cfDNA Practice Experiences & ACOG Guidelines

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Objectives

- Discuss guidelines for use of cfDNA for prenatal screening in pregnant individuals (ACOG Practice Bulletin No 226 & ACMG NIPS 2016 update).
- Identify opportunities to expand equity in clinical obstetrical practice for cfDNA prenatal screening.
Disclosures

- None

- **ACOG**: dedicated to the advancement of women’s health care ... through medical education, practice, research, and advocacy.

- **ACOG Public Health Committee**: leads and supports programs that protect and promote optimal obstetric and gynecologic health...to advise and disseminate best practices.
Questions

- Who are appropriate candidates for offering prenatal genetic screening (including cfDNA) and genetic testing options?
- What is the most sensitive and specific screening test for common fetal aneuploidies?
- What results will be reported with the new California Prenatal Screening Program?
- What happens to patients with a positive screening test result for fetal aneuploidy?
“cfDNA is the most sensitive and specific screening test for the common fetal aneuploidies” [T21/18/13]

No screening test is equivalent to diagnostic testing in regard to detection rate

8/2020 Update: “Prenatal genetic screening, [including cfDNA screening] should be discussed and offered to all pregnant women regardless of maternal age or risk”
Case Vignette #1

- 42-year-old G2P0 presents to care at 12 weeks, desires the “Down syndrome test.”

- 21-year-old G3P2 presents to care at 13 weeks, is given the first trimester California genetic screening test form.
42-year-old G2P0 presents to care at 12 weeks, desires the “Down syndrome test.”

13+6 weeks, first trimester screen returns a T21 risk 1:150

19+6 weeks, integrated genetic screen returns a T21 risk of 1:68

opts for cfDNA, 21+5 weeks, “low risk NIPT”

21-year-old G3P2 presents to care at 13 weeks, is given the first trimester California genetic screening test form.

13+6 weeks, first trimester screen returns a T21 risk <1:100,000

19+6 weeks, first trimester screen returns a T21 risk <1:100,000
Case Vignette #1 Continued

cfDNA Utilization by Age

* Unpublished data from CDPH, cfDNA utilization in California, 2015-2018; 300,000 CA-PNS participants each year.
Case Vignette #2

- 26 year old G3P2 at 22 weeks, referred to MFM/Perinatology (120 miles away) due to ultrasound findings of:
  - fetal pyelectasis
  - increased nuchal fold
  - mild cerebral ventriculomegaly
  - echogenic intracardiac focus
- Late to care at 19 weeks and missed California genetic screening.
- Patient seen by Perinatology, declined amniocentesis, given cfDNA lab slip, but was unable to have drawn at her home lab.
cfDNA Utilization by Geography

OUTSIDE the California Prenatal Screening Program
- Coastal Regions: 37%
- Inland Regions: 14%

INSIDE the California Prenatal Screening Program
- Coastal Regions: 72%
- Inland Regions: 73%

* Unpublished data from CDPH, cfDNA utilization in California, 2015-2018; 300,000 CA-PNS participants each year.
Case Vignette #2 Continued
cfDNA Utilization by Race

- cfDNA utilization*
  - OUTSIDE the California Prenatal Screening Program
    - White or Asian: 39%
    - Hispanic or Black: 17%
  - INSIDE the California Prenatal Screening Program
    - White or Asian: 71%
    - Hispanic or Black: 73%

34-year-old G2P1 at 13 weeks, insurance refusing to cover cfDNA screening. “Out of pocket” costs quoted at $200 to $2000. Patient unsure what to do.
Case Vignette #3

cfDNA coverage under new CA PNS Program

- In most cases, private health insurance or Medi-Cal is required to cover the fees for the screening program after any deductible or co-pay.
- PNS Program fee does not cover blood draw charges.
- Billed to insurance:
  - $232 for cfDNA screening
  - $85 for msAFP screening
Case Vignette #4

- 21y.o. G1 presents to care at 12 weeks.
- Desires “gender test”
Case Vignette #4
What is reported?

- New CA Prenatal Screening Program:
  - cfDNA can be drawn as early as 10 weeks
    - Will report:
      - Results for Trisomy 21, 18, 13
      - Fetal sex, if patient/provider desires
      - Fetal fraction
    - msAFP screening can be drawn from 15+0 through 21+0
Case Vignette #5

- **Prior California State Screening Program:**
  - Patient enters prenatal care at 19+ weeks, missed first and second trimester screening.

- **New California State Screening Program:**
  - Patient enters prenatal care at 19+ weeks (dated by 19 week ultrasound), can have cfDNA drawn along with AFP prior to 21 weeks.
Case Vignette #5
What happens with positive results?

- **New California State Screening Program:**
- If fetal aneuploidy (21/18/13) is detected on cfDNA
  
  **Prior to 15w0d:**
  - First trimester US will be covered under PNS Program at State-approved PDC site
  - Genetic counseling, CVS, amniocentesis (karyotype \(+microarray^\star\)) will be covered, if patient desires
  - If no-call result due to low fetal fraction, automatic re-draw

* Microarray IF normal karyotype, IF specific ultrasound anomalies are found
Case Vignette #5 Continued
What happens with positive results?

- **New California State Screening Program:**
  - If fetal aneuploidy (21/18/13) is detected on cfDNA

  **After 15w0d:**
  - Ultrasound will be covered under PNS Program at State-approved PDC site
  - Genetic counseling, amniocentesis – up to 24 weeks (karyotype + microarray*) will be covered, if patient desires
  - If no-call result due to low fetal fraction after 18+0 weeks, automatic referral to PDC

*Microarray IF normal karyotype, IF specific ultrasound anomalies are found*
Summary

Vignette 1/2: **who** will this benefit?

Vignette 3: **how much** will it cost?

Vignette 4: **when** should it be drawn; **what** will be reported?

Vignette 5: **what** happens with positive results?
Acknowledgements

- CDPH Staff: Drs. Sona Saha, Richard Olney, Lisa Feuchtbaum, Sara Goldman, Faith Raider
- ACOG (Dr. Diana Ramos)
- MFM Mentors from University of Washington, and Dr. Mary Norton at UCSF
- Supportive colleagues at Scripps Clinic
- Healthcare heroes (you)!

References


Further Resources

- Committee Opinion 693: Counseling about Genetic Testing and Communication of Genetic Test Results.