

FOR IMMEDIATE RELEASE

Kathy Moran, MBA

kmoran@acmg.net

The Use of Fetal Exome Sequencing in Prenatal Diagnosis: A New Points to Consider Document from the American College of Medical Genetics and Genomics (ACMG)

Bethesda, MD – January 8, 2020 | A new Points to Consider Document from the ACMG aims to assist referring physicians, laboratory geneticists, genetic counselors and other medical professionals in understanding the complexity and implications of exome sequencing (ES) in prenatal care. Published in ACMG’s official journal *Genetics in Medicine*, the document, “[The Use of Fetal Exome Sequencing in Prenatal Diagnosis: A Points to Consider Document of the American College of Medical Genetics and Genomics \(ACMG\)](#),” is also intended to guide clinical laboratories in the development of protocols and policies related to the increasing use of prenatal exome sequencing.

ACMG President Anthony R. Gregg, MD, MBA, FACOG, FACMG said, “In May 2012, the ACMG Board approved “Points to Consider in the Clinical Application of Genomic Sequencing” and, at that time, they did not recommend fetal genomic sequencing. New data speaks to ACMG’s concerns raised at that time. Among these are turnaround time and guidance on identifying and reporting variants of unknown clinical significance. “The Use of Fetal Exome Sequencing in Prenatal Diagnosis: A Points to Consider Document of the American College of Medical Genetics and Genomics (ACMG)” is the first ACMG document devoted exclusively to fetal genomic sequencing and the first to provide a framework that laboratories and clinicians can share. As new information emerges, ACMG creates new guidance, which translates to improved patient care.”

Approximately 2-4% of pregnancies are complicated by significant fetal structural anomalies. Given respect for reproductive autonomy, the ACMG document states that “all patients diagnosed with a fetal anomaly should be offered genetic counseling, including review of options for genetic testing.” A genetic diagnosis can assist in determining the fetal prognosis and help guide prenatal care, including decisions of reproductive choice, *in utero* therapy, delivery planning, and neonatal care, and will potentially decrease morbidity and mortality. A prenatal genetic diagnosis may lead to informed genetic counseling for future reproductive options including preimplantation genetic testing, diagnostic prenatal testing or the possible use of donor gametes. Exome sequencing may be considered when a diagnosis cannot be obtained using routine prenatal methods in a fetus with one or more significant structural anomalies. The utilization of exome sequencing is increasing in prenatal care and the new ACMG document provides an in-depth review of its application in the clinical setting for fetuses with sonographic anomalies.

-more-

“As a trained pediatrician and medical geneticist, one of the most common questions I have heard from parents of a newborn with structural anomalies is: ‘What does my child have? What does it mean for my baby? And can this happen again?’ To questions regarding diagnosis, prognosis, and recurrence, it is of utmost importance to recognize the underlying cause for the combination of findings first. Fetal exome analysis is now available and has been shown to contribute to earlier diagnosis, which in turn can lead to earlier treatment and better counseling for the family,” said ACMG Chief Executive Officer Maximilian Muenke, MD, FACMG.

The comprehensive Points to Consider Document includes:

- pre-test considerations;
- considerations for reporting—including known disease genes, genes of uncertain significance, fetal incidental findings, parental incidental findings, ACMG secondary findings, misattributed parentage, and consanguinity;
- post-test considerations;
- consideration of cost;
- re-analysis considerations;
- consideration for targeted family testing; and
- education of healthcare professionals.

The Points to Consider Document concludes, “As a new diagnostic test in fetal medicine, ES may be considered when a diagnosis cannot be obtained using routine prenatal methods in a fetus with one or more significant anomalies.... Additional research is needed on patient perspectives of the consent process, effective and appropriate communication of uncertainty, return of results and reinterpretation, and health and economic outcomes.”

The full ACMG Points to Consider Document is published in *Genetics in Medicine*, the official journal of the ACMG, and available at: <https://doi.org/10.1038/s41436-019-0731-7>.

About the American College of Medical Genetics and Genomics (ACMG) and ACMG Foundation

Founded in 1991, the American College of Medical Genetics and Genomics (ACMG) is the only nationally recognized medical society dedicated to improving health through the clinical practice of medical genetics and genomics and the only medical specialty society in the US that represents the full spectrum of medical genetics disciplines in a single organization. The ACMG is the largest membership organization specifically for medical geneticists, providing education, resources and a voice for more than 2,400 clinical and laboratory geneticists, genetic counselors and other healthcare

-more-

professionals, nearly 80% of whom are board certified in the medical genetics specialties. ACMG's mission is to improve health through the clinical and laboratory practice of medical genetics as well as through advocacy, education and clinical research, and to guide the safe and effective integration of genetics and genomics into all of medicine and healthcare, resulting in improved personal and public health. Four overarching strategies guide ACMG's work: 1) to reinforce and expand ACMG's position as the leader and prominent authority in the field of medical genetics and genomics, including clinical research, while educating the medical community on the significant role that genetics and genomics will continue to play in understanding, preventing, treating and curing disease; 2) to secure and expand the professional workforce for medical genetics and genomics; 3) to advocate for the specialty; and 4) to provide best-in-class education to members and nonmembers. *Genetics in Medicine*, published monthly, is the official ACMG journal. ACMG's website (www.acmg.net) offers resources including policy statements, practice guidelines, educational programs and a 'Find a Genetic Service' tool. The educational and public health programs of the ACMG are dependent upon charitable gifts from corporations, foundations and individuals through the ACMG Foundation for Genetic and Genomic Medicine.

-end-