THE MANAGEMENT OF IRREGULAR HEART RHYTHM IN THE FETUS

1 Introduction

This SOP "The Management of Irregular Heart Rhythm in the Fetus" **at Great Ormond Street Hospital for Children NHS Foundation Trust (hereafter referred to as GOSH).**	
This SOP applies to:	Fetal Cardiology Department at GOSH and the Fetal Medicine Units that refer to GOSH
What issue does the SOP address?	*This SOP discusses the approach to finding an irregular heart beat in the fetus - initial assessment and when review by Fetal Cardiology is required including follow up suggestions for the mother and baby following delivery*

2 Standard Operating Procedure

2.1 Aim

To provide a clear pathway for the management and follow up of a fetal irregular heart beat caused by fetal atrial ectopic beats in the GOSH Fetal Cardiology network.

2.2 Duties and Responsibilities

This guideline will be monitored and updated as appropriate by the Fetal Cardiology team at GOSH.

2.3 Assessment

Atrial ectopic beats during fetal life are common with 1-3% of pregnancies demonstrating irregular heart rates secondary to fetal ectopic beats (1). The majority of fetal atrial ectopic beats are benign and self-resolving even when persistent. (2). However, there is a small risk (0.5-1%) of progression to a tachyarrhythmia (3). This risk is slightly higher when there is blocked atrial bigeminy/trigeminy or very frequent ongoing ectopy (4).

The initial assessment of an irregular heart rate between 110bpm and 180bpm suspected to be secondary to fetal atrial ectopic beats should be with the local fetal medicine team (5). A review of the cardiac views can confirm there is no suspicion of structural congenital heart disease which is rare (<1%) (4) and that there is no evidence of fetal compromise. If the fetal heart rate is less than 110bpm or over 180bpm then urgent referral should be made to fetal cardiology for assessment (6).

Features of concern needing referral to GOSH:-

- Maternal Anti Ro/La antibodies
- Fetal HR less than 110bpm or over 180bpm
- Fetal hydrops
- First degree/significant family history of significant arrhythmia/long QT syndrome/sudden unexplained death/cardiomyopathy

If following assessment by the fetal medicine team there are concerns that the diagnosis may not be ectopic beats, there are other unexplained concerns e.g. fetal hydrops or the heart rate is abnormal as above then referral should be made to fetal cardiology for further assessment. In patients where the heart rate remains within the normal range and there are no other concerns from the fetal medicine team e.g. presence of structural heart disease, the presence of maternal Anti Ro/La antibodies or very frequent ectopic beats i.e. every second or third beat then the patient should be advised regarding the presence of atrial ectopic beats being very common and in the vast majority of cases not causing any problems for the fetus. They should be advised of the rare risk of a tachyarrhythmia and to seek medical attention should there be reduced fetal movements for assessment. The fetal heart rate should be checked at any contact with the midwifery/obstetric team, at a minimum of every 2 weeks to ensure that this remains within the normal range of 110bpm to 180bpm, if this is the case then the patient can continue to be reassured. If the ectopic beats resolve, then they can return to usual obstetric care and be discharged from fetal medicine (6).

If there are ongoing ectopic beats with no other new concerns at delivery then a postnatal ECG should be arranged prior to discharge home with appropriate follow up arranged if atrial ectopy noted on postnatal ECG. This follow up in the first instance should be local neonatal follow up with a repeat ECG in 2 weeks with an outpatient 24hr ECG monitor arranged if ongoing ectopic beats noted in this review. Follow up after this appointment should be arranged with the local Paediatrician with expertise in cardiology.

2.4 Treatment

Medical treatment is not required for atrial ectopic beats. Should the fetus have a tachyarrhythmia (HR >180bpm) or bradyarrhythmia (HR <110bpm) urgent referral to fetal cardiology should occur and appropriate medical treatment will be commenced if required following diagnosis of the cause of the abnormal fetal heart rate.

3 Key contacts

If there are any questions regarding this SOP please contact Dr Leila Rittey, GOSH Fetal Cardiology Consultant via the Fetal Cardiology Referral email gos-tr.FetalCardiologyReferrals@nhs.net

4 Definitions

Term	Definition
Fetal atrial ectopic beats	Additional electrical activity arising from the fetal atria resulting in an extra heart beat which causes an irregular heart beat on assessment of the fetal heart rate
Fetal tachyarrhythmia	Abnormal heart rhythm leading to a heart rate of more than 180bpm
Fetal bradyarrhythmia	Abnormal heart rhythm leading to a heart rate of less than 110bpm

5 Governance information

Approval process	*This SOP has been discussed and approved by the Fetal Cardiology team at GOSH in the Fetal Cardiology multidisciplinary meeting*
Date Approved	*06/07/2026*
Monitoring and audit	*This SOP will be monitored via referrals to Fetal Cardiology at GOSH.*
Next scheduled review	*06/07/2029*
Changes made from previous version (if applicable)	*Not applicable, no previous SOP*
Key findings and actions arising from Equality Impact Analysis	*This SOP is relevant for all pregnant women and any protected characteristics should not affect how it is accessed or used. If any possible issues are identified please contact Dr Leila Rittey as above and these will be reviewed urgently.*

6 Training

No specific training is required to use this SOP however should local teams want additional training on the assessment of fetal heart rhythm then this can be arranged by contacting the fetal cardiology team at GOSH.

7 References

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2. Wacker-Gussman, A.; Strasburger, J.F.; Cuneo, B.F; Wakai, R.T. Diagnosis and Management of Fetal Arrhythmia. Am J. Perinatol. 2014, 31, 617-628

3. Donofrio MT, Moon-Grady AJ, Hornberger LK, Copel JA, Sklansky MS, Abuhamad A, Cuneo BF, Huhta JC, Jonas RA, Krishnan A, Lacey S, Lee W, Michelfelder EC Sr, Rempel GR, Silverman NH, Spray TL, Strasburger JF, Tworetzky W, Rychik J; American Heart Association Adults With Congenital Heart Disease Joint Committee of the Council on Cardiovascular Disease in the Young and Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and Council on Cardiovascular and Stroke Nursing. Diagnosis and treatment of fetal cardiac disease: a scientific statement from the American Heart Association. Circulation. 2014 May 27;129(21):2183-242. doi: 10.1161/01.cir.0000437597.44550.5d. Epub 2014 Apr 24. Erratum in: Circulation. 2014 May 27;129(21):e512. PMID: 24763516.

4. Killen S, Strasburger J; Diagnosis and Management of Fetal Arrhythmias in the Current Era, J. Cardiovasc. Dev. Dis, 2024, 11(6), 163

5. Srinivasan S, Strasburger J. Overview of fetal arrhythmias. Curr Opin Pediatr. 2008 Oct;20(5):522-31. doi: 10.1097/MOP.0b013e32830f93ec. PMID: 18781114; PMCID: PMC3326657.

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Appendix

Flow chart for the management of fetal atrial ectopic beats