

Indications for Fetal Echocardiogram

version 3.11.2020

Congenital heart diseases (CHD) are the most common type of fetal malformations, affecting about one-third of children with congenital anomalies (for an overall incidence of just under 1% of all live births). The most common cardiac defects are VSDs which are usually asymptomatic and close on their own. The incidence of VSDs can be as high as 5% of all live births if all infants received an echo. Dedicated fetal echocardiography has been suggested to be indicated for risk of CHD greater than the baseline population, thus risk > 1-2%. Outlined below are conditions associated with an increased risk of CHD and therefore warrant a fetal echo in pregnancy. In clinical conditions with small risk of CHD or unclear risk above that in the baseline population, screening with a 'targeted' anatomy US (76811) is recommended.

Fetal Echo recommended (risk of CHD with condition)

Maternal indications:

- Maternal pre-gestational diabetes mellitus; Diabetes diagnosed in the first trimester. 3-5%
- Maternal phenylketonuria. 12-14%
- Maternal autoantibodies for SSA/SSB (anti Rho/anti-La). 1-5%
- Maternal medications
 - ACE inhibitor exposure during pregnancy 2.9%
 - Retinoic acid. 8-20%
 - NSAIDs in third trimester. 5-50% ductal constriction
- Maternal first trimester rubella infection
- Maternal infection with suspicion of fetal myocarditis
- Conception from assisted reproduction technology (IVF/ISCI). 1.1-3.3%
- CHD in first degree relative of fetus (maternal, paternal or sibling of fetus). 2-18%
- First or second degree relative with disorder with Mendelian inheritance with CHD association (e.g. 22q11.2 deletion syndrome, Noonan, CHARGE). up to 50%

Fetal indications:

- Fetal cardiac abnormality suspected on obstetrical ultrasound. > 40%
- Fetal major extracardiac anomaly suspected on obstetrical ultrasound. 20-40%
- Fetal karyotype abnormality by diagnostic testing or with positive cell free fetal DNA screening. Up to 90%
- Fetal tachycardia (1%) or bradycardia (50%) which is persistent, persistent arrhythmia (other than isolated, intermittent PAC). (2%)
 - Fetal NT \geq 3 mm. (Includes cystic hygroma)
 - 3.0–3.4 mm 3%
 - \geq 3.5 mm 6%
 - >6 mm 24%
 - >8.5mm > 60%
- Monochorionic twin pregnancy. 2-10%
- Fetal hydrops or effusion. 15-25%

Fetal echo **not** recommend in the setting of a normal detailed anatomy US (76811)

Maternal indications

- Maternal gestational diabetes mellitus with HbA1c <6% = < 1%
- Obesity (body mass index ≥ 30 kg/m²)
- Gestational diabetes diagnosed after the second trimester
- Abnormal maternal serum analytes (eg, α -fetoprotein level)
- Isolated CHD in a relative other than first degree (to the fetus) ~ 1%
- Maternal infection other than rubella with seroconversion only. 1-2%

Fetal indications

- Noncardiac “soft marker” for aneuploidy in the absence of karyotype information
- Isolated single umbilical artery
- Isolated systemic venous anomaly (eg, a persistent right umbilical vein, left superior vena cava, or absent ductus venosus)
- Echogenic intracardiac focus

References:

- AIUM Practice Parameter for the Performance of Fetal Echo 2019
 - J Ultrasound Med 2020; 39:E5–E16
 - ACOG/SMFM/ASE/ACR/AIUM/FHS/SRU
- ISUOG consensus statement: what constitutes a fetal echocardiogram?
 - Ultrasound Obstet Gynecol 2008; 32: 239–242
- AHA consensus statement. Diagnosis and Treatment of Fetal Cardiac Disease: A Scientific Statement From the American Heart Association
 - Circulation. 2014;129

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina at Chapel Hill School of Medicine. They cannot be reproduced in whole or in part without the expressed written permission of the school.
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