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**Am J Obstet Gynecol**

**Prenatal maternal dried blood screening with alpha-fetoprotein and free beta-human chorionic gonadotropin for open neural tube defect and Down syndrome.**

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**OBJECTIVE:** Our purpose was to evaluate second-trimester prenatal screening for open neural tube defects and Down syndrome by use of dried blood specimen collection and transport. **STUDY DESIGN:** A prospective study of 7497 dried blood specimens from patients <35 years old was performed. Specimens were assayed for maternal blood alpha-fetoprotein and free beta-human chorionic gonadotropin. Patient-specific risks for both disorders were calculated and used to determine whether further evaluation was indicated. The study included an evaluation of the median and SD of analyte multiple of the median levels. **RESULTS:** The initial positive rate for open neural tube defect was 4.4% adjusted to 2.7% after ultrasonographic revision and collection of a second sample. The initial positive rate for Down syndrome was 3.6% adjusted to 2.8% after ultrasonographic revision. All seven cases of open neural tube defect were detected within the