

# Quantitative Fetal Fibronectin to Predict Preterm Birth in Asymptomatic Women at High Risk

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**OBJECTIVE:** To evaluate the diagnostic accuracy of cervicovaginal fluid quantitative fetal fibronectin, measured by a bedside analyzer, to predict spontaneous preterm birth before 34 weeks of gestation.

**METHODS:** We conducted a prospective masked observational cohort study of cervicovaginal fluid quantitative fetal fibronectin concentration in asymptomatic women at high risk of spontaneous preterm birth (n=1,448; 22–27 6/7 weeks of gestation) measured using a rapid bedside analyzer. The routine qualitative result (positive–negative) was made available to clinicians at the time of testing, but the quantitative result remained blinded until after delivery.

**RESULTS:** Spontaneous preterm birth (less than 34 weeks of gestation) increased from 2.7%, 11.0%, 14.9%, 33.9%, and 47.6% with increasing concentration of fetal fibronectin (less than 10, 10–49, 50–199, 200–499, and 500 ng/mL or greater, respectively). A threshold of 200 ng/mL had a positive predictive value of 37.7 (95% confidence interval [CI] 26.9–49.4) with specificity 96% (95% CI 95.3–97.3). Women with a fetal fibronectin concentration of less than 10 ng/mL had a very low risk of spontaneous preterm birth at less than 34 weeks of gestation (2.7%), no higher than the background spontaneous preterm birth rate of the general hospital population (3.3%). The quantitative fetal fibronectin test predicted birth at less than 34 weeks of gestation with an area under the curve (AUC) of 0.78 (95% CI 0.73–0.84) compared with the qualitative test AUC 0.68 (95% CI 0.63–0.73). Quantitative fetal fibronectin discriminated risk of spontaneous preterm birth at less than 34 weeks of gestation among women with a short cervix (less than 25 mm); 9.5% delivered prematurely less than 10 ng/mL compared with 55.1% greater than 200 ng/mL (P<.001).

**DISCUSSION:** Alternative risk thresholds (less than 10 ng/mL and greater than 200 ng/mL) improve accuracy when using quantitative fetal fibronectin measurements to define risk of spontaneous preterm birth. This is particularly relevant for asymptomatic women with a short cervix.