

# Predicting prenatal care to improve pregnancy outcomes

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Socioeconomic factors, like education and location, can affect access to life-saving prenatal care services. Researchers at Boston Children's Hospital are taking steps towards implementing strategies that improve

access to prenatal care: estimating how many pregnant people attend the recommended number of visits and identifying pregnant people who are at high risk of failing to attend. This could help policymakers allocate resources to populations not getting enough prenatal care and could, in turn, improve health outcomes for mothers and babies.

Led by Grace Chan, M.D., Ph.D., Attending Physician in the Intermediate Care Program at Boston Children's, the team analyzed data from rural Amhara, Ethiopia, and built the first predictive models for accessing prenatal care services in a low-resource setting. The findings were published recently in [PLOS Global Public Health](#) and [JAMA Network Open](#).

Prenatal care improves birth outcomes and prevents the deaths of moms and newborns. The World Health Organization (WHO) recommends eight prenatal care contacts during pregnancy to prevent and treat complications, reducing the likelihood of adverse outcomes such as stillbirths. "High quality prenatal care is a critical intervention associated with positive birth outcomes. It's important to find those women who aren't accessing care to target resources and improve their access," says Dr. Chan.

Researchers collected demographic and health data from 16 rural villages through an existing community surveillance program. Study team members enrolled mothers in their study when they were identified as pregnant at [health facilities](#) or during community visits and followed them through delivery.

The team found that only 28.8% of women attended four or more prenatal care visits, and no women were found to have attended the recommended eight.

The predictive models they built incorporated data on pregnant people's

education, income source, diet, and history of previous pregnancies. The researchers found that the models could predict the probability that a pregnant person would not initiate prenatal care with modest performance, using the information on predictors available at three different times during pregnancy.

The team found that factors such as the use of contraceptives, eating fortified foods, knowledge of the distance to the nearest health facility, and history of babies with congenital disabilities were found to be predictors of failure to attend prenatal care visits.

However, it's important to note that this study doesn't explain cause and effect but rather highlights data that can lead to more robust predictions for a person's failure to have [prenatal care](#) contacts. In the future, Dr. Chan and colleagues hope to validate their models using other study sites and translate these findings into policies and programs to improve access and care.

**More information:** Clara Pons-Duran et al, Antenatal care coverage in a low-resource setting: Estimations from the Birhan Cohort, *PLOS Global Public Health* (2023). [DOI: 10.1371/journal.pgph.0001912](https://doi.org/10.1371/journal.pgph.0001912)

Bryan Wilder et al, Development of Prediction Models for Antenatal Care Attendance in Amhara Region, Ethiopia, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2023.15985](https://doi.org/10.1001/jamanetworkopen.2023.15985)

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