

Diverse nurse workforce linked to better maternal health outcomes in childbirth

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A new study at Columbia University Mailman School of Public Health and Columbia Vagelos College of Physicians and Surgeons provides robust evidence to support diversifying the health care workforce as a

remedy for addressing racial and ethnic disparities in maternal health outcomes, and a call to action to improve maternal health. The researchers focused on registered nurses in particular because they are critical for comprehensive maternal health care, and are the frontline health care providers involved in the early recognition of warning signs for maternal complications. Delayed recognition of these warning signs has been repeatedly identified as a major contributor to preventable maternal deaths. The study is published online in the *American Journal of Obstetrics & Gynecology* MFM.

"Until now, evidence linking health care workforce diversity to improved maternal health outcomes was scant," said Jean Guglielminotti, MD, Ph.D., in the Department of Anesthesiology at Columbia P&S, and first author. Compared with non-Hispanic white birthing people, racial and ethnic minorities were up to three times more likely to experience life-threatening [complications](#) during pregnancy, [childbirth](#), and the postpartum period, according to Guglielminotti.

Black and Native American people were at particularly high risk of severe adverse maternal outcomes. "Structural racism in public policies, institutional practices, cultural representations, and other norms works to perpetuate racial group inequities and what we believe contributes to these disparities in severe adverse maternal outcomes, independent of poverty and other social determinants of health," said Guglielminotti.

The researchers analyzed data from 2017 U.S. Birth Certificates from all 50 states and the District of Columbia. Proportions of registered nurses who were racial and ethnic minorities in each state were abstracted from the American Community Survey and categorized into three groups: 1) low state racial and ethnic diversity (3.3-14 percent); 2) intermediate state diversity (14-32 percent); and 3) high state diversity (32-68 percent). Severe adverse maternal outcomes (SAMO) are defined as eclampsia, blood transfusion, hysterectomy, or intensive care unit

admission, which are recorded in specific check boxes.

Of the 3,668,813 birth certificates studied, 29,174 (0.8 percent) recorded SAMO. The most frequent complication recorded was blood transfusion (0.39 percent) followed by eclampsia (0.28 percent), ICU admission (0.16 percent), and hysterectomy (0.05 percent). Native American mothers had the highest SAMO incidence (1.75 percent), followed by Black mothers (1 percent), mothers of more than one race (1 percent), white mothers (0.74 percent), Asian/Pacific Islander mothers (0.73 percent), and Hispanic mothers (0.7 percent).

The average state proportion of registered nurses who were racial and ethnic minorities was 22 percent, and ranged from 3 percent in Maine to 68 percent in Hawaii. Compared with giving birth in states with the lowest diversity of nurse workforce, giving birth in states with the highest nurse diversity was associated with a 32 percent reduced risk of SAMO for white mothers, 20 percent for Black mothers, 31 percent for Hispanic mothers, and 50 percent for Asian and Pacific Islander mothers. SAMO risk was not significantly reduced for Native American mothers or mothers of more than one race, mainly because of the small sample sizes in these groups.

"A racially diverse [nurse](#) workforce may help to reduce provider implicit bias and enhance communications and trust between patients and clinicians," said Guohua Li, MD, DrPH, professor of epidemiology and anesthesiology at Columbia Mailman School and P&S, and senior author. "Perinatal care is a team work. Frontline nurses play a key role in ensuring the safety and well-being of mothers and their newborns."

"Our study provides robust evidence to support the recommendation to diversify the health care workforce as a strategy for addressing racial and ethnic disparities in maternal health outcomes," noted Li. "We hope this research will help facilitate the development of intervention

programs to reduce racial and ethnic disparities in maternal health outcomes," said Guglielminotti.

Co-authors are Goleen Samari, Columbia Mailman School of Public Health; and Alexander Friedman, Allison Lee, and Ruth Landau, Columbia Vagelos College of Physicians and Surgeons.

The study was presented at the 54th Annual Meeting of the Society of Obstetric Anesthesia and Perinatology in Chicago.

More information: Jean Guglielminotti et al, Nurse workforce diversity and reduced risk of severe adverse maternal outcomes, *American Journal of Obstetrics & Gynecology MFM* (2022). [DOI: 10.1016/j.ajogmf.2022.100689](https://doi.org/10.1016/j.ajogmf.2022.100689)

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