

 **Obstetric Anaesthesia:**

 **Introduction for Basic**

 **Competencies**

 *Compiled by*

 **Dr James Rees**

 *Edited by*

 **Dr Naomi Pritchard**

July 2016


# Introduction

Welcome to your first block of obstetric anaesthetics, Basic Competencies. For more details about the anatomy of the obstetric department, departmental staff, contact numbers, door codes and clinical guidelines, please see the accompanying induction documentation and obstetric anaesthetic departmental guidelines.

This guide for those completing the Basic Competencies is designed to help orientate you into the clinical practice, jargon and expectations of labour ward. If you have any other questions not answered here, please contact any of the obstetric anaesthetic consultants, or the current obstetric anaesthetic fellow.

# The Module

During your anaesthetic training it is a requirement that the following are satisfied in order to be 'signed off' for your Basic Obstetric Module:

* 20 sessions (session = 4 hour block / half day) minimum in labour ward or obstetric theatres supervised by a consultant

* Complete the Initial Assessment of Competence in Obstetric Anaesthesia (IACOA) which involves completion of Workplace Based Assessments (WBAs) - find at:

http://www.rcoa.ac.uk/CCT/AnnexB

* Complete the minimum required WBAs to be signed off for the 'unit of training'

=1 x DOP, 1 x A-CEX, 1 x CBD - find at: http://www.rcoa.ac.uk/CCT/AnnexB *These must be different WBAs to the IACOA*

* Complete the Obstetric Anaesthetic Training in the Simulator (OATS) course (dates will be given to you via the anaesthetic school)

* Have an appropriate case mix in your log-book

# Where you will be based

**Obstetric theatres** (theatres 5 and 6) on 6th floor for:

- All Caesarean sections

* Instrumental deliveries
* 3rd degree tear repairs
* Manual removal of retained placenta
* Cervical sutures
* Epidural Blood patches

**Recovery / Obstetric HDU** = 6D on the bridge between labour ward and theatres

**Labour ward** = Ward 6F on 6th floor: Anaesthetists provide Epidurals/Combined Spinal Epidurals for labouring women and we are part of the multidisciplinary team for high risk women on the ward

**Post-natal ward** = Ward 8F - 8th floor: Patients for anaesthetic follow up are normally here

**Obstetric Anaesthetic Office** = on the junction between Labour ward and the bridge

 housing the computer for obstetric anaesthetic database input

# Your Timetable

Each coloured block will be covered by a dedicated consultant obstetric anaesthetist who will supervise the trainee in that area. Elective lists are *supposed* to happen Tues/Wed/Thurs mornings, but there are often extras on Monday and Friday.

Standard weekdays begin at 07.30 and finish at 17.30. There will be an anaesthetic handover between 0730 and 0800, when the multidisciplinary handover will take place in the seminar room on Labour Ward.

The 1326 obstetric anaesthetic registrar bleep holder will carry the bleep outside these hours and all day on weekends. You may be asked to carry the 1326 bleep in-hours, however you will not be expected to carry out duties unsupervised as the consultants or clinical fellow are always around and will be carrying a DECT phone.

In addition to the consultants, there is normally an **anaesthetics obstetric fellow** who is usually a senior registrar about to complete their training. They cover some on-call duties, however they also have a non-clinical sessions for audit etc.

**If on an elective C-section list**, the list can be found in the labour ward office (next to the nurses desk in labour ward). This usually has 1 to 3 patients on for each list. Patients will be on labour ward and have usually already been seen in pre-assessment clinic, however patients must still be seen on the day of surgery to confirm the pre-assessment details. Team briefing for the list happens at 0810 in the corridor outside theatres.

**OBSTETRIC ANAESTHETIC DATABASE**

Dr Hallworth has set-up an anaesthetic database on the shared drive for us all to input data into whenever an anaesthetic-patient intervention occurs (e.g. spinal for C-section or an epidural for labour, GA section and the elective list audit). This is to monitor and audit all our anaesthetic activity. Your name will be added to the system to access it and it can only be accessed on the computer in the obstetric anaesthetists’ office. The username and password is the same for all users (Username: CSE, password: CSE). Each entry must be printed twice; one to be put into the patient's notes and one to be kept in our follow-up folder in the obstetric anaesthetics office.

**OBSTETRIC FOLLOW-UPS**

The database entry forms allow us to see who we need to follow up after an intervention. Follow ups should happen around 24 hours after the intervention. The patients to follow up are usually on ward 8F (post-natal ward) as they have normally delivered 24 hours after an anaesthetic intervention. The follow up consists of a brief review of the patient and asking whether they have had any issues with their regional anaesthetic or general anaesthetic and whether they have fully recovered from it. This is to detect any problems early such as post dural puncture headache.

# Obstetric Acronyms

As with every area of medicine there are lots of acronyms to acquaint yourself with, and many of the following will appear in notes and on the board:

**AFP**  Alpha-fetoprotein-marker test for foetal developmental issues

**AL** Artificial labour

**APH** Ante-partum haemorrhage

**APGAR** Scoring system for wellbeing of newborn babies. Named after Dr Apgar, done at 1,5 and 10 minutes after delivery

**ARM** Artificial rupture of membranes (amniotic sac)

**CTG** Cardiotocograph: measures Fetal Heart rate and Uterine contractions

**EBL** Estimated blood loss

**ECV** External cephalic version: process to change position of foetus from breech to head first, usually done at 37 weeks

**FBS** Foetal blood sample: measures foetal pH as indication for foetal distress

**FD** Foetal distress

**FH** Foetal heart

**FTP** Failure to progress

**GBS** Group B Streptococcus

**GDM** Gestational diabetes mellitus

**G + P** Gravida = number of times lady has been pregnant

 Parity = number of times lady has given birth, E.g. G2P1

**HDN** Haemolytic disease of the newborn – an autoimmune reaction from

 maternal IgG antibodies against the foetus results in haemolysis and jaundice

**HELLP** Haemolytic anaemia, Elevated Liver enzymes, Low Platelets (HELLP syndrome) - a life-threatening complication of pre-eclampsia

**IOL** Induction of labour

**IUD** Intra-uterine death

**IUGR** Intra-uterine growth retardation

**LSCS** Lower Segment Caesarean section

**MOH** Massive Obstetric Haemorrhage: loss of >1000mL blood in a periparturient

**OC** Obstetric cholestasis

**PDA** Patent ductus arteriosus

**PET** Pre-eclamptic toxaemia / Preeclampsia

**PGE2** Prostaglandin E2 - Given synthetically to induce labour

**PIH** Pregnancy induced hypertension

**PPH** Post-partum haemorrhage

**PROM** Premature rupture of membranes

**SB** Still birth

**SGA** Small for gestation age

**SIDS** Sudden infant death syndrome

**SROM** Spontaneous rupture of membranes

**VBAC** Vaginal birth after Caesarean

**VE** Vaginal examination

# OBSTETRIC CONDITIONS

**Caesarean section:**

May be category 1, 2, 3 or 4. Category 4 indicated an elective Caesearean, Category 3 LSCS must be performed within 24 hours, Category 2 LSCS must be performed within an hour, and Category 1 LSCS is an emergency requiring delivery within 30 mins.

**Pre-eclampsia:**

Syndrome consisting of hypertension (SBP >20-25mmHg over baseline, DBP >15mmHg over baseline for two readings more than 4 hours apart) and proteinuria ≥2+ on dipstick. It is the third leading cause of maternal death and also affects perinatal mortality. It can develop into eclampsia and HELLP syndrome. Thought to be caused by vascular endothelial dysfunction which is caused by the development of the placenta.

**Placenta praevia**:

An obstetric complication whereby the placenta is implanted in the lower segment of the uterus. Some forms of placenta praevia can either partially or completely cover the cervical os. This condition is associated with an increased risk of bleeding antenatally.

**Placenta acreta/percreta/increta:**

Morbidly adherent placentas. These are obstetric complications whereby the placenta is abnormally deeply adherent to the inner linings of the uterus, hence it attaches to the myometrium (acreta), penetrates the myometrium (increta), or completely erodes through the uterine wall (percreta). There is increased risk of massive haemorrhage in these cases.

**Cervical or Perineal Tear**:

Tears to the cervix or perineum can be due to the trauma experienced as the baby passes through the vaginal canal, or caused by instrumentation. These can be of 4 types (degrees) depending on the depth of the tear and involvement of the rectum/anal sphincter.

**Chorioamnionitis**:

Infection of the amniotic fluid. Signs and symptoms may include raised maternal and fetal pulse rate, raised maternal temperature, maternal abdominal pain, especially on palpation of the uterus, offensive PV discharge and raised maternal WCC and CRP. Delivery of the baby may be hastened if this is present.

**Pregnancy induced thrombocytopaenia**:

Prevalent in 7-8% of pregnancies and is defined by a platelet count <150 x 1012/L. Lower platelet values are expected in pregnancy because of haemodilution, increased platelet consumption and increased platelet aggregation. However, PET, HELLP, acute fatty liver of pregnancy, HIV and drug induced issues can cause thrombocytopenia in pregnancy. Central neural blockade is contraindicated with platelets <80 x 1012/L.

# Obstetric Emergencies

**Massive obstetric haemorrhage:**

Blood loss from the mother of ≥ 1000mls. Causes of maternal haemorrhage can be due to placenta praevia, placental abruption, retained placenta, uterine rupture, uterine atony, fibroids and coagulopathy.

**Category 1 (and 2) Caesarean section**:

This is due to either maternal or fetal demise such as maternal haemorrhage/hypotension or fetal hypoxia.

A category 1 LSCS is a true emergency where delivery of the baby must be done within 30 minutes, but as soon as possible. This often necessitates a general anaesthetic if a de novo block or regional top-up cannot be established in time.

Category 2 LSCSs are less pressing – the baby must be delivered within 60 minutes

**Cord prolapse:**

This is a cause of Grade 1 LSCS and commonly associated with for example ARM in polyhydramnious (lots of liquor) where the umbilical cord protrudes through the cervix or is delivered prior to the presenting part. The danger is spasm or thrombosis of the vessels in the cord due to temperature change, and management is to touch it as little as possible and take straight to theatre for category 1 LSCS.

**Uterine inversion:**

Post delivery, often with attempt at removal of placenta, the uterus delivers inverted. Given it’s inability to properly contract and large surface area of bleeding tissue, this is a cause of massive obstetric haemorrhage.

**Eclampsia**:

Seizures occurring in a lady with pre-eclampsia that can happen in the second half of pregnancy including labour and post-partum. Less than 1% of patients who are pre-eclamptic will develop eclampsia. Pathophysiology is thought to include cerebral oedema and spasm and clots or haemorrhages in cerebral arteries. Symptoms and signs include headache, blurred vision epigastric pain and drowsiness/confusion may precipitate the event. An eclamptic seizure is similar in appearance to an epileptic seizure. Magnesium Sulphate and blood pressure control is key prevention.

**Shoulder dystocia**:

Inability of the baby to be delivered due to impaction of its anterior shoulder behind the maternal pubic symphysis. Relatively rare event in pregnancy however it is an obstetric emergency as it can lead to a high incidence of neonatal mortality and morbidity. Delivery often requires positioning into McRobert’s position (extreme Lithotomy).

# DRUGS USED IN OBSTETRIC ANAESTHESIA

**Oxytocics:**

Cause uterine contraction for induction of labour (in lower doses) or prevention of PPH (in higher doses once baby is delivered)

* Syntocinon – synthetic oxytocin
* Ergometrine (do not use if patient hypertensive due to its side effects)
* Misoprostol
* Carboprost
* Dinoprostone

**Tocolytics:**

Used to relax the uterus e.g. foetal distress with a tonic uterus

 Terbutaline – β2 agonist.

* Anaesthetic volatile agents
* GTN

**Anaesthetic induction:**

 Thiopentone

* Suxamethonium

**Anti-reflux:**

Used as prophylaxis prior to all LSCS apart from Sodium Citrate which is used only as prophylaxis in

LSCS needing a GA

* Metoclopramide – benzamide dopamine antagonist – used for prokinetic effect
* Ranitidine – H2 antagonist. Increases gastric pH and reduces secretion volume
* Sodium Citrate – Neutralises stomach acid

**Emergency drugs:**

* Phenylephrine – α1 agonist, used for vasoconstrictive effects associated with regional anaesthesia
* Ephedrine - α1 and β1 agonist.
* Atropine

**Analgesics:**

* Entonox – 50:50 N2O and O2. “Gas and air”.
* Pethidine – Synthetic opioid: used intramuscularly in labour. Can be prescribed by midwife
* Diamorphine – used intravenously (usually in GA cases) or intrathecally/epidural, also subcutaneously for, for example, pain control in Intra-Uterine Death.

**In Pre-eclampsia:**

* Hydralazine – vasodilator through mediating NO release. Used for hypertensive crises if heart rate < 100bpm
* Labetalol - β1 and β2 antagonis. Used in hypertensive crises if heart rate > 100bpm
* Magnesium sulphate – used to treat severe pre-eclampsia

**Local anaesthetics**:

 Used for local field anaesthesia or regional anaesthetic injectate:

* Lignocaine
* Bupivicaine

**Routine for Caesarean Section:**

As well as this aide memoire, ensure you are familiar with the OAA/DAS Obstetric Airway Guidelines 2015: http://www.oaa-anaes.ac.uk/ui/content/content.aspx?id=3447

For any LSCS consider the following:

|  |  |  |
| --- | --- | --- |
| **PATIENT**  |  | **PMHx**  |
| ⁭ |  | **Allergies**  |
|  |  | **Pre-medication** - (ranitidine/metoclopramide/sodium citrate)  |
| ⁭  |  | **Airway assessment** - (MP, neck movement, mouth opening)  |
|    |  |  |
| **PREPARE**  |  | **Staff – plan communicated to all?**  |
|  |  | **Is another anaesthetist needed?**  |
|  |  | **Grouped and Saved – blood available?**  |
|  |  | **Full monitoring on** - (ECG, SpO2, NIBP) |
|  |  | **Large bore cannula connected and working** **Patient WHO checklist**  |
|   |  | **Surgeons scrubbed and ready**  |
| **POSITION**  |  | **Left lateral TILT** - immediately the patient is on the table and Left side rests in place |
| ⁭   |  | **Oxford pillow**  |
| **EQUIPMENT**  | **Machine check?**  |
|  | **Suction?**  |
|  | **Capnography working?**  |
| ⁭  | **Oxygen/Volatile enough?**  |
|  | **Laryngoscope blade with short handle**  |
| ⁭  | **Size 7 ETT +/- 1 size**  |
|  | **Syringe**  |
| ⁭  | **Bougie**  |
| ⁭  | **Difficult airway trolley**   |

# INITIAL ASSESSMENT OF COMPETENCE IN OBSTETRIC ANAESTHESIA

This certificate allows you to work on-call as an obstetric anaesthetist without direct supervision.

The certificate form can be found at:  [http://www.rcoa.ac.uk/document-store/initial-assessment-of-competence-obstetric-anaesthesiacertificate.](http://www.rcoa.ac.uk/document-store/initial-assessment-of-competence-obstetric-anaesthesia-certificate) The following WBAs must all be signed by a consultant in order to obtain this certificate:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A-CEX**  |  |  |  |  |
| *Assessment Code*  | *Assessment*  | *Assessor (PRINT)*  | *Assessor (Signature)*  | *Date*  |
| OB\_BTC\_A01  | Basic Competencies for Obstetric Anaesthesia – conduct epidural analgesia for labour [12-24 months]  |   |   |   |
| OB\_BTC\_A02  | Basic Competencies for Obstetric Anaesthesia – conduct regional anaesthesia for caesarean section [12-24 months]  |   |   |   |
| OB\_BTC\_A03  | Basic Competencies for Obstetric Anaesthesia – conduct general anaesthesia for caesarean section [12-24 months][S]  |   |   |   |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DOPS**  |  |  |  |  |
| *Assessment Code*  | *Assessment*  | *Assessor (PRINT)*  | *Assessor (Signature)*  | *Date*  |
| OB\_BTC\_D01  | Basic Competencies for Obstetric Anaesthesia – top up epidural for labour analgesia [12-24 months]  |   |   |   |
| OB\_BTC\_D02  | Basic Competencies for Obstetric Anaesthesia – top up epidural for caesarean section [12-24 months]  |   |   |   |
| OB\_BTC\_D03  | Basic Competencies for Obstetric Anaesthesia – Perform spinal anaesthesia [12-24 months]  |   |   |   |

|  |  |  |  |
| --- | --- | --- | --- |
| **CBD**  |  |  |  |
| Examine the case-notes. Discuss how the anaesthetic plan was developed. Ask the trainee to explain their approach to pre-op preparation, choice of induction, maintenance, post op care. Select one of the following topics and discuss the trainees understanding of the issues in context  |   |   |   |
| *Assessment Code*  | *Assessment*  | *Assessor (PRINT)*  | *Assessor (Signature)*  | *Date*  |
| OB\_BTC\_C01  | Discuss how changes in the anatomy and physiology due to pregnancy influenced the conduct of anaesthesia  |   |   |   |
| OB\_BTC\_C02  | Discuss whether pregnancy influenced the choice of drugs used during anaesthesia  |   |   |   |
| OB\_BTC\_C03  | Discuss how the conduct of general anaesthesia is affected by late pregnancy  |   |   |   |
| OB\_BTC\_C04  | Examine the case records of a patient that the trainee has anaesthetised for operative delivery in a situation where major haemorrhage might be expected. Discuss the factors that influence the likelihood of major obstetric haemorrhage, the precautions that should be taken to deal with it and the principles of its management.  |   |   |   |
| OB\_BTC\_C05  | Examine the case records of a patient with pregnancy associated hypertension that the trainee has treated. Discuss how this influences anaesthetic management.  |   |   |   |
| OB\_BTC\_C06  | Examine the case records of a patient for whom the trainee provided extradural analgesia for normal labour. Discuss the methods of pain relief available for normal delivery.  |   |   |   |

# OBSTETRIC “UNIT OF TRAINING” WBAs

A minimum of 1 x A-CEX, 1 x CBD and 1 x DOP must be done in order to be “signed off” for the obstetric unit of training. The curriculum from where these assessments can be taken is shown below:

## Obstetrics

Wherever possible, this Basic Level unit of training should occur in a dedicated block. The use of simulators may assist in the teaching and assessment of some aspects of this section e.g. general anaesthesia for Caesarean section

**Learning outcome:**

* To gain knowledge, skills and experience of the treatment of the healthy pregnant woman

**Core clinical learning outcomes*:***

* To pass the formal practical initial assessment of competence in obstetric anaesthesia and, having achieved this, be able to provide analgesia and anaesthesia as required for the majority of the women in the delivery suite
* To understand the management of common obstetric emergencies and be capable of performing immediate resuscitation and care of acute obstetric emergencies [e.g. eclampsia; pre-eclampsia; haemorrhage], under distant supervision but recognising when additional help is required

***NB: All competencies annotated with the letter ‘E’ can be examined in any of the components of the Primary examination identified in the FRCA examination blueprint on page B-99 or in the Final examination identified in the Final FRCA blueprint on page C72 of Annex C.***

|  |  |  |
| --- | --- | --- |
| **Knowledge**   |  |  |
| *Competence*  | *Description*  | *Assessment Methods*  | *GMP*  |
| OB\_BK\_01  |  Recalls/describes the anatomy, physiology and pharmacology related to pregnancy and labour [cross ref basic sciences]  | A,C,E  | 1  |
| OB\_BK\_02  |  Lists common obstetric indications for anaesthetic intervention on the delivery suite  | A,C,E  | 1  |
| OB\_BK\_03  |  Describes the effects of aortocaval compression and how to avoid it  | A,C,E  | 1,2  |
| OB\_BK\_04  |  Recalls/describes how to assess fetal well being in utero  | A,C,E  | 1,2  |
| OB\_BK\_05  | Discusses the management of pre-eclampsia and eclampsia  | C,E  | 1,2  |
| OB\_BK\_06  | Lists risk factors and describes the management of major obstetric haemorrhage  | C,E  | 1,2  |
| OB\_BK\_07  |  Explains local feeding / starvation policies and the reasons behind them  | A,C,E  | 1,2  |
| OB\_BK\_08  |  Explains the thromboprophylaxis requirements in pregnancy  | A,C,E  | 1,2  |
| OB\_BK\_09  |  Describes the grading of urgency of Caesarean section  | A,C,E  | 1,2  |
| OB\_BK\_10  |  Explains why anaesthetic techniques must be modified in the pregnant patient  | A,C,E  | 1,2  |
| OB\_BK\_11  |  Lists methods of analgesia during labour and discusses their indications and contraindications  | A,C,E  | 1,2  |
| OB\_BK\_12  |  Describes epidural or CSE analgesia in labour and recalls/discusses the indications, contraindications and complications  | A,C,E  | 1,2  |
| OB\_BK\_13  |  Explains how to provide regional anaesthesia for operative delivery  | A,C,E  | 1  |
| OB\_BK\_14  | Understands the need to call for assistance after several attempts at placement of regional blocks proves unsuccessful  | A,C,E  | 1,2,3  |
| OB\_BK\_15  | Describes the immediate management of accidental dural puncture  | A,C,E  | 1  |
| OB\_BK\_16  |  Recalls/describes maternal and basic neonatal resuscitation  | A,C,E  | 1,2  |
| OB\_BK\_17  |  Describes how to access local maternity guidelines and the value of having these guidelines  | A,C,E  | 1,2  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Skills**  |  |  |  |
| *Competence*  | *Description*  | *Assessment Methods*  | *GMP*  |
| OB\_BS\_01  | Undertakes satisfactory preoperative assessment of the pregnant patient  | A,D  | 1  |
| OB\_BS\_02  | Demonstrates the ability to clearly explain and prepare an obstetric patient for surgery  | A,C,D  | 1,3,4  |
| OB\_BS\_03  | Demonstrates the use of techniques to avoid aorto-caval compression  | D  | 1  |
| OB\_BS\_04  | Demonstrates the ability to provide epidural analgesia in labour  | A,D,M  | 1  |
| OB\_BS\_05  | Demonstrates the ability to provide spinal anaesthesia for caesarean section  | A,D  | 1  |
| OB\_BS\_06  | Demonstrates the ability to convert epidural analgesia to epidural anaesthesia for surgical intervention  | A,C,D  | 1  |
| OB\_BS\_07  | Demonstrates the ability to provide general anaesthesia for caesarean section [S]  | A,C,D,S  | 1  |
| OB\_BS\_08  | Demonstrates an appropriate choice of anaesthesia/analgesia for instrumental delivery  | C  | 1  |
| OB\_BS\_09  | Demonstrates an appropriate choice of anaesthesia for retained placenta  | C  | 1,2  |
| OB\_BS\_10  | Demonstrates safe and effective management of post-delivery pain relief  | C,M  | 1  |
| OB\_BS\_11  | Demonstrates ability to recognise when an obstetric patient is sick and the need for urgent assistance  | C,M  | 1  |
| OB\_BS\_12  | Demonstrates the ability to provide advanced life support for a pregnant patient [S]  | D,S  | 1  |
| OB\_BS\_13  | Demonstrates the ability to provide basic neonatal life support [S]  | D,S  | 1  |
| OB\_BS\_14  | Obtains the Initial Assessment of Competence in Obstetric Anaesthesia  | A,C,D  | 1,2,3,4  |