OBJECTIVE: Risk stratification tools are intended to help providers understand and potentially mitigate their patient’s risk of a delivery-related adverse event. Most have focused on predicting severe maternal morbidity (SMM). Because postpartum hemorrhage is a relatively common complication of delivery, we sought to determine the predictive performance of a recently validated obstetrical risk score for the outcome of postpartum hemorrhage. We hypothesized that because hemorrhage is often on the causal pathway for SMM and because transfusion is the largest component to SMM, this score would also be predictive of postpartum hemorrhage (PPH).

STUDY DESIGN: This is a retrospective cohort study of women admitted for a planned vaginal delivery between 24 and 43 weeks of gestation at 8 hospitals in a single health system between July 1, 2016, and July 20, 2020. Women with a planned cesarean delivery were excluded. The primary outcome of interest was PPH, defined as estimated blood loss (EBL) of ≥1000 mL regardless of mode of delivery. As a subgroup analysis, we also examined EBL of ≥1500 mL. EBL was obtained from the electronic health record's delivery summary report. The Expanded Obstetric Comorbidity Score (EOCS), a validated risk adjustment tool for SMM, was calculated for women using the International Classification of Diseases, Tenth Revision, diagnosis codes. Logistic regressions were used to assess the score’s performance for women at the time of admission for delivery and for women who reached the second stage of labor, as determined by those with a recorded second stage length; robust standard errors accounted for hospital-level clustering. Discrimination was assessed by calculating the area under the receiver operating curve (AUC) and calibration via calibration plots. Incidences were compared

FIGURE
Calibration plots for the EOCS for the outcome of postpartum hemorrhage

Calibration plots for the EOCS for the outcome of postpartum hemorrhage among A, all women in labor and B, women who reached the second stage.

EOCS, Expanded Obstetric Comorbidity Score.

with chi-squared tests. The project was approved by the Mass General Brigham Human Subjects Research Committee.

RESULTS: This analysis included 45,394 deliveries, of which 35,368 had a recorded second stage time. PPH occurred in 5.7% of deliveries; 1.5% had an EBL of ≥1500 mL. The AUC for the EOCS was 0.61 (95% confidence interval [CI], 0.60–0.62) for all women and 0.57 (95% CI, 0.55–0.58) for those who reached the second stage. Similar AUCs were seen for the subgroup with EBL of ≥1500 mL: 0.64 (95% CI, 0.63–0.67) and 0.59 (95% CI, 0.56–0.62) for all women and those who reached the second stage, respectively. Despite its lower discrimination, the calibration plot in the Figure revealed that the EOCS did identify a group of women with a significantly higher risk for PPH: those in the top decile of predicted risk (EOCS, ≥34) had a PPH incidence of 11.9% compared with 5.0% in the remainder of the population (P<.001). The EOCS was less well calibrated for women who reached the second stage, indicating it may be less useful for stratifying risk at this time point. The calibration plots revealed that the EOCS did not identify a high-risk group for EBL of ≥1500 mL as clearly as it did for all PPHs.

CONCLUSION: Although AUCs were lower than those reported for SMM, the EOCS did identify a group of women admitted in labor at high risk of PPH. This study demonstrates the potential applicability of this risk adjustment tool designed for SMM to also predict PPH among women in labor, which may facilitate the translation of this type of risk tool into clinical practice.

REFERENCES

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The effect of maternal body mass index on fetal ultrasound image quality

OBJECTIVE: More than 60% of women are overweight or obese in the United States, with obesity the most common clinical risk factor in obstetrical practice. Although increasing maternal body mass index (BMI) is thought to be associated with lower ultrasound image quality, no large-scale studies have quantified the effect in real-world settings. We investigated the effect of BMI on image quality of standard fetal views at the time of the routine midtrimester ultrasound.

STUDY DESIGN: Retrospective analysis of ultrasound images, using a large real-world dataset, prospectively acquired at the John Radcliffe Hospital in Oxford, United Kingdom, during routine anomaly screening (18–23 weeks’ gestation) on 5 different ultrasound machines by 20 qualified sonographers. After institutional review board approval, all images were fully anonymized. Detailed, objective quality scoring of each ultrasound image (without knowledge of maternal BMI) was