Approved by Quality & Patient Safety Committee
18/7/2013

FETAL BLOOD SAMPLING – INTRAPARTUM (FBS)

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP

- **AIM**
  - Appropriate assessment of fetal acid base balance/lactate status
  - Appropriate clinical plan in response to fetal blood sampling result

2. PATIENT

- Labouring woman whose cervix is >3cm dilated and there is a pathological Cardiotocograph (CTG)
- Contraindications to fetal blood sampling are women with Human Immunodeficiency virus (HIV), active genital herpes simplex, Hepatitis C, Hepatitis B or known fetal bleeding disorders such as haemophilia, or prematurity <34 weeks

3. STAFF

- Medical officer
- Registered midwife

4. EQUIPMENT

- Light source
- Fetal blood sampling tray
- Chlorhexidine 0.02%
- Obstetric cream
- Lactate machine
- pH machine

5. CLINICAL PRACTICE

- Discuss need for fetal blood sampling with the woman and her partner / support people and obtain verbal consent and document
- Position the woman to maximise attendant's ability to visualise the cervix/fetal scalp: usually a lateral position
- Cleanse and drape the vulva using aseptic technique
- Insert amnioscope, identify cervix and fetal scalp, apply end of amnioscope closely to the fetal head
- Clean the area of fetal head to be sampled with gauze
- Apply paraffin jelly to fetal scalp to encourage blood droplet formation
- Induce bleeding by pressing fetal scalp blade firmly against the fetal scalp
- Collect blood straight into capillary tube (held in the appropriate capillary tube holder). Ensure no contamination with maternal blood and minimize air bubbles in the specimen
- Hand specimen to midwife
- Depending on sample size, present sample to lactate analyser or blood gas analyser
  - Lactate can be measured from a small sample

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- Consider collecting a second sample immediately after first if possible
- Apply pressure using a gauze or peanut swab to fetal scalp to stop bleeding
- Ensure results are handwritten into the medical record with an ongoing plan of care (Printout is not adequate)
- **Interpret Results :**
  - If pH **≥7.25** repeat within one hour if the FHR abnormality persists
  - If pH **7.21 - 7.24** repeat within 30mins or deliver if rapid fall since last FBS
  - If pH **≤7.20 DELIVER** (within 30 mins to 60 mins depending on clinical condition)
  - If Lactate **4.2 - 4.8** consider repeat in 30 mins
  - If Lactate **>4.8 DELIVER** (within 30 mins to 60 mins depending on clinical condition)
- Take paired samples of cord blood at birth of all babies who have had FBS performed

All FBS should take into account previous pH / lactate results, rate of progress in labour and clinical information

7. DOCUMENTATION

- Partogram
- Integrated Clinical Notes

8. EDUCATIONAL NOTES

- Measuring pH gives an indication of respiratory acidosis and/or metabolic acidosis whilst lactate sampling gives an assessment of metabolic acidosis
- Simplicity of performing a lactate measurement makes this procedure an attractive alternative to measuring pH
- In the presence of a pathological FHR pattern FBS should be performed, unless there is very clear evidence of acute fetal compromise. For example : a prolonged deceleration > 3mins in duration. In this instance time should not be wasted on FBS as an alternative to expediting birth
- The following table represents the correlation between cord pH – respiratory and metabolic acidosis and Lactate – metabolic acidosis
- Minimise work health and safety risks by adopting a lateral position without manual support of the women's leg

CORD PH	LACTATE
7.3	3.2
7.25	4.1
7.20	4.9
7.15	5.7

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FETAL BLOOD SAMPLING – INTRAPARTUM (FBS) cont'd

9. RELATED POLICIES / PROCEDURES/ CLINICAL PRACTICE LOP

- Intrapartum fetal heart rate monitoring
- Instrumental vaginal delivery
- Care in first stage of labour
- HIV in Pregnancy
- Hepatitis B Positive mothers and their babies
- Hepatitis C positive mothers and their babies
- Herpes simplex
- NSW Health. Policy Directive. Maternity - Fetal Heart Rate Monitoring. 2010 PD2010_040
- PACE Birthing Services calling criteria

10. REFERENCES

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- Heinis, Ayesha M F. Dinnissen, Jacqueline. Spaanderman, Marc E A. Lotgering, Fred K. Gunnewiek, Jacqueline M T Klein. (2012) Comparison of two point-of-care testing (POCT) devices for fetal lactate during labor *Clinical Chemistry & Laboratory Medicine.* 50(1):89-93
- Westgreen, M. Kruger K, Ek S, Grunevald C., Kublickas, M Naka K, Wolff, K, Person B. Lactate compared with pH analysis at fetal scalp blood sampling: a prospective randomised study (1998) *British Journal of Obstetrics and Gynaecology* Jan 105 29-33
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REVISION & APPROVAL HISTORY

June 2017 – Amendment to No 4, 14th dot under Interpret Results – word immediately removed after DELIVER – recommended by Trigger review
Nov 2016 - Amendment to No 5, 5th dot under Interpret Results – changed from ≥ to >4.8
Reviewed and endorsed Maternity Services LOPs group 15/7/13
Approved Patient Care Committee 6/12/07
Reviewed by Obstetrics Guidelines group September
Approved RHW Quality Council 19/6/06
Endorsed Maternity Services Clinical Committee 13/6/06