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Large for Gestational Age Guideline

Summary statement: How does the document support patient care?	The purpose of this guideline is to provide good practice evidence for staff in planning the care of women and people who have a suspected or confirmed large for gestational age fetus.
Staff/stakeholders involved in development:	Obstetric consultants, screening co-ordinator, clinical effectiveness
Division:	Women & Children's
Department:	Maternity
Responsible Person:	Chief of Service
Author:	Obstetric Consultant
For use by:	Medical and Midwifery staff
Purpose:	To provide evidence based guidance for staff on planning the care for women and people who have a suspected or confirmed large for gestational age fetus.
This document supports:	NICE (2008) CG70 Inducing labour RCOG (2012) Shoulder Dystocia Green Top Guideline 42
Key related documents:	**UH Sussex (SRH & WH) Maternity Guidelines**: Shoulder Dystocia Guideline Induction and augmentation of Labour (including use of oxytocin) Guideline Diabetes in Pregnancy guideline
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Version	Date	Author	Status	Comment
1.0	Nov 2011	M. Jolly	Archived	New Trustwide guideline
2.0	January 2015	M. Jolly	Archived	3 year review and update
3.0	July 2016/oct2016	Miss S Stone Joint Obstetric Guideline Group	Archived	Up date
4.0	January 2017	Mr Jolly	Archived	Update
5.0	June 2020	Clinical effectiveness midwife, screening co-ordinator, obstetric consultant	Archived	'Fit for purpose' review – awaiting 'Big Baby' Trial results for full review. Updated diabetes pathway in line with amended diabetes guideline, management of raised AC>95th centile at anomaly USS, links to guidelines added
5.1	June 2022	A. Mcavoy, Obstetric Consultant J. Collard, Clinical Effectiveness Support Midwife	Archived	Updated to align with NICE NG207 Inducing labour 2021
5.2	December 2022	E.Meadows Research Midwife	Archived	Big Baby study information removed due to end of recruitment
6.0	November 2023	A. Mcavoy, Obstetric Consultant	LIVE	3 year review. SFH to be from 26-28 weeks. SFH to be stopped once serial growth scans are commenced.

Contents

Large for Gestational Age Guideline

1.0 Aim

To provide evidence based guideline for obstetric management in the case of a suspected large for gestational age (LGA) fetus.

2.0 Scope

This guideline applies to all medical and midwifery staff and ultra-sonographers.
This guideline is to be used in conjunction with UH Sussex (SRH & WH) Diabetes in Pregnancy Guideline however, management of LGA for non-diabetic women and people should follow this guideline and the diabetes pathway should be followed when diabetes is considered the cause for LGA.

3.0 Responsibilities

It is the responsibility of all midwifery and medical staff and ultra-sonographers to:

- Access, read, understand and follow this guidance
- To use their professional judgement in the 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 within this guideline

LGA - Large for Gestational Age	**EFW -** Estimated Fetal Weight
PPH - Postpartum Haemorrhage	**SCBU -** Special Care Baby Unit
AC - Abdominal Circumference	**GTT -** Glucose Tolerance Test
GROW - Gestation Related Optimal Weight	**IOL -** Induction of Labour
USS - Ultrasound Scan	**GDM -** Gestational Diabetes
TOF - tracheo-oesophageal fistula	**OGTT -** Oral Glucose Tolerance Test
CPD - Cephalic Pelvic Disproportion	**SFH** - Symphysis fundal height

5.0 Introduction

Management of the LGA estimated fetal weight (EFW) >97th centile or macrosomic fetus (EFW >4.5kg) in the non-diabetic mother and birthing parent is becoming a more frequent dilemma in antenatal care. The average birthweight at term is known to be increasing and is thought to be due to more prevalent maternal and birthing parent obesity, increased maternal

and birthing parent age and reduction in smoking. There are risks associated with LGA and fetal macrosomia, including increased maternal and birthing parent and neonatal morbidity, risk of caesarean birth, shoulder dystocia, postpartum haemorrhage (PPH), fourth degree perineal tears and admission to the Special Care Baby Unit (SCBU).

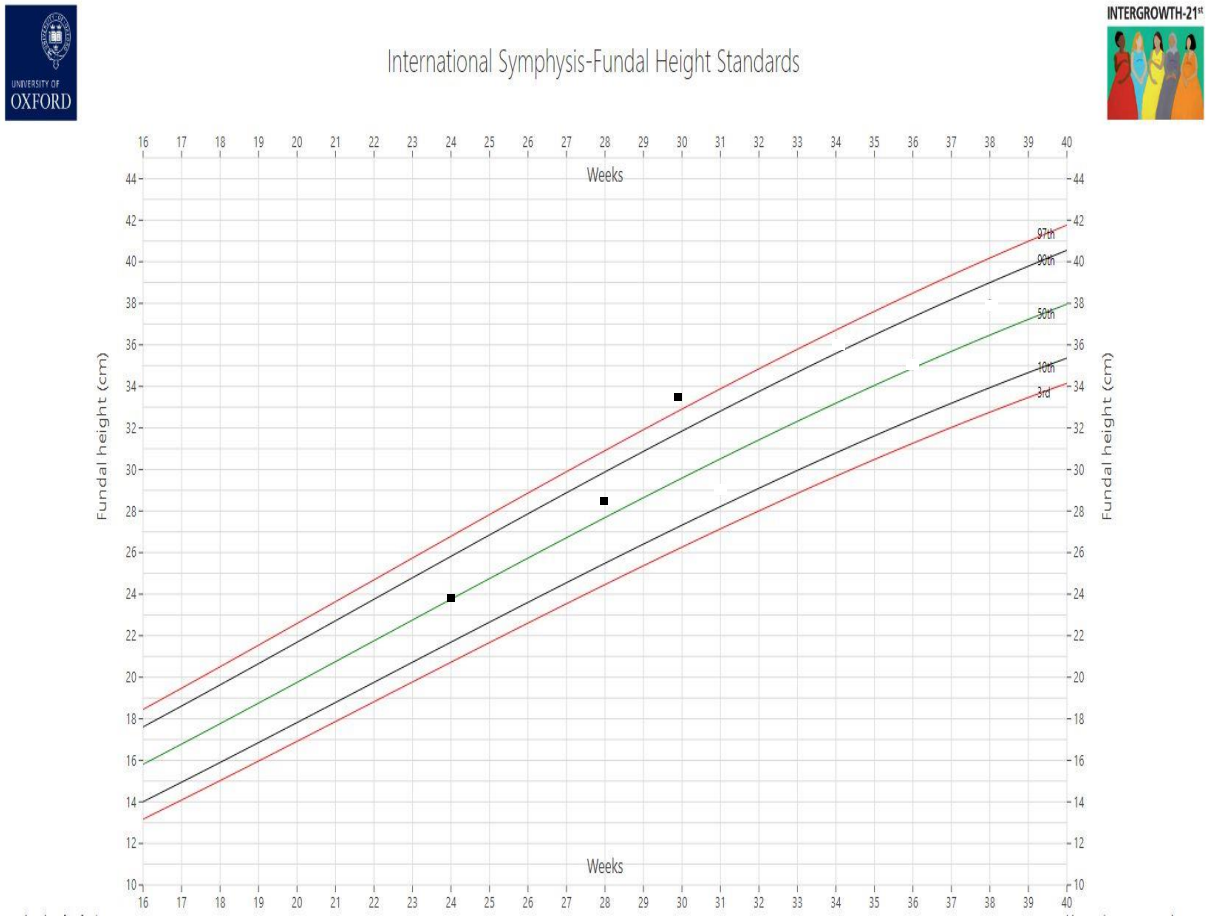
6.0 Key points

- A large baby may either be appropriately large or be macrosomic, causes of which include excess calorie intake, maternal and birthing parent diabetes, and obesity.
- A 'large for dates' pregnancy might be the first presentation of gestational diabetes, which can also cause polyhydramnios (see Diabetes in Pregnancy Guideline).
- If the fetal abdominal circumference (AC) on scan is disproportionally raised >95th centile (compared to the head circumference), discuss a low glycaemic index diet, offer a Glucose Tolerance Test (GTT) to women and people (who have not previously had a GTT) and offer 36/40 scan to those women and people not found to be diabetic.
- Ultrasound derived estimated fetal weight estimates have an error of 10 - 25%, especially in the late third trimester.
- A suspected diagnosis of a large fetus can cause anxiety for the mother/birthing parent and therefore give as much information to her and discuss options available. This includes discussing the influence of the suspected large baby on the woman and person's birth preferences, with the understanding of the evidenced 10-20% error. Women and people should also be made aware that there is no consensus around planned mode of delivery and/or induction of labour.

7.0 Antenatal Management as per intergrowth measurements

- Fundal height measurement should be started from 26-28 weeks and plotted on the intergrowth charts for SFH, and monitored and plotted thereafter at every antenatal appointment (preferably by the same person). Once regular serial growth scans are commenced, SFH measurements should be stopped, however this is not the case for ad hoc growth scans when SFH measurements should be continued. It should be documented on MIS that this is the reason SFH measurement is not being performed. Saving babies' lives Care Bundle v3.1
- A single plot above the 90th centile on the intergrowth chart is not an indication for an ultrasound scan, unless there are other concerns.
- Consistent growth above the 90th centile without other concerns is not an indication for an ultrasound scan.
- The key factor is to refer when fundal height plots are defining a curve significantly more steep than the reference curves on the intergrowth chart – see below.

8.0 Example of excessive fetal growth



If a LGA fetus is suspected based on the criteria above on an intergrowth chart, the woman and person should be referred for an ultrasound scan for fetal biometry and liquor volume with an antenatal clinic appointment for review.

The clinical interpretation of the scan results should be informed by a full obstetric history, dietary history and clinically relevant information e.g. maternal and birthing parent stature. A management plan might include dietary modification and screening for gestational diabetes. When counselling about birth options it is important to factor in previous births and the relative size of the fetus and mother and birthing parent. The risks should be discussed in context with an emphasis on the metabolic risks to the fetus, the physical risks to the mother/birthing parent and fetus associated with birth, and the known risk of scanning error.

The options for birth are expectant management, induction of labour or caesarean birth. The information should be shared with the woman and people in an appropriate manner, bearing in mind the limitations of ultrasound biometry, and addressing any concerns that she/they raise. This should provide them with a balanced view in order to make an informed decision. Women and birthing people should be informed that there is no consensus as yet as to whether induction of labour significantly reduces the complications associated with shoulder dystocia, and that induction of labour is considered a known risk factor for shoulder dystocia.

9.0 Fetal Macrosomia from 38 weeks

The risks and benefits of induction of labour (IOL) must be discussed with the woman and person. Refer to 'Induction and Augmentation of Labour (Including Use of Oxytocin) Guideline'.

IOL at term can be offered for fetal macrosomia from the consultant ANC if the EFW on USS is above > 90th centile. Timing of this needs to be discussed with the woman and person and should include a discussion about the risk of shoulder dystocia at different fetal weights rather than simply centiles. An estimate of risks at different weights is:

- 5% (1 in 20) in birthweight of 4000 – 4250g (8lb 13oz to 9lb 6oz)
- 9% (1 in 12) in birthweight of 4250 – 4500g (9lb 6oz to 9lb 15oz)
- 14% (1 in 7) in birthweight 4500 – 4750g (9lb 15oz to 10lb 7oz)
- 21% (1 in 5) in birthweight 4750g – 5000g (10lb 7oz to 11lb) (Nesbitt 1998)

Using this information, it would be reasonable to offer induction when the EFW is predicted to be around 4kg. If the woman or person declines IOL and wants to consider expectant management, repeat scan in 2 weeks to reassess growth. If size increases beyond 5000g arrange discussion of mode of birth.

Women and birthing people should be informed that there is uncertainty about the risks and benefits of induction of labour verses expectant management, but:

- Rate of shoulder dystocia is reduced compared with expectant management.
- There is evidence that risk of perinatal death, brachial plexus injury or need for emergency caesarean birth is unchanged between induction of labour and expectant management.
- Induction of labour increases the rate of 3rd and 4th degree tears.

Women and people should also be advised to consider the impact of induction of labour on their birth experience and on their baby.

Discuss the options for birth with the woman and person, taking into account their individual circumstances and her preferences, and respect their decision. Support recruitment into clinical trials, if available.

9.1 Polyhydramnios

If polyhydramnios is confirmed, consider causes:-

1. Idiopathic
2. Maternal (gestational diabetes, GDM)
3. Fetal (tracheo-oesophageal fistula [TOF] – may be absent stomach on ultrasound, although presence of stomach does not exclude diagnosis).

Guidance on who to perform Oral Glucose Tolerance Test's (OGTT) is in the trust guideline on diagnosis and management of gestational diabetes (see Diabetes in Pregnancy Guideline). It depends if patient has pre-pregnancy risk factors for GDM and whether they have had previous OGTTs. If TOF suspected by absent stomach (and after GDM excluded) consider referral to fetal medicine as there is around 50% chance of other abnormalities and 5% association with aneuploidy.

Paediatric alerts do not need to be sent for isolated mild polyhydramnios.

For severe polyhydramnios at less than 34 weeks gestation it may be appropriate to discuss with one of the fetal medicine consultants about merits of amnio-drainage.

10.0 Caesarean birth

In some cases, the risk of an emergency caesarean birth for true CPD (Cephalic Pelvic Disproportion) or concerns raised by the woman and person around significant perineal trauma may be sufficiently high to justify a planned caesarean birth. This should be a consultant decision with a threshold of an estimated birth weight of 4.5kg or more. Women and birthing people should be advised that caesarean birth is an acceptable choice if there are significant concerns regarding the risk of shoulder dystocia.

11.0 Informed discussion with the woman and person presenting with a large for gestational age baby

(For guidance on suspected fetal macrosomia in women and people with pre-existing or gestational diabetes see CG1109 Diabetes in pregnancy-guideline.)

Using the table below discuss with pregnant women and people without diabetes and with suspected fetal macrosomia that:

- The options for birth are expectant management, induction of labour or caesarean birth.
- There is uncertainty about the benefits and risks of induction of labour compared to expectant management, but:
    - With induction of labour the risk of shoulder dystocia is reduced compared with expectant management.
    - With induction of labour the risk of third- or fourth-degree perineal tears is increased compared with expectant management.
    - There is evidence that the risk of perinatal death, brachial plexus injuries in the baby, or the need for emergency caesarean birth is the same between the 2 options.
    - They will also need to consider the impact of induction on their birth experience and on their baby.

Discuss the options for birth with the woman or person, taking into account their individual circumstances and her/their preferences, and respect their decision.

Outcome	Induction of labour	Expectant Management	Risk Difference
Shoulder Dystocia	About 410 babies would per 10,000 would be expected to have a shoulder dystocia (so 9,590 would not).	About 680 babies per 10,000 would be expected to have a shoulder dystocia (so 9,320 would not).	About 270 more babies per 10,000 whose mother and birthing parent's birth was managed expectantly would be expected to have a shoulder dystocia; so for 9,730 the outcome would be the same irrespective of the management strategy.
Third or fourth degree perineal tears	About 260 per 10,000 women and people would be expected to have third or fourth degree tears (so 9,740 would not)	About 69 per 10,000 women and people would be expected to have third or fourth degree tears (so 9,931 would not)	About 191 women and people whose labour was induced would be expected to have third or fourth degree tears; so for 9,809 the outcome would be the same irrespective of the management strategy.

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11.1 Risks of vaginal birth with a macrosomic baby

Risks to baby	Risks to woman and person
One in 10 babies who experience shoulder dystocia will have stretching of the nerves in the neck. This is called brachial plexus injury and can causes loss of movement in the baby's arm. The most common type of brachial plexus injury is Erb's palsy. For one in 10 babies with a brachial plexus injury, the loss of movement will be permanent.	Sometimes the labour can be longer for bigger babies. In the UK 15 in 100 women and people who are planning to have a vaginal birth will need to have an emergency caesarean birth. Some women and people may need to have a forceps or ventouse (suction) birth.
In babies who experience shoulder dystocia, one in 10 may have a fracture to their collarbone. Four in 100 babies who experience shoulder dystocia may have a fracture to their arm. These heal well.	Sometimes women and people with a big baby may experience heavier bleeding after the baby is born. In rare cases, some women and people may need a blood transfusion.
Very rarely, a baby may suffer brain damage if they did not get enough oxygen during the birth because of shoulder dystocia.	

11.2 Risks of induction of labour with a macrosomic baby

Risks to baby	Risks to woman and person
Inducing labour at 38 weeks is safe for the baby. There is some evidence that inducing labour earlier can lead to jaundice in the baby. This usually has no long-term effects.	Often women and people who have labour induced will find their labour is longer and more painful than for women who go into labour naturally.
	If the woman and person has a vaginal birth the risks are shown in table above. Having labour induced can increase the risk of a tear to the vagina that extends into the back passage.
	Sometimes if the woman and person is induced they may need an emergency caesarean birth, and the risks of this are shown in table below.

11.3 Risks of caesarean birth

Risks to baby	Risks to woman and person
One in 10 babies may experience breathing difficulties. Some of these babies will need to have treatment for this in the neonatal unit.	Nine in 100 women and people report persistent pain at the wound site and in their abdomen for a few months following a caesarean birth.
One to two babies in 100 will have a cut to their skin.	Five in 100 women and people will need to be readmitted to hospital following a caesarean birth. This might be because their wound is not healing or because they have an infection.
Some women and people report that it takes longer to bond with their baby after a Caesarean birth.	Six in 100 women and people will have an infection after a caesarean birth. The infection may involve the scar, their bladder or kidneys, or the lining of their womb.
	One in 1000 women and people may have an injury to their bladder or bowel during a caesarean birth. This will need repairing.
	Five in 1000 women and people bleed heavily (haemorrhage) during a caesarean birth. Some of these women and people will need to have a blood transfusion. In some cases, a woman and person may need to have a hysterectomy (where the womb is removed) to control the bleeding.

	Five in 1000 women and people may need to have further surgery after their caesarean birth.
	Six in 10,000 women and people will have a blood clot in their leg or lung following a caesarean birth.
	One in four women and people who have a caesarean birth will need another caesarean birth if they attempt a vaginal birth in their next pregnancy. If they have a caesarean birth and decide to try a vaginal birth in their next pregnancy, they would need extra monitoring in labour as there is a risk (one in 200 women and people) that the scar in the uterus can open during labour.
	If the woman and person has a caesarean birth in this pregnancy, in their next pregnancy there is increased chance of a stillbirth. This is uncommon.
	If the woman and person has a caesarean birth in this pregnancy and the placenta is low in their next pregnancy, there is an increased chance that the placenta will not come away easily after the baby has been born. This can cause serious bleeding and may mean they need to have a hysterectomy. This is uncommon, but the chance increases with each caesarean birth.

12.0 Post birth

With any of the scenarios presented above it may be reasonable to explore with the woman and person how they may feel and/or feels, following the baby's birth if in fact the baby when born was not large (10-20% error of scanning). The woman and person's birth preferences will have been important to them and if a joint decision was made in line with a suspected large baby rather than their initial preference then they may feel disappointed with the choice made suspecting their baby to be large.

13.0 Audit

Suggested audit question:

- Has the fundal height measurement should be charted from 26-28 weeks and plotted on the intergrowth charts.

- If the fetal abdominal circumference (AC) on scan is disproportionally raised >95th centile (compared to the head circumference), has:
    - A low glycaemic index diet been discussed
    - A Glucose Tolerance Test (GTT) been offered to women and people (who have not previously had a GTT)
    - A 36/40 scan to offered those women and people not found to be diabetic

- If fetal macrosomia from 38 weeks, has the risks and benefits of induction of labour (IOL) been be discussed with the woman and person.

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