



September 15th, 2021 15:00 - 17:00

PARALLEL SESSION 12 – EFCNI 2

ID 275. Validation of DIGIROP decision support tool on a contemporary Swedish cohort

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Background: Retinopathy of prematurity (ROP) is a rare, sight-threatening disease diagnosed through repeated eye examinations. Recently we published a prediction model (DIGIROP-Birth) for ROP treatment based on ~7000 infants including only birth characteristics, and an extended model (DIGIROP-Screen) additionally incorporating ROP progression data. Based on the two models, a decision support tool was developed (www.digirop.com) to identify, at birth or during the screening process, low-risk infants not needing screening. The aim was to validate the decision support tool on a contemporary Swedish cohort.

Methods: This study includes 257 infants screened for ROP with gestational age (GA) <31 weeks (August 2018 to December 2020) from the Region Västra Götaland, Sweden. The predictors were GA at birth, sex, birth weight SDS, status and age when ROP was first diagnosed and important interactions. ROP treatment was the outcome. Sensitivity, specificity, and AUC with 95% CI were described.

Results: The mean GA was 27.5 (SD 2.2) weeks, birth weight 1044 (SD 366) grams, 121 (47%) were girls, and 40 (16%) infants received ROP treatment. For DIGIROP-Birth, the AUC was 0.91 (95% CI 0.88-0.95); for DIGIROP-Screen, the AUC ranged between 0.91 and 0.96. The specificity was 46.1 (95% CI 39.3-53.0) %, and the sensitivity 95.0 (95% CI 83.1-99.4) % for the tool applied at birth, incorrectly flagging two severely ill babies, one with Bekk-Wiedemann syndrome, and one with intraventricular hemorrhage grade IV and hydrocephalus treated with stage 3 zone III ROP. Applying the tool along the screening the achieved cumulative specificity ranged between 46.5% and 74.7% at week 6 to 14. Additionally two infants for whom the adequate ROP progression data was unavailable as a result of missing or incomplete examinations due to NEC or Iatrogen chylothorax were incorrectly flagged as not needing screening.

Conclusion: DIGIROP-Birth and DIGIROP-Screen showed high prediction ability in a Swedish contemporary validation cohort. The specificity corresponded to that obtained from the external validation in the original publication. All routinely screened infants requiring treatment, excluding those screened for clinical indication beside their immaturity, were correctly flagged as needing ROP screening. Further external validations of this decision support tool are recommended.

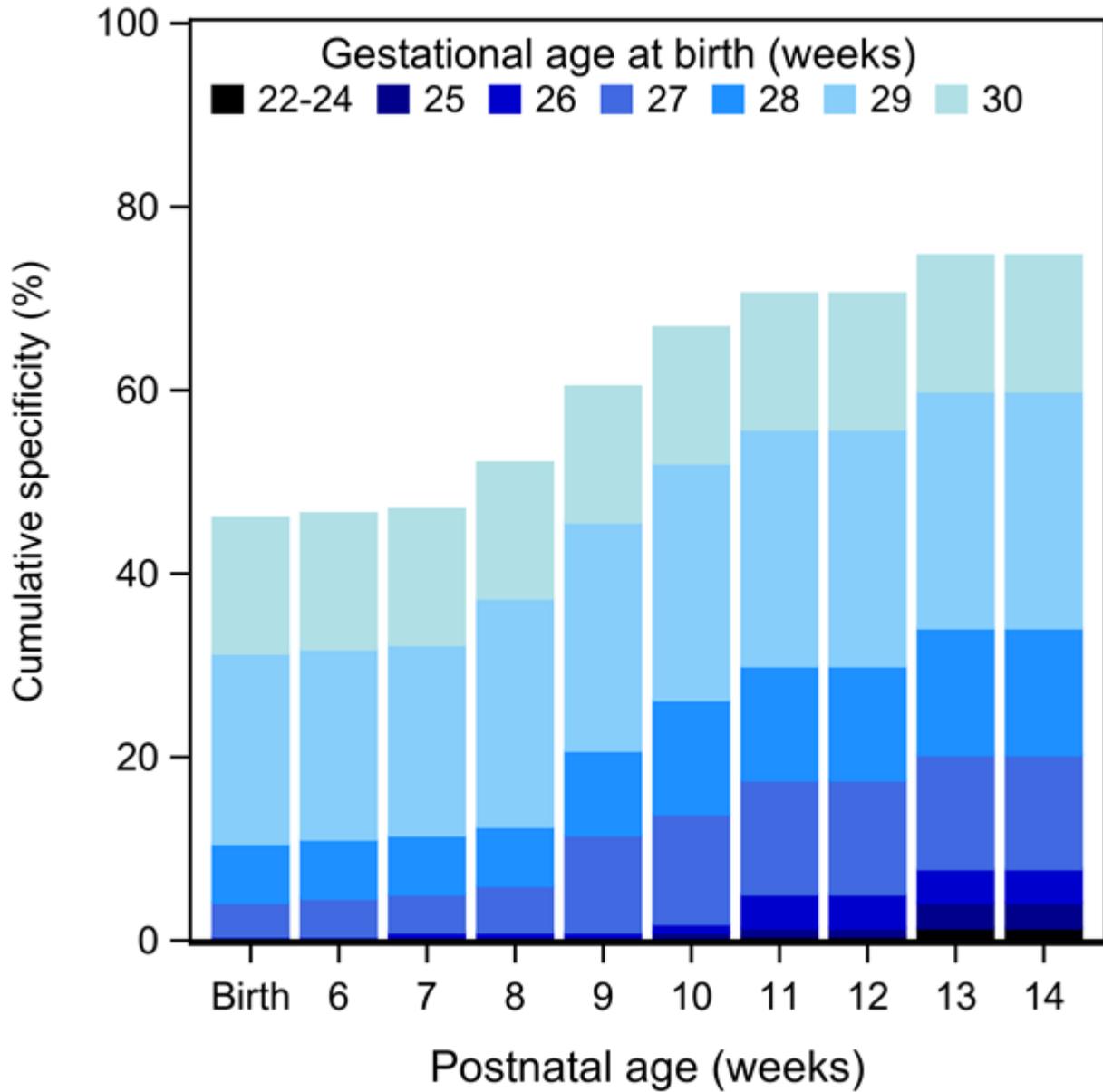


Figure 1. Cumulative specificity (%) per gestational age (GA) at birth using a decision support tool based on DIGIROP-Birth and DIGIROP-Screen prediction models.

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None declared