

Model fails to predict risk for maternal ICU admission

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(HealthDay)—A predictive model that uses prenatal risk factors to help

identify women at higher risk for admission to the maternal intensive care unit (ICU) has low positive predictive value, according to a study published online July 9 in *Obstetrics & Gynecology*.

Robert M. Rossi, M.D., from the University of Cincinnati College of Medicine, and colleagues conducted a population-based [cohort](#) study of all live births delivered between 20 and 44 weeks of gestation in the United States from 2012 to 2016. In an effort to build a multivariable [predictive model](#) to estimate the association between prenatal factors and risk of maternal ICU admission, the authors performed k-fold cross-validation for internal validation and then externally validated the model on a separate live birth cohort (2006 to 2011; 856,255 live births).

Between 2012 and 2016, there were 18,745,615 live births in the United States. The researchers found that among the mothers, 27,602 (0.15 percent) were admitted to the ICU in the peripartum period. Fourteen variables were selected for inclusion in the predictive model for maternal ICU admission, including advanced maternal age, non-Hispanic black race, having Medicaid insurance, cigarette smoking, and having a sexually transmitted infection during the pregnancy. The receiver operating characteristic curve for these 14 variables achieved an area under the curve (AUC) of 0.81; the AUC was 0.83 when externally validated in a separate live [birth](#) cohort. At a cut point of 5 percent predicted risk for maternal ICU admission, the model achieved a [positive predictive value](#) of only 4 percent.

"We intended to build a model that could estimate an individualized risk based on common maternal and obstetric conditions that may cumulatively increase a woman's risk and therefore assist in delivery planning and allocation of appropriate resources," the authors write.

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