Predicting Postoperative Mortality or ICU Admission in Preterm and Early-Term Neonates Undergoing Surgery
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Methods
- After IRB approval, data was obtained from electronic medical records from January 2013 - December 2018
- Inclusion criteria: neonates born <39 weeks gestation undergoing a surgical procedure within the first 30 days of life
- Multivariable logistic regression was used to identify significant risk factors
- Significant independent predictors were then used to create a predictive risk algorithm for postoperative mortality or ICU admission

Results
- 653 patients were included; 39 (6%) were surviving without ICU care at the time of data collection while 614 (94%) were deceased or required ICU admission
- Significant risk factors were:
  - Weight < 2.5 kg (OR = 0.16; 95% CI: 0.06, 0.41; P < 0.001)
  - ASA-PS > III (OR = 14.65; 95% CI: 1.28, 168.2; P = 0.031)
  - Cardiovascular deficit (OR = 4.44; 95% CI: 1.27, 15.55; P = 0.020)
  - Neurological deficit (OR = 7.84; 95% CI: 1.89, 32.49; P = 0.005)
  - Pulmonary deficit (OR = 16.11; 95% CI: 2.74, 94.85; P = 0.002)
  - Renal/urological deficit (OR = 6.96; 95% CI: 1.51, 32.06; P = 0.013)
- The probability of mortality or ICU admission ranged from 31.2% (95% CI: 18.6%, 47.4%) with a risk score of 0 to 99.9% (95% CI: 99.9, 99.9%) with a risk score of 9 or greater
- The proposed algorithm is composed of 6 readily available, objective variables
- This risk score can help better direct resource utilization and standardization of patient management in the perioperative period

Discussion
- Existing risk assessment tools compare mortality and clinical status within NICUs only, consider a limited number of variables, and require collection within a finite time period [1, 2]
- The proposed algorithm is composed of 6 readily available, objective variables
- This risk score can help better direct resource utilization and standardization of patient management in the perioperative period

References