University Hospitals Sussex
NHS Foundation Trust

Fetal Blood Sampling (FBS)

Maternity Protocol: MP038
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Guideline Reviewer:	Katie Fraser & Heather Brown
Manager responsible:	Heather Brown
Version:	3
Approval Committee:	Protocol Steering Group
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Cross reference: **MP037** Fetal Heart Monitoring

Contents

Key Principles

A protocol is a set of measurable, objective standards to determine a course of action. Professional judgement may be used in the application of a protocol.

Scope

This protocol applies to:

- Any women in labour requiring a Fetal Blood Sample (FBS)
- Any newborn babies who require cord gas sample at birth

Responsibilities

Midwives & Obstetricians:

- To access, read, understand and follow this guidance
- To use their professional judgement in application of this protocol

Management:

- To ensure the protocol is reviewed as required in line with national recommendations
- To ensure the protocol is accessible to all relevant staff
- To ensure the protocol is available to service users on request

1. Aims of FBS

1.1. To clarify fetal status in situations where the FHR trace is showing cause for concern, as pH estimation is far more accurate at assessing hypoxia than the CTG alone

1.2. To provide baseline information about a fetus thought to be at risk of hypoxia (i.e. meconium stained liquor with a abnormal CTG)

1.3. Fetal blood sampling requires the birthing woman / person's informed consent and this must be documented in the maternity notes

1.4 If a fetal blood sample is needed it is best performed with the birthing woman / person in the left lateral position.

2. When FBS Should be Undertaken

2.1. FBS should be advised in the presence of abnormal FHR trace, unless there is already clear evidence of acute compromise. Offer FBS if non-reassuring variable decelerations are still observed 30 minutes after conservative measures, or accompanied by tachycardia and/or reduced baseline variability. Also Offer FBS and/or expedite birth if late decelerations persist for over 30 minutes and occur with over 50% of contractions.

2.2. Where there is clear evidence of acute fetal compromise (for example, prolonged deceleration greater then 3mins), FBS should *not* be undertaken and immediate preparations to expedite birth should be made.

3. Contraindications for FBS

3.1. Cervical dilatation of <3cm

3.2. Maternal infection (for example Hepatitis viruses, primary outbreak of genital herpes). In HIV positive cases, with an undetectable viral load, FBS is not contraindicated (see HIV protocol MP009)

3.3. Fetal Bleeding disorders (for example haemophilia)

3.4. Prematurity (less than 34 weeks)

4. Interpretation of FBS results:

Measure either lactate or pH when performing FBS. Measure lactate if the necessary equipment and suitable trained staff are available; otherwise measure pH.

	pH	Lactate
Normal	≥7.25	≤4.1 mmol/l
Borderline	7.21-7.24	4.2 to 4.8 mmol/l
Abnormal	≤7.20	≥ 4.9 mmol/l

4.1. Normal FBS result

4.1.1. After a normal FBS result, repeat FBS after no more than 1 hour if abnormal fetal heart rate pattern persists

4.1.2 A requirement and plan for repeating the FBS must be clearly documented in the maternity notes by the Obstetrician who took the FBS

4.2. Borderline FBS result

4.2.1. If the FBS result is borderline, offer repeat sampling no more than 30 minutes later if this is still indicated by the CTG

4.2.2. A requirement and plan for repeating the FBS must be clearly documented in the maternity notes by the Obstetrician who undertook the FBS

The time taken to actually perform a repeat FBS needs to be considered when planning repeat samples.

4.3. Abnormal FBS result

4.3.1. inform a senior obstetrician and the neonatal team **and**

4.3.2. talk to the woman and birth partner(s) about what is happening and take their preferences into account **and**

4.3.3. expedite the birth

All discussions and advice, with details of the name of the Consultant, should be documented on Badgernet

4.4. Third FBS and process for referral to Consultant Obstetrician

4.4.1. If a third FBS is considered necessary, the doctor undertaking the FBS should seek a Consultant opinion first by contacting the on-call Consultant.

4.4.2. Results of the FBS should be interpreted taking into account the previous pH, the rate of progress of labour and the clinical condition of the mother and baby.

4.4.3. If the CTG remains unchanged and the FBS result is stable (that is, lactate or pH is unchanged) after a second test, further samples may be deferred unless additional non-reassuring or abnormal features are seen.

5. Documentation

5.1. The following must be documented on Badgernet by the person performing the procedure:

- The date and time of the procedure
- The reason for the procedure
- Consent for the procedure from the woman
- The number of samples taken
- The results – pH and lactate
- A plan in relation to ongoing management including:
  - The requirement for a repeated FBS
  - When to repeat the FBS

6. Paired Cord Blood Samples

6.1. Paired Cord Blood Samples should be taken in all cases where there has been concern about the baby either in labour or immediately following birth. Including:

- all emergency caesarean sections[2]
- instrumental births (where there has been suspected fetal compromise)[2]
- if the baby is born in poor condition (the Apgar score at 1 minute is ≤5), then paired cord blood gases should be taken[1 2]
- premature births
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6.2. If 1 or more FBS samples have been taken in labour, paired cord samples should be taken at birth

6.3. When cord blood is taken, a verbal explanation must be given to the mother / parents and informed consent gained. The parent/s must be informed of the results and implications / further care.

6.4. The results gained - pH and Base excess for both arterial and venous samples written by the person performing the procedure

7. References

1) National Institute for Health and Clinical Excellence (2014). Intrapartum care for healthy women and babies. NICE guidelines [CG190] Recommendations | Intrapartum care for healthy women and babies | Guidance | NICE