Two-Hour Model Variable Names Cross-Walk

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| PMML Variable Name | Specification |
| **Inputs** |  |
| ageHR | Age (years)\* Respiratory Rate (minimum in the first 2 hours in the ED, breaths per minute) |
| ageRR | Age (years)\* Heart Rate (minimum in the first 2 hours in the ED, breaths per minute) |
| albCat\_low | Albumin <3 g/dL |
| altCat\_hi | <3 years: >80 U/L  >3 years: >70 U/L |
| ancCat\_low | Absolute Neutrophil Count <5 103/uL for Ages 0 to <5 Years  Absolute Neutrophil Count <4.5 103/uL for Ages 5-18 Years |
| bandsCat\_hi | Band Count >0.05103/uL |
| bandsCat\_nrm | Band Count ≤0.05 103/uL |
| biliCat\_msr | Bilirubin measured in the first 2 hours |
| bunCat\_hi | Blood urea nitrogen\*Age > 66.4 years\*mg/dL |
| centralLineYes | Indwelling central line present on arrival |
| comorb\_oncYes | Oncologic comorbidity |
| creatCat\_hi | Serum creatinine measured in the first 2 hours  <3 years: >0.4 mg/dL  3 to <6 years: >0.53 mg/dL  6 to <8 years: >0.66 mg/dL  8 to <11 years: >0.75 mg/dL  11 to <14 years: >0.85 mg/dL  Male 14-18 years: >1.1 mg/dL  Female 14-18 years: >1.03 mg/dL |
| dbpDbpLastLt70 | Diastolic blood pressure, last <69 mmHg |
| glucCat\_hi | Glucose >120 mg/dL |
| hgbCat\_abn | Hemoglobin <10 g/dL or >16 g/dL |
| hosp\_lastyerYes | Hospitalized in the last year |
| lactCat\_nrm | Lactate <2 mmol/L |
| sbp\_ini | Systolic blood pressure, first, mmHg |
| sbp\_last\_2 | Systolic blood pressure, last in the first two hours, mmHg |
| shockAge | Age (years)\*First Shock Index (First Heart rate, beats per minute/First Systolic Blood Pressure, mmHg) |
| **Output** |  |
| rss | Predicted probability of the risk of shock within 24 hours of ED arrival. Shock defined as systolic hypotension for age + (vasoactive infusion or >=30 mL/kg of bolus fluid) |

Model for the prediction of septic shock among patients in whom ED clinicians were concerned for sepsis using all data available during the first two hours after ED arrival. The model is a linear predictor that estimates the log odds of septic shock, using the sum of the intercept and the predictors multiplied by their coefficient. To transform the risk of septic shock to a probability, use the transformation exΒ/(1+exΒ).

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| Predictive variable | log odds increase in septic shock probability with each unit increase in predictor |
| Intercept | 1.8819 |
| First systolic blood pressure, mmHg | -0.0357 |
| Last systolic blood pressure, mmHg | -0.0174 |
| Last diastolic blood pressure <69 mmHga | -0.0356 |
| Age, years \* heart rate, beat per minute | 0.0019 |
| Age, years \* shock index, beat per minute/mmHgb \* | -0.0987 |
| Age, years \* respiratory rate, breaths per minute | 0.0018 |
| Oncological comorbidity | -0.7688 |
| Hospitalized in the last year | -0.5398 |
| Indwelling central line present on arrival | -0.4467 |
| Venous lactate normal (<2 mmol/L) | -0.4927 |
| Albumin low (<3 g/dL) | 0.8530 |
| ALT high (<3 years: >80 U/L, >3 years: >70 U/L) | 0.5477 |
| Bilirubin measured | 0.3845 |
| BUN\*age high (>66 mg/dL\*years) | 0.2757 |
| Creatinine high  <3 years: >0.4 mg/dL  3 to <6 years: >0.53 mg/dL  6 to <8 years: >0.66 mg/dL  8 to <11 years: >0.75 mg/dL  11 to <14 years: >0.85 mg/dL  Male 14-18 years: >1.1 mg/dL  Female 14-18 years: >1.03 mg/dL | 0.5784 |
| Glucose high (>120 mg/dL) | 0.2849 |
| Absolute neutrophil count low (<500/uL) | -0.3149 |
| Bands high (>5/uL) | 0.7884 |
| Bands normal (≤5/uL) | -0.1783 |
| Hemoglobin abnormal (<10 g/dL or >16 g/dL) | -1.2005 |

aDiastolic blood pressure was modeled in piecewise splines. Values ≥69 mmHg, should be set to 0 in the model; values <69 mmHg, set to DBP-69.

b Shock index = HR/SBP