 | 7-11 |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-3 | 4-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-3 | 4-6 | 7-9 |  |  |  |  |  |  |  |  |  |
| Reference Category: Other | | | | | | | | | | | | | |
| Dichotomous |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Peak | TTCdef | 0-1 | 2-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-1 | 2-11 |  |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-1 | 2-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-1 | 2-9 |  |  |  |  |  |  |  |  |  |  |
| One-crossing | TTCdef | 0-1 | 2-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-3 | 4-11 |  |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-2 | 3-6 |  |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-3 | 4-9 |  |  |  |  |  |  |  |  |  |  |
| Peak, Split | TTCdef | 0-1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-1 | 2-3 | 4-6 | 7-11 |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-1 | 2-3 | 4-6 | 7-9 |  |  |  |  |  |  |  |  |
| One-crossing, Split | TTCdef | 0-1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-2 | 3-5 | 6-11 |  |  |  |  |  |  |  |  |  |
|  | TTCepi | 0-2 | 3-4 | 5-6 |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-3 | 4-6 | 7-9 |  |  |  |  |  |  |  |  |  |
| Pair-wise | TTCdef | 0-1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCdef | 0-1 | 2-3 | 4-5 | 6-7 | 8-9 | 10-11 |  |  |  |  |  |  |
|  | TTCepi | 0-1 | 2-3 | 4-6 |  |  |  |  |  |  |  |  |  |
|  | TFCepi | 0-1 | 2-3 | 4-5 | 6-7 | 8-9 |  |  |  |  |  |  |  |
| Chan, 2008 | TTCdef | 0-1 | 2 | 3 | 4 | 5 | 6 |  |  |  |  |  |  |
|  | TFCdef | 0-1 | 2 | 3 | 4 | 5 | 6 | 7-11 |  |  |  |  |  |
|  | TTCepi | 0-1 | 2 | 3 | 4 | 5 | 6 |  |  |  |  |  |  |
|  | TTCepi | 0-1 | 2 | 3 | 4 | 5 | 6 | 7-9 |  |  |  |  |  |

Abbreviations: TTC = time to initiation of CPR, TFC = time from CPR to treatment. CPR = cardiopulmonary resuscitation, def = patient group treated with defibrillation, epi = patient group treated with epinephrine, Point-wise: each time interval is considered as a separate category, the first category (zero) is the reference category. Dichotomous: employs a single breakpoint, either arbitrary or separating the upward and downward portions of the curve (either to peak or to one-crossing). Biphasic: Zero is the first (reference) category, the second category is the upward going part of the curve (either to peak or to one-crossing), the third is the downward going portion of the curve. If a single point-wise category would otherwise be left in a group by itself, it is placed in the preceding category. One-crossing is the point at which the odds-ratio for survival in point-wise analysis first becomes less than 1. Chan, 2008 full reference: Chan PS, Krumholz HM, Nichol G, Nallamothu BK; American Heart Association National Registry of Cardiopulmonary Resuscitation Investigators. Delayed time to defibrillation after in-hospital cardiac arrest. N Engl J Med. 2008; 358:9-17.