
FETAL ELECTRODE APPLICATION

1. AIM

- Appropriate and correct application of a fetal electrode to ensure accurate fetal heart rate monitoring

2. PATIENT

- Fetus > 34 weeks gestation with a cephalic/breech presentation who requires continuous electronic fetal monitoring and for whom accurate external monitoring is not possible
- Labouring woman with ruptured membranes with no known:
 - Hepatitis B and/or C infection
 - HIV infection
 - Primary Genital Herpes
 - Fetal bleeding disorders e.g. suspected fetal thrombocytopenia, haemophilia

3. STAFF

- Medical and midwifery staff

4. EQUIPMENT

- Cardiotocograph monitor (CTG)
- Fetal electrode
- Fetal electrode lead and leg attachment
- Amnihook (if required)
- Personal Protective Equipment (PPE)

5. CLINICAL PRACTICE

- Discuss need for fetal electrode application with the woman and her partner/support people
- Obtain verbal consent
- Document discussion and verbal consent in the medical record
- Perform abdominal palpation to determine fetal lie and presentation
- Perform vaginal examination to confirm absence of membranes and determine fetal presentation and position
- Apply electrode as per manufacturer's instructions, ensuring it is not applied to the fetal face, fontanelle or suture. In the case of a breech presentation ensure the electrode is attached to the fetal buttock, avoiding genitalia
- Connect the electrode wire to lead attachment and apply to the woman's leg
- Connect the lead to the CTG monitor
- Commence monitoring and ensure satisfactory recording is obtained
- Explain findings to the woman and document in the medical record
- Leave fetal electrode on in the instance of a transfer to operating theatre until monitoring can be ceased
- Ensure safe removal of the electrode, as per manufacturer's instructions, prior to/or at time of birth
- Remove fetal electrode prior to commencement of instrumental birth (change to external monitoring) or caesarean
- Dispose of electrode in a sharp's container

6. DOCUMENTATION

- Medical Record

7. EDUCATIONAL NOTES

- Midwives in birthing services are educated and accredited to apply fetal electrode at commencement of their contract
- Clear benefit to the fetus should be established prior to the application of a fetal electrode ^{1,6}
- The fetal electrode may inadvertently pick up the maternal heart rate particularly when the fetus is demised
- The use of Transcutaneous Electrical Nerve Stimulation (TENS) can interfere with fetal electrode monitoring. The use of TENS during monitoring with fetal electrode is not recommended

8. RELATED POLICIES/ PROCEDURES/GUIDELINES

- Maternity – Fetal heart rate monitoring. Ministry of Health NSW GL2018_025
- Fetal Blood Sampling – Intrapartum (FBS)
- Breech presentation at term – antenatal and intrapartum management
- Hepatitis B Positive Woman and her neonate(s)
- Hepatitis C Positive Mothers and their Babies
- Herpes simplex in pregnancy and birth
- Human Immunodeficiency Virus (HIV) in Pregnancy, Birth and Postpartum period
- Group B Streptococcus (GBS) Screening and Prophylaxis
- Transcutaneous Electrical Nerve Stimulation (TENS)

9. RISK RATING

- Low

10. NATIONAL STANDARD

- Standard 1 – Governance
- Standard 2 – Partnering with Consumers
- Standard 5 – Comprehensive Care
- Standard 8 - Recognising and Responding to clinical deterioration

11. REFERENCES

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2. RANZCOG (2019) Clinical Guidelines: Intrapartum Fetal Surveillance 4th Edition (update 2020)
3. Alfirevic Z, Gyte GML, Cuthbert A, Devane D. Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour. Cochrane Database of Systematic Reviews 2017, Issue 2
4. Maternity – Supporting Women Planning a Vaginal Breech Birth. Ministry of Health NSW GL2017_008
5. Kawakita T, Reddy UM, Landy HJ, Iqbal SN, Huang CC, & Grantz KL (2016). Neonatal complications associated with use of fetal scalp electrode: a retrospective study. BJOG: an international journal of obstetrics and gynaecology, 123(11), 1797–1803
6. Frolova AI, Stout MJ, Carter EB, Macones GA, Cahill AG, Raghuraman N. Internal fetal and uterine monitoring in obese patients and maternal obstetrical outcomes. Am J Obstet Gynecol MFM. 2021 Jan;3(1):100282. doi: 10.1016/j.ajogmf.2020.100282. Epub 2020 Nov 27. PMID: 33451595; PMCID: PMC8087154