ACMG
American College of Medical Genetics and Genomics
Translating Genes Into Health®

ACT Sheet

Prenatal Cell-Free DNA Screening ACT Sheet

[Trisomy 18: Positive Cell Free DNA Screen]

Etiologies of Positive Screen: Fetal trisomy 18, fetal mosaic trisomy 18, confined placental mosaicism for trisomy 18, karyotypic abnormalities resulting in extra chromosome 18 material, vanishing twin.

Clinical Considerations: Trisomy 18 (Edwards Syndrome) is a multi-system condition resulting in severe birth defects and intellectual disability. Intrauterine growth restriction and fetal demise are common. Approximately 5%-10% of those who are liveborn survive beyond the first year of life.

Screening Considerations: Prenatal Cell-Free DNA Screening is designed to detect fetal aneuploidy including trisomy 18. The detection rate is approximately 98% with a false positive rate of less than 1%. The positive predictive value (PPV) of Prenatal Cell-Free DNA Screening for trisomy 18 varies with maternal age and ranges from approximately 15% at age 20 to about 90% at age 40. Major reproductive decisions should not be made without clinical or laboratory confirmation. While the majority of fetuses with trisomy 18 have anomalies noted on prenatal ultrasound, diagnostic testing should be offered to confirm a screen positive test result. Expedited referrals to a genetics and/or maternal and fetal medicine (MFM) professional with prenatal genetics expertise are recommended to ensure timely, informed decision making and management.

YOU SHOULD TAKE THE FOLLOWING IMMEDIATE ACTIONS:

- Inform the patient of the laboratory result, and emphasize that, in order to confirm the results of the screening test, a referral to a genetics and/or MFM professional with prenatal genetics expertise will be offered for additional testing, including genetic counseling, fetal ultrasound, and diagnostic testing.
- Emphasize that the positive predictive value of Prenatal Cell-Free DNA Screening for trisomy 18 ranges from approximately 15-90% and is dependent on maternal age.
- Every patient has the right to accept or decline genetic screening or diagnosis.

Diagnostic Evaluation: Karyotype or microarray analysis of chorionic villi or amniocytes is needed to confirm the diagnosis and may help distinguish between the various possible mechanisms listed above, which can inform clinical decision making and determine recurrence risk.

Patient Education Resources
NLM: Medline Plus
PerinatalHospice.org
Trisomy.org
Trisomy 18 Foundation

Provider Education Resources
ACMG: Noninvasive Prenatal Screening for Fetal Aneuploidy
ObG Project
UNC Positive Predictive Value Calculator
Perinatal Quality Positive Predictive Value Calculator

Referral (local, state, regional and national)
ACMG: Find a Genetics Clinic Directory
NSGC: Find a Genetic Counselor
Society for Maternal Fetal Medicine: Find an MFM

 (Funded in part through MCHB/HRSA/HHS grant #UH9MC30770; National Coordinating Center for the Regional Genetics Networks). The screening name was updated in September 2023 to reflect ACMG nomenclature guidance published in 2023.

Local Resources *(Insert Local Website Links)*

State Resource Site (Insert Website Information)

Name	
URL	
Comments	

Local Resource Site (Insert Website Information)

Name	
URL	
Comments	

Appendix *(Resources with Full URL Addresses)*

Patient Education Resources

NLM: Medline Plus
- https://medlineplus.gov/genetics/condition/trisomy-18/

PerinatalHospice.org
- https://www.perinatalhospice.org/

Trisomy.org
- https://www.trisomy.org/

Trisomy 18 Foundation
- https://www.trisomy18.org/

Provider Education Resources

ACMG- Noninvasive Prenatal Screening for Fetal Aneuploidy
- https://www.acmg.net/PDFLibrary/Fetal-Aneuploidy-Noninvasive-Prenatal-Screening-Update.pdf

ObG Project
- https://www.obgproject.com/2016/07/21/trisomy-18-what-is-it/

UNC Positive Predictive Value Calculator
- https://www.med.unc.edu/mfm/nips-calc/

Perinatal Quality Positive Predictive Value Calculator
- https://www.perinatalquality.org/Vendors/NSGC/NIPT/

Referral (local, state, regional and national)

ACMG: Find a Genetics Clinic Directory
- https://clinics.acmg.net

NSGC: Find a Genetic Counselor
- https://www.nsgc.org/page/find-a-genetic-counselor

SMFM: Find a Maternal and Fetal Medicine Specialist
- https://www.smfm.org/members

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