Chromosomal Microarray Analysis (CMA) for Prenatal Diagnosis

I. Chromosome microarray analysis for prenatal diagnosis via amniocentesis, CVS, or PUBS may be considered **medically necessary** when:

   A. The member has received counseling regarding the benefits and limitations of prenatal screening and diagnostic testing (including chromosome microarray via amniocentesis, CVS or PUBS) for fetal chromosome abnormalities, **AND**

   B. The member is NOT simultaneously undergoing karyotype analysis.

II. Chromosome microarray analysis for prenatal diagnosis via amniocentesis, CVS, or PUBS is considered **investigational** for all other indications.

RATIONALE AND REFERENCES

Chromosomal Microarray Analysis (CMA) for Prenatal Diagnosis

American College of Obstetricians and Gynecologists (ACOG)

ACOG practice bulletin no. 162 (2016, reaffirmed 2020 and 2024) states the following:

- Chromosomal microarray is recommended to be offered to "any patient choosing to undergo invasive diagnostic testing" (p. e117)
- Chromosome microarray is recommended "as the primary test (replacing conventional karyotype)" when fetal structural abnormalities are detected by ultrasound examination (p. e117)
- In fetuses with signs and suggestive features of a specific aneuploidy, "karyotype with or without FISH may be offered before chromosomal microarray" (p. e117).

American College of Obstetricians and Gynecologists Committee on Practice Bulletins—Obstetrics; Committee on Genetics; Society for Maternal–Fetal Medicine. Practice Bulletin No. 162: Prenatal Diagnostic Testing for Genetic Disorders. Obstet Gynecol. 2016 (Reaffirmed 2020 and 2024);127(5):e108-e122. doi:10.1097/AOG.0000000000001405

American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal-Fetal Medicine (SMFM)

The joint ACOG-SMFM committee opinion no. 682 (2016, reaffirmed 2020 and 2023) recommends that prenatal chromosome microarray analysis (CMA) be performed for a fetus with one or more structural anomalies, and this test can replace the need for fetal karyotype (p. 1). They also state that in a structurally normal fetus, either fetal karyotyping or CMA can be performed if the patient is undergoing invasive prenatal diagnostic testing (p. 1-2).

Committee on Genetics and the Society for Maternal-Fetal Medicine. Committee Opinion No.682: Microarrays and Next-Generation Sequencing Technology: The Use of Advanced Genetic Diagnostic Tools in Obstetrics and Gynecology. Obstet Gynecol. 2016;128(6):e262-e268. doi:10.1097/AOG.0000000000001817

ACOG practice bulletin no. 226 (2020, reaffirmed 2024) states the following regarding counseling patients: “Each patient should be counseled in each pregnancy about options for testing for fetal chromosomal abnormalities. It is important that obstetric care professionals be prepared to discuss not only the risk of fetal chromosomal abnormalities but also the relative benefits and limitations of the available screening and diagnostic tests” (p. 859).

American College of Obstetricians and Gynecologists Committee on Practice Bulletins—Obstetrics; Committee on Genetics; Society for Maternal-Fetal Medicine. Screening for Fetal Chromosomal Abnormalities: ACOG Practice Bulletin, Number 226. Obstet Gynecol. 2020 (Reaffirmed 2024);136(4):859-867. doi:10.1097/AOG.0000000000004084

DEFINITIONS

1. **Amniocentesis** is a procedure in which a sample of amniotic fluid is removed from the uterus for prenatal diagnostic testing.
2. **Chorionic Villi Sampling (CVS)** is a procedure where a sample of chorionic villi is removed from the placenta for prenatal diagnostic testing.
3. **Major malformations** are structural defects that have a significant effect on function or appearance. They may be lethal or associated with possible survival

with severe or moderate immediate or long-term morbidity. Examples by organ system include:

- Genitourinary: renal agenesis (unilateral or bilateral), hypoplastic/cystic kidney
- Cardiovascular: complex heart malformations (such as pulmonary valve stenosis, tetralogy of fallot, transposition of the great arteries, coarctation of the aorta, hypoplastic left heart syndrome
- Musculoskeletal: osteochondrodysplasia/osteogenesis imperfecta, clubfoot, craniosynostosis, fetal growth restriction/intrauterine growth restriction (IUGR)
- Central nervous system: anencephaly, hydrocephalus, myelomeningocele
- Body wall: omphalocele/gastroschisis
- Respiratory: cystic adenomatoid lung malformation

4. **Percutaneous Umbilical Cord Blood Sampling (PUBS)** is a procedure where a sample of fetal blood is extracted from the vein in the umbilical cord.

5. **Recurrent pregnancy loss** (RPL) is defined as having two or more failed clinical pregnancies, including a current loss if applicable.