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Committee on Obstetric Practice
Society for Maternal-Fetal Medicine

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Indications for Outpatient Antenatal Fetal Surveillance

ABSTRACT: The purpose of this Committee Opinion is to offer guidance about indications for and timing and frequency of antenatal fetal surveillance in the outpatient setting. Antenatal fetal surveillance is performed to reduce the risk of stillbirth. However, because the pathway that results in increased risk of stillbirth for a given condition may not be known and antenatal fetal surveillance has not been shown to improve perinatal outcomes for all conditions associated with stillbirth, it is challenging to create a prescriptive list of all indications for which antenatal fetal surveillance should be considered. This Committee Opinion provides guidance on and suggests surveillance for conditions for which stillbirth is reported to occur more frequently than 0.8 per 1,000 (the false-negative rate of a biophysical profile) and which are associated with a relative risk or odds ratio for stillbirth of more than 2.0 compared with pregnancies without the condition. Table 1 presents suggestions for the timing and frequency of testing for specific conditions. As with all testing and interventions, shared decision making between the pregnant individual and the clinician is critically important when considering or offering antenatal fetal surveillance for individuals with pregnancies at high risk for stillbirth or with multiple comorbidities that increase the risk of stillbirth. It is important to emphasize that the guidance offered in this Committee Opinion should be construed only as suggestions; this guidance should not be construed as mandates or as all encompassing. Ultimately, individualization about if and when to offer antenatal fetal surveillance is advised.

Recommendations and Conclusions

The American College of Obstetricians and Gynecologists makes the following recommendations and conclusions regarding indications for antenatal fetal surveillance:

- This Committee Opinion provides guidance on and suggests surveillance for conditions for which stillbirth is reported to occur more frequently than 0.8 per 1,000 (the false-negative rate of a biophysical profile or modified biophysical profile) and which are associated with a relative risk (RR) or odds ratio for stillbirth of more than 2.0 compared with pregnancies without the condition.
- When data on gestational age-adjusted risk of occurrence of stillbirth were not available, the Committee's suggestions regarding when to begin antenatal fetal surveillance are based on the reported risk of stillbirth, generally falling into three major categories of when to begin: (1) at or by 32 0/7 weeks, (2) at or by 36 0/7 weeks, or (3) at or beyond 39 0/7 weeks of gestation (if undelivered). However, individualization about if and when to begin antenatal fetal surveillance is advised.
- Initiating antenatal fetal surveillance at 32 0/7 weeks of gestation or later is appropriate for most at-risk patients. However, for pregnant individuals with multiple or particularly worrisome high-risk conditions (eg, chronic

[Table 1] Factors Associated With an Increased Risk of Stillbirth and Suggested Strategies for Antenatal Fetal Surveillance After Viability

The guidance offered in this table should be construed only as suggestions, not mandates. Ultimately, individualization about if and when to offer antenatal fetal surveillance is advised.

Factor	Suggested Gestational Age to Begin Antenatal Fetal Surveillance	Suggested Frequency of Antenatal Fetal Surveillance
Fetal		
Growth restriction[1]		
UAD: normal or with elevated impedance to flow in umbilical artery with diastolic flow present; with normal AFI and no other concurrent maternal or fetal conditions	At diagnosis[2]	Once or twice weekly
UAD: AEDV or concurrent conditions (oligohydramnios, maternal comorbidity [eg, preeclampsia, chronic hypertension])	At diagnosis[2]	Twice weekly[3] or consider inpatient management
UAD: REDV	At diagnosis[2]	Inpatient management[3]
Multiple gestation		
Twins, uncomplicated dichorionic	36 0/7 weeks	Weekly
Twins, dichorionic, complicated by maternal or fetal disorders, such as fetal growth restriction	At diagnosis[2]	Individualized
Twins, uncomplicated monochorionic-diamniotic	32 0/7 weeks[4]	Weekly
Twins, complicated monochorionic-diamniotic (ie, TTTS)	Individualized	Individualized
Twins, monoamniotic	Individualized	Individualized
Triplets and higher order multiples	Individualized	Individualized
Decreased fetal movement	At diagnosis[3]	Once[5]
Fetal anomalies and aneuploidy	Individualized	Individualized
Maternal		
Hypertension, chronic		
Controlled with medications	32 0/7 weeks	Weekly
Poorly controlled or with associated medical conditions	At diagnosis[2]	Individualized
Gestational hypertension/preeclampsia		
Without severe features	At diagnosis[2,3]	Twice weekly
With severe features	At diagnosis[2,3]	Daily
Diabetes		
Gestational, controlled on medications without other comorbidities	32 0/7 weeks	Once or twice weekly
Gestational, poorly controlled	32 0/7 weeks	Twice weekly
Pregestational	32 0/7 weeks[6]	Twice weekly
Systemic lupus erythematosus		
Uncomplicated	By 32 0/7 weeks	Weekly
Complicated[7]	At diagnosis[2]	Individualized
Antiphospholipid syndrome	By 32 0/7 weeks[8]	Twice weekly
Sickle cell disease		
Uncomplicated	32 0/7 weeks	Once or twice weekly
Complicated[9]	At diagnosis[2]	Individualized
Hemoglobinopathies other than Hb SS disease	Individualized	Individualized
Renal disease (Cr greater than 1.4 mg/dL)	32 0/7 weeks	Once or twice weekly
Thyroid disorders, poorly controlled	Individualized	Individualized
In vitro fertilization	36 0/7 weeks	Weekly
Substance use		
Alcohol, 5 or more drinks per week	36 0/7 weeks	Weekly
Polysubstance use	Individualize	Individualized

(*continued*)

[Table 1] Factors Associated With an Increased Risk of Stillbirth and Suggested Strategies for Antenatal Fetal Surveillance After Viability *(continued)*

The guidance offered in this table should be construed only as suggestions, not mandates. Ultimately, individualization about if and when to offer antenatal fetal surveillance is advised.

Factor	Suggested Gestational Age to Begin Antenatal Fetal Surveillance	Suggested Frequency of Antenatal Fetal Surveillance
Prepregnancy BMI		
Prepregnancy BMI 35.0–39.9 kg/m^2	37 0/7 weeks	Weekly
Prepregnancy BMI 40 kg/m^2 or above	34 0/7 weeks	Weekly
Maternal age older than 35 years	Individualized[10]	Individualized
Obstetric		
Previous stillbirth		
At or after 32 0/7 weeks	32 0/7 weeks[11]	Once or twice weekly
Before 32 0/7 weeks of gestation	Individualized	Individualized
History of other adverse pregnancy outcomes in immediately preceding pregnancy		
Previous fetal growth restriction requiring preterm delivery	32 0/7 weeks	Weekly
Previous preeclampsia requiring preterm delivery	32 0/7 weeks	Weekly
Cholestasis	At diagnosis[2]	Once or twice weekly
Late term	41 0/7 weeks	Once or twice weekly
Abnormal serum markers[12]		
PAPP-A less than or equal to the fifth percentile (0.4 MoM)	36 0/7 weeks	Weekly
Second-trimester inhibin A equal to or greater than 2.0 MoM	36 0/7 weeks	Weekly
Placental		
Chronic placental abruption[13]	At diagnosis[2]	Once or twice weekly
Vasa previa	Individualized	Individualized
Velamentous cord insertion	36 0/7 weeks	Weekly
Single umbilical artery	36 0/7 weeks	Weekly
Isolated oligohydramnios (single deepest vertical pocket less than 2 cm)	At diagnosis[2,3]	Once or twice weekly
Polyhydramnios, moderate to severe (deepest vertical pocket equal to or greater than 12 cm or AFI equal to or greater than 30 cm)	32 0/7–34 0/7 weeks[14]	Once or twice weekly

Abbreviations: AEDV, absent end-diastolic velocity; AFI, amniotic fluid index; BMI, body mass index; Cr, creatinine; MoM, multiples of the median; PAPP-A, pregnancy-associated plasma protein A; REDV, reversed end-diastolic flow; TTTS, twin to twin transfusion syndrome; UAD, umbilical artery Doppler.

[1]Estimated fetal weight or abdominal circumference less than the 10th percentile.

[2]Or at a gestational age when delivery would be considered because of abnormal test results.

[3]If not delivered.

[4]In addition to routine surveillance for twin–twin transfusion syndrome and other monochorionic twin complications.

[5]Repeat if decreased fetal movement recurs.

[6]Or earlier for poor glycemic control or end organ damage.

[7]Such as active lupus nephritis, recent lupus flare, antiphospholipid antibodies with prior fetal loss, anti-RO/SSA or anti-La/SSB antibodies, or thrombosis.

[8]Individualize, take into consideration obstetric history, number of positive antibodies, and current pregnancy complications.

[9]Such as maternal hypertension, vaso-occlusive crisis, placental insufficiency, fetal growth restriction.

[10]Based on cumulative risk when present with other factors.

[11]Or starting 1–2 weeks before the gestational age of the previous stillbirth.

[12]If serum screening for aneuploidy is performed, the results may be considered in determining whether antenatal fetal surveillance should be performed.

[13]In individuals who are candidates for outpatient management.

[14]Or at diagnosis if diagnosed after 32 0/7–34 0/7 weeks.

hypertension with suspected fetal growth restriction), antenatal fetal surveillance might begin at a gestational age when delivery would be considered for perinatal benefit.

- As with all testing and interventions, shared decision making between the pregnant individual and the clinician is critically important when considering or offering antenatal fetal surveillance for individuals with pregnancies at high risk for stillbirth or with multiple comorbidities that increase the risk of stillbirth. This can be particularly important in situations that involve fetal structural or genetic anomalies or when initiating antenatal fetal surveillance around the threshold of viability, where the pregnant individual's goals for pregnancy care are critical in decision making.
- Table 1 presents suggestions for the timing and frequency of antenatal fetal surveillance for specific conditions.
- It is important to emphasize that the guidance offered in this Committee Opinion should be construed only as suggestions; this guidance should not be construed as mandates or as all encompassing. There is a paucity of evidence for the efficacy of antenatal fetal surveillance and for evidence-based recommendations on the timing and frequency of antenatal fetal surveillance; consequently, for most conditions, recommendations for antenatal fetal surveillance are largely based on expert consensus and relevant observational studies.

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