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Recovery following Regional and General Anaesthesia Guideline (Maternity)	
Summary statement: How does the document support patient care?	The purpose of this guideline is to provide good practice evidence for staff recovering women/people following all types of anaesthetic.
Staff/stakeholders involved in development:	Labour Ward Leads (Obstetric and Midwifery), Audit and Clinical Effectiveness Midwife.
Division:	Women and Children's
Department:	Maternity
Responsible Person:	Chief of Service
Author:	Consultant Obstetrician and IT, Audit and Clinical Effectiveness Midwife.
For use by:	All medical and midwifery staff.
Purpose:	To provide evidence based guidance on the post anaesthetic care of women/people following caesarean section (CS) and other obstetric procedures.
This document supports:	NICE NG 192 Caesarean Birth (2021) Guidelines for Obstetric Anaesthesia(2005), Immediate post anaesthetic recovery (2002), The Anaesthesia Team (2005)
Key related documents:	**UH Sussex (SRH&WH) Maternity Guidelines**: CG12030 Caesarean Section Birth, CG1130 Assisted Vagina Birth , CG1131 Perineal Trauma and Repair , CG1146 Retained Placenta , CG1148 Recognition and Management of Severely Ill Pregnant Women , Maternity Pressure Area Care, CG1134 Postnatal Care
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If you require this document in another format such as Braille, large print, audio or another language please contact the Trusts Communications Team	
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Version	Date	Author	Status	Comment
1.0	June 2010	Consultant Obstetrician and IT, Audit and Clinical Effectiveness Midwife	Archived	New Trustwide guideline
2.0	February 2011	CNST Midwife	Archived	Administrative update
3.0	February 2012	Joint Obstetric Guideline Group	Archived	Amendments made to oral intake following anaesthesia
4.0	October 2012	CNST Midwife	Archived	Minor amendments to clarify CNST requirements
4.1	August 2013	Joint Obstetric Guideline Group	Archived	Version 4 expired-guideline reviewed and extended for 1 year
5.0	August 2014	Consultant Anaesthetists	Archived	Guideline expired-reviewed by JOGG and anaesthetists, no changes required at this time
6.0	Jan 2018	Consultant Anaesthetists & JOGG	Archived	Extension for guideline pending Anaesthetic Governance review
7.0	June 2018	Consultant Anaesthetists & JOGG	Archived	Extension for guideline pending Anaesthetic Governance review
8.0	February 2019	Consultant Anaesthetists & JOGG	Archived	Extension whilst recovery process mapping is undertaken and quality improvement project finalised.
9.0	November 2019	Consultant anaesthetist	Archived	Minor amendments to reflect enhanced recovery programme
9.1	July 2020	Clinical Effectiveness Support Midwife – S.Harris	Archived	Addition of maternity pressure area guidance
10.0	October 2021	K. Ashpole, Consultant Anaesthetist	LIVE	Updated to be in line with NICE guideline NICE NG 192 Caesarean Birth (2021). Neurological monitoring: Straight-leg raise assessment added.

The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician.

If in doubt contact a senior colleague or expert.

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Recovery following Regional and General Anaesthesia Guideline (Maternity)

1.0 Aim

To provide clear guidance for all staff involved in the post anaesthetic recovery involving the short term care required by pregnant women/people during their immediate post-operative period until they are stable, conscious and orientated.

This will include care following any procedure undertaken under general or spinal anaesthetic.

2.0 Scope

This guideline applies to:

- Midwives
- Obstetricians
- Anaesthetists
- Maternity recovery staff
- Operating Department Practitioners
- Maternity Assistants.

3.0 Responsibilities

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

Midwives & obstetricians:

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

Management:

- To ensure the guideline is reviewed as required in line with Trust and National recommendations.
- To ensure the guideline is accessible to all relevant staff.

4.0 Abbreviations used in this guideline

PCA – Patient Controlled Analgesia	**MEOWS -** Maternity Early Obstetric Warning Score
ECG – Electrocardiography	**AVPU –** Alert, voice, pain, unresponsive

5.0 Equipment

All women/people should be recovered in an appropriately equipped room by trained staff. The minimum equipment required is:

- Blood pressure monitor (non-invasive)
- Oxygen saturation monitor
- Thermometer
- Oxygen and breathing system to supply 100% oxygen
- Suction equipment
- Infusion devices.

Devices for the management of post-operative pain control should also be available if required; such as a patient controlled analgesia pump (PCA) and the facility to monitor ECG, as well as access to resuscitation equipment.

6.0 Monitoring and observations following general anaesthesia

After any procedure involving a general anaesthetic, a healthcare professional with airway skills should carry out continuous, one-to-one observation of the woman/person until they have **regained airway control**, **is haemodynamically stable**, **and is able to communicate**.

Unless exceptional circumstances dictate otherwise, this period of continuous observation should be carried out in theatre by the obstetric anaesthetist responsible for the case.

Once the above criteria have been met, care may then be handed over to an appropriately trained member of staff for ongoing care prior to discharge from the recovery area.

All observations carried out by the anaesthetist or theatre recovery staff should be recorded on the anaesthetic chart. Once the woman/person's care is handed over to the midwife, observations should be recorded on the MEOWS chart.

As a minimum the following observations should be recorded **every 5 minutes** for the **first 15 minutes**, and recorded on the Maternity Early Obstetric Warning Score (MEOWS) chart. The MEOWS instructions should be followed for abnormal observations (see Recognition and Management of the Severely Ill Pregnant Woman guideline).

- Level of consciousness (using AVPU as per MEOWS chart).
- Heart rate.
- Blood pressure.
- Respiratory rate.
- Oxygen saturation by pulse oximetry.
- Verbal pain.
- Vaginal bleeding.
- Overall appearance (well or unwell).

These observations, if stable should then be recorded **½ hourly** for **2 hours**. Following this, **hourly observations** should continue until the pre-discharge from recovery checklist criteria within the Obstetric Theatre record is met, before commencing 4 hourly observations. This pre-discharge checklist must be fully completed including date and time of assessment prior to discharge to the Postnatal Ward.

Any red or 2 yellow MEOWS scores must be actioned according to MEOWS escalation process.

The following observations should be closely monitored and documented:

- Nausea/vomiting.
- Wound-bleeding from operation site, wound drains.
- Uterine fundus.

Temperature should be recorded **½ hourly** for the first **2 hours**.

Urine output should be recorded **hourly** for the first **2 hours**. The obstetrician and anaesthetist should be informed if urinary output falls below 30mls per hour on 2 consecutive occasions.

These observations, if stable for 2 hours can be reduced to 4 hourly.

7.0 Monitoring and observations following regional anaesthesia

After any procedure carried out under a spinal or epidural anaesthetic, a healthcare professional should carry out continuous one-to-one observation of the woman/person until they are haemodynamically stable (for example when pulse and blood pressure have returned to baseline values).

As a minimum the following observations should be recorded **every 5 minutes** for the **first 15 minutes**, and recorded on the Maternity Early Obstetric Warning Score (MEOWS) chart. The MEOWS instructions should be followed for abnormal observations (see 'Recognition and Management of the Severely Ill Pregnant Woman guideline).

- Level of consciousness (using AVPU as per MEOWS chart).
- Heart rate.
- Blood pressure.
- Respiratory rate.
- Oxygen saturation by pulse oximetry.
- Verbal pain.
- Vaginal bleeding.
- Overall appearance (well or unwell).

These observations, if stable should then be recorded ½ **hourly** for **1 hour**. Following this, **hourly observations** should continue until the pre-discharge from recovery checklist criteria within the Obstetric Theatre record is met, before commencing 4 hourly observations. This pre-discharge checklist must be fully completed including date and time of assessment prior to discharge to the Postnatal Ward.

Any red or 2 yellow MEOWS scores must be actioned according to MEOWS escalation process.

The following observations should be closely monitored and documented:

- Nausea/vomiting.
- Wound-bleeding from operation site, wound drains.
- Uterine fundus.

Additional observations to be recorded hourly for the first two hours:

- Urine output - Obstetrician and Anaesthetist should be informed if urinary output falls below 30mls per hour on 2 consecutive occasions.
- Temperature.

These observations, if stable for 2 hours can be reduced to 4 hourly.

A woman who has received spinal or epidural diamorphine who is deemed to be at a higher risk of respiratory depression (for example, a significantly raised BMI, or diagnosed obstructive sleep apnoea syndrome) should receive for the **first 12 hours**:

- Continuous pulse oximetry monitoring.

Hourly monitoring of:

- Respiratory rate.
- Heart rate.
- Blood pressure.
- Temperature.
- Pain.
- Sedation (AVPU).

If the woman remains stable, routine 4 hourly observations may continue after this point.

7.1 Straight-leg raise

Straight-leg raise should be used as a screening tool to assess motor block during recovery from a spinal anaesthetic or epidural top-up. If the woman/person is unable to straight-leg raise at **4 hours** after the last dose of epidural/spinal local anaesthetic, the anaesthetist should be urgently called to perform an assessment. (See Appendix 1)

An epidural haematoma can cause irreversible neurological damage if not evacuated within 8-12 hours. Delayed detection of symptoms and signs may be exacerbated by delay in clinical diagnosis and referral for appropriate imaging which would be an MRI scan.[7]

Women/people should be informed of the likely timescale (**3 to 5 hours**) for resolution of their neuraxial block and encouraged to alert staff should this be delayed.

The anaesthetist should be called to assess the patient if there is any residual sensory loss in the next 12-24 hours of recovery. They should be called immediately if there is any worsening of sensory loss or a return of motor weakness after a return of normal function.[7]

8.0 Ongoing care in the recovery area

- Care should be taken to ensure that intravenous cannulas are patent and that intravenous fluids and other medications are administered and recorded as prescribed.
- If the woman/person's condition necessitates a return to theatre for such procedures as laparotomy, the Obstetric Consultant on call must be asked to attend.
- The woman/person must not be left unattended with the baby unless fully conscious and alert.
- Additional support should be provided to help the woman/person in caring for and feeding her baby.
- Recovery care after a general anaesthetic by the anaesthetist or recovery nurse should be continued on the anaesthetic chart until full care is handed over to the midwife.
- Recovery care for regional anaesthesia, and care after handover from recovery staff following general anaesthesia, should be documented in the Obstetric Theatre Care Record.

9.0 Discharge and subsequent transfer to postnatal ward

Before any woman/person is discharged from the recovery area on Labour Ward, the midwife/nurse should satisfy themselves of the following points:

- The patient is conscious, can maintain a clear airway and protective reflexes are present.
- Breathing and oxygenation are normal.
- The cardiovascular system is stable with no unexplained cardiac irregularity or persistent bleeding and that the woman is haemodynamically stable.
- Adequate analgesia and anti-emetic provisions have been made.
- Pressure dressings must be removed prior to transfer to the postnatal ward.
- Dressings should be dry and intact and any drains should be secure and patent.
- Uterus should be well contracted and lochia normal.

When the above criteria are met and documented in the Obstetric Theatre Record, the patient should be transferred to the postnatal ward on a clean bed and accompanied by a suitably trained health care professional.

Following anaesthesia, women/people should remain on clear fluids only until IV Syntocinon is discontinued.

10.0 Pressure area care

Although pressure ulcers can occur in any patient, the biggest risk factor in maternity is having limited mobility - i.e. those that have had regional or general anaesthesia. In order to prevent this damage, the following post-natal care is recommended:

- Skin assessment and change of Inco pads at birth and then 2-3 hourly until woman is mobilising independently and is scoring “green” on the Maternity PURPOSE T risk assessment tool.
- If scoring “red” for having a previous pressure ulcer, once mobilising independently (and otherwise scoring “green”), skin assessments should be performed 12 hourly until home. Repositioning should continue 1-2 hourly.
- Keep Moving: Encourage/assist to reposition 1-2 hourly - if able to stand, the woman should be encouraged to do so for at least 2 minutes.
- Keep Moving: Once scoring “green”, women should be advised to mobilise/reposition regularly and pressure areas should be assessed at every post-natal check by a midwife (or earlier if reporting any signs of compromised peripheral perfusion on her pressure areas).
- Keep Moving: Optimum maximum length of time spent in bed = up to 12 hours.
- Incontinence/Moisture: Protect the skin from moisture with a barrier cream when required.
- Incontinence/Moisture: cleanse the skin promptly after episodes of incontinence.

For further information, please refer to the Trust ‘Maternity Pressure Area Care’ guideline and the intranet page for all resources.

11.0 Further postnatal care

Postnatal observations of temperature, pulse and blood pressure should be recorded 4 hourly for 24 hours and then if normal, every 12hours (once a shift) until discharge, unless there is any deviation from the norm.

For women/people who have undergone a caesarean section refer to: CG12030 Caesarean Section Birth Guideline.

Extra support to help establish breastfeeding/infant feeding and with care of the baby should be offered.

Women/people with problems thought to be attributable to a complication of their anaesthetic should be referred to the obstetric anaesthetist for review. This might include headaches, back pain, numbness or weakness in the legs, difficulty passing urine or opening bowels.

If symptoms persist for escalation to consultant obstetric anaesthetist.

Analgesia, anti-emetics and laxatives should continue as per trust guidelines determined by the woman's surgery, allergies and preferences.

For further guidance on routine postnatal care refer to: CG1134 Postnatal Care Guideline.

12.0 Training

Staff training for recovery care is evidenced in the Maternity Training Needs Analysis.

13.0 Audit/Monitoring

Suggested audit points:

- Regional anaesthesia: There is documented evidence of completion of the following during recovery care - BP, Pulse, Respirations, O2 Saturations, Lochia, AVPU, verbal pain score and overall appearance recorded on the MEOWS chart at the following intervals:
    - 5 minutely for the first 15 minutes.
    - Half hourly for the first hour.
    - Hourly until final recovery criteria met.
    - Straight-leg raise assessed at 4 hours.
    - Any concerns with MEOWS chart are escalated appropriately.

- General anaesthesia: There is documented evidence of completion of the following during recovery care - BP, Pulse, Respirations, O2 Saturations, Lochia, AVPU, verbal pain score and overall appearance recorded on the MEOWS chart at the following intervals:
    - 5 minutely for the first 15 minutes.
    - Half hourly for the two hours.
    - Hourly until final recovery criteria met.
    - Any concerns with MEOWS chart are escalated appropriately.

- All recovery care: There is documented evidence of completion of the following:
    - Hourly temperature recorded for the first two hours.
    - MEOW score completed at each entry (red and yellow scoring).
    - Fluid balance chart is completed with hourly urine outputs for first two hours and then four hourly if within normal limits.

References

1. Guidelines for Obstetric Anaesthesia (2005), the Association of Anaesthetists of Great Britain and Ireland and Obstetric Anaesthetic Association, London.

2. The Anaesthesia Team - Revised Edition (2005), the Association of Anaesthetists of Great Britain and Ireland, London.

3. Immediate post anaesthetic recovery (2002), The Association of Anaesthetists of Great Britain and Ireland, London.

4. Obstetric Services Raising the Standard Section 8 RCOA (2000).

5. NICE guideline Caesarean Section (2021), Department of Health, London.

6. Pressure Area Care for Maternity Patients Guideline (2020), WSHFT.

7. Safety guideline: Neurological monitoring associated with obstetric neuraxial block (2020) – Yentis et al. Association of Anaesthetists

Appendix 1: Neurological monitoring after spinal/epidural