

FETAL MACROSOMIA IN SINGLETON PREGNANCY: SCREENING AND MANAGEMENT

TARGET AUDIENCE	<ul style="list-style-type: none">• Maternity services and Daybed units across NHS Lanarkshire• Midwifery and medical staff providing antenatal care in NHS Lanarkshire• Ultrasonographers working within maternity services across NHS Lanarkshire
PATIENT GROUP	<ul style="list-style-type: none">• All pregnant women booked for antenatal care in NHS Lanarkshire with a singleton pregnancy the finding of fetal macrosomia• This guidance should be used in conjunction with the Holistic Antenatal Pathway when assessing and managing women with suspected macrosomia at each clinical encounter.• This guidance is not for use in diabetic women, multiple pregnancies or pregnancies with fetal abnormalities.• We use the terms 'women' and 'woman' in this guideline however this guidance will also apply to those who do not identify as women but are pregnant.

Clinical Guidelines Summary

- Fetal macrosomia is defined as an estimated fetal weight of greater than the 97th centile on a fetal growth chart.
- Reflection on the mother's birth choice is important and should be supported where safe to do so.
- Women should be given all appropriate information to allow them to make an informed choice regarding mode of delivery.
- This should include sign posting to the Badger app and library video 'having a big baby'. All options should be discussed in detail at a Consultant ANC between 36-38 weeks gestation.
- To aid planning, timing and mode of delivery, the growth scan should be performed at the earliest 36 weeks. Earlier growth scans which have detected fetal macrosomia need repeated at 37-38 weeks
- Planning of delivery should include the following options
 - Await spontaneous labour (expectant management)
 - Induction of labour at 39-40 weeks
 - Elective caesarean section at 39-40 weeks

Introduction

Fetal macrosomia is defined as an estimated fetal weight of greater than the 97th centile on a fetal growth chart. The prevalence of suspected macrosomia has increased in recent years, likely attributed to increasing maternal obesity and excessive gestational weight gain. Other risk factors include previous macrosomic baby, multiparity, GDM, pre-existing diabetes and ethnicity. The detection of fetal macrosomia is important as it is associated with significant maternal and neonatal complications. These include postpartum haemorrhage (PPH), perineal trauma (3rd and 4th degree tears), shoulder dystocia, permanent brachial plexus injury, hypoxic ischaemic encephalopathy, cerebral palsy and stillbirth.

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Definitions of terms

ANC – antenatal clinic

CS – caesarean section

EFW – estimated fetal weight

GDM – gestational diabetes mellitus

OGTT – oral glucose tolerance test

PPH – postpartum haemorrhage

SFH – symphysis fundal height

Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027

Section 1: Screening for a macrosomic baby

- Macrosomia is suspected if symphysis fundal height (SFH) measurement is recorded as >97th centile on the woman's fetal growth chart on two occasions
- These women should be referred for a growth scan.
- If estimated fetal weight (EFW) <97th centile then patient can return to low risk care and resume serial SFH assessment for fetal growth.
- If the SFH remains of the same trajectory (i.e. above the 97th centile), but the EFW has been plotted below the 97th centile a further growth scan is not required. SFH measurement should continue for fetal growth.
- If there is evidence of accelerated growth on the SFH assessment the patient should be referred for a growth scan. Please refer to fetal growth guidance 'When to refer for a growth scan' for examples of accelerative growth.

Section 2: Exclusion of gestational diabetes mellitus (GDM)

When a baby with an EFW >97th centile is detected by ultrasound scan, the mother should be referred for a oral glucose tolerance test (OGTT). If the mother has had a previous normal GTT this should be discussed with her named Consultant. All abnormal OGTT's will be referred directly by the Day Bed Unit team to the Medical Obstetric Clinic.

Our local NHSL audit has demonstrated that 24% of patients with an EFW >97th centile had a positive OGTT. This is compared to only 5.4% of patients with EFW >90th centile.

If OGTT is normal, then refer to patients named Consultant antenatal clinic (ANC) between 36-38 weeks gestation for mode of delivery discussion and plan of care.

Section 3: Further fetal growth assessment

If the mother has a normal OGTT and the ultrasound that detected fetal macrosomia was performed prior to 36 weeks then arrange a repeat ultrasound assessment for growth at 37-38 weeks to allow for mode of delivery planning at the patient's named Consultant Antenatal Clinic (ANC).

Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027

Section 4: Mode and timing of delivery planning for suspected fetal macrosomia

Reflection on the mother's birth choice is important and should be supported where safe to do so.

Optimising timing and mode of delivery for suspected fetal macrosomia is challenging due to known inaccuracies of ultrasound. It is thought that the false positive rate of ultrasound at 36 weeks is approximately 20%, which could potentially lead to unnecessary interventions including avoidable caesarean sections. Women should be given all appropriate information to allow them to make an informed choice regarding mode of delivery.

This should include sign posting to the Badger app and library video 'having a big baby'. All options should be discussed in detail at a Consultant ANC between 36-38 weeks gestation.

Planning of delivery should include the following options

- **Await spontaneous labour (expectant management)**
- **Induction of labour at 39-40 weeks**
- **Elective caesarean section at 39-40 weeks**

It is important to individualise care when planning mode and timing of delivery, considering other maternal factors such as previous obstetric history and mother's stature. Women who are tall and/or have delivered large babies previously without incident are less likely to encounter problems and expectant management may be appropriate. Conversely women who are of short stature and wish a vaginal birth may be considered for induction of labour from 38 weeks if the bishop score is favourable.

The emergency caesarean section and instrumental delivery rates in pregnancies complicated with fetal macrosomia are higher, 45% and 19% respectively. Shoulder dystocia risk increases from 1.4% in the average obstetric population up to 21% in non diabetic mothers with a neonatal birth weight greater than 4.5kg (table 1). This leads to a potential for brachial plexus injury of up to 18-21 fold increase compared to non macrosomic babies and hypoxic brain injury. The maternal risks also include higher rates of 3rd and 4th degree tears (4-8%). Elective caesarean section is usually recommended for all babies with a predicted weight of greater than 4.5kg at term.

Regardless of mode of delivery, all women with a suspected macrosomic fetus are at increased risk of postpartum haemorrhage (11%) and therefore an appropriate PPH risk assessment and uterotonic plan for delivery should be made.

Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027

Table 1 Birth weight and predicted risk of shoulder dystocia

Birthweight	Risk of shoulder dystocia	
	Non Diabetic	Diabetic
4000 - 4250g	5.2%	12.2%
4250 – 4500g	9.1%	16.7%
4500 – 4750g	14.3%	27.3%
4750 – 5000g	21.1%	34.8%

Awaiting the onset of spontaneous labour will allow further fetal growth, which may increase the risk of delivery complications. Discussion using the fetal growth chart to assess the predicted weight at term can be helpful in assessing the risk of shoulder dystocia (see Table 1).

Our local NHSL audit has shown an increased risk of intervention following induction of labour. Our outcome data is shown in table 2.

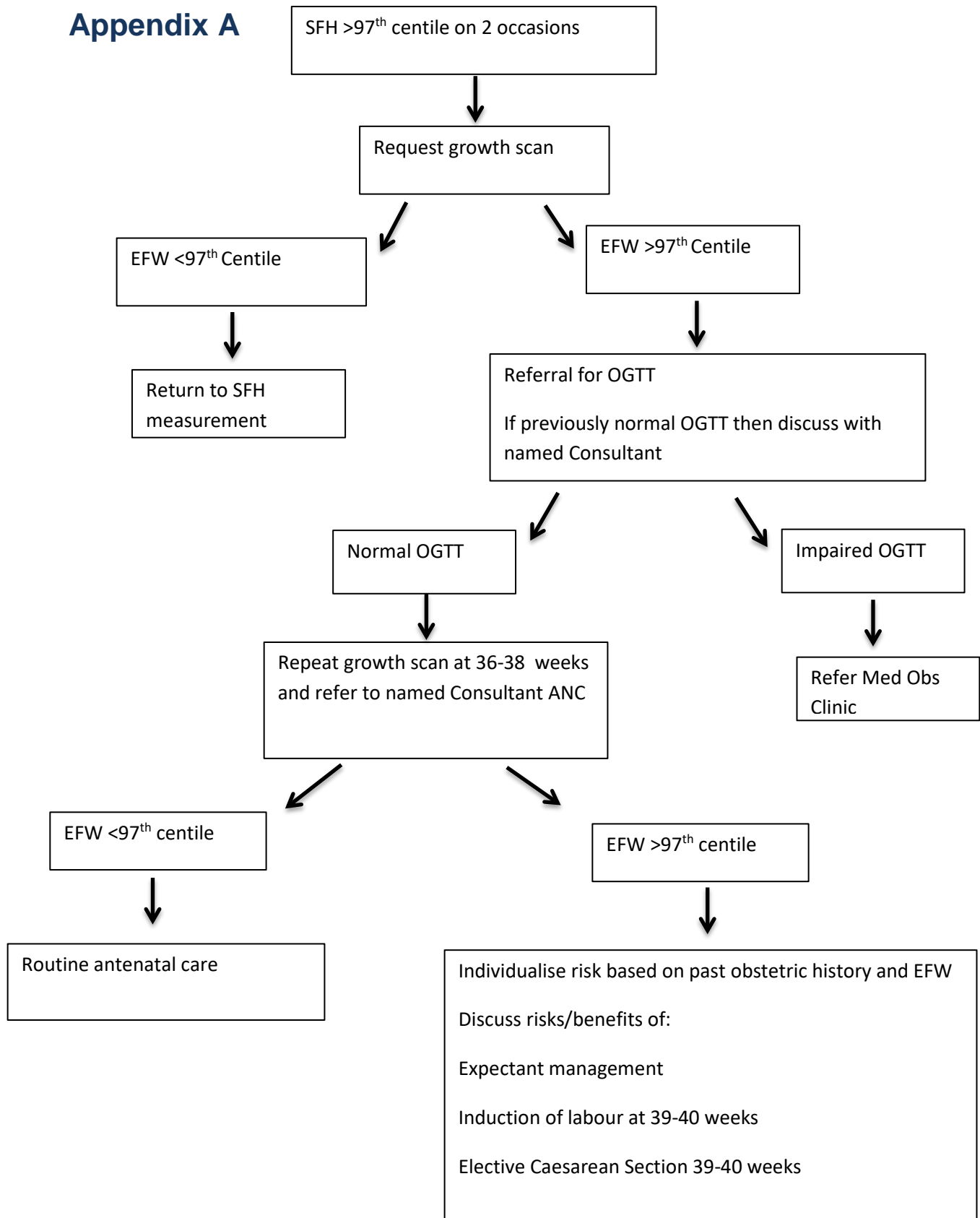
However, women may make an informed choice for elective caesarean section following discussion of options and the outcome data available.

Table 2 Mode of delivery and vaginal birth rates

Mode of delivery following IOL for macrosomia in NHSL	Primigravida	Multigravida
SVD	23.6%	81.8%
Forceps/Ventouse	26.5%	3%
Caesarean Section	50%	15.1%

Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027

Appendix A



Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027

References

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Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027



1. Governance information for Guidance document

Lead Author(s):	A Bruce & E Jarvie
Endorsing Body:	Clinical Effectiveness Maternity Sub-group
Version Number:	1
Approval date	April 2024
Review Date:	April 2027
Responsible Person (if different from lead author)	

CONSULTATION AND DISTRIBUTION RECORD	
Contributing Author / Authors	A Bruce & E Jarvie
Consultation Process / Stakeholders:	
Distribution	

Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027



CHANGE RECORD			
Date	Lead Author	Change	Version No.
		<i>e.g. Review, revise and update of policy in line with contemporary professional structures and practice</i>	1
			2
			3
			4
			5

Lead Author	A Bruce & E Jarvie	Date approved	April 2024
Version	1	Review Date	April 2027